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PROCEEDINGS

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BRIEF CONTENTS

FOREWORD

Dear Colleagues,

We are delighted to welcome you to the International Conference on Education and New Developments 2016 - END 2016, taking place in Ljubljana, Slovenia, from 12 to 14 of June.

Education, in our contemporary world, is a right since we are born. Every experience has a formative effect on the constitution of the human being, in the way one thinks, feels and acts. One of the most important contributions resides in what and how we learn through the improvement of educational processes, both in formal and informal settings. Our International Conference seeks to provide some answers and explore the processes, actions, challenges and outcomes of learning, teaching and human development. Our goal is to offer a worldwide connection between teachers, students, researchers and lecturers, from a wide range of academic fields, interested in exploring and giving their contribution in educational issues. We take pride in having been able to connect and bring together academics, scholars, practitioners and others interested in a field that is fertile in new perspectives, ideas and knowledge. We counted on an extensive variety of contributors and presenters, which can supplement our view of the human essence and behavior, showing the impact of their different personal, academic and cultural experiences. This is, certainly, one of the reasons we have many nationalities and cultures represented, inspiring multi-disciplinary collaborative links, fomenting intellectual encounter and development.

END 2016 received 489 submissions, from 53 different countries, reviewed by a double-blind process. Submissions were prepared to take form of Oral Presentations, Posters, Virtual Presentations and Workshops. It was accepted for presentation in the conference, 133 submissions (27% acceptance rate). The conference also includes a keynote presentation from an internationally distinguished researcher, Professor Dr. Mojca Juriševič, Associate Professor of Educational Psychology, Faculty of Education, University of Ljubljana, Slovenia, to whom we express our most gratitude. Also, we give a special thanks to Professor Emerita Nina K. Buchanan, PhD, University of Hawaii, USA and Professor Emeritus Robert A. Fox, PhD, University of Hawaii, USA for the special talk entitled *"The Search for New Educational Forms in the United States and its International Implications"*.

This volume is composed by the proceedings of the International Conference on Education and New Developments (END 2016), organized by the World Institute for Advanced Research and Science (W.I.A.R.S.) and had the help of our respected co-sponsor and media partner that we reference in the dedicated page. This conference addressed different categories inside the Education area and papers are expected to fit broadly into one of the named themes and sub-themes. To develop the conference program we have chosen four main broad-ranging categories, which also covers different interest areas:

• In **TEACHERS AND STUDENTS**: Teachers and Staff training and education; Educational quality and standards; *Curriculum* and Pedagogy; Vocational education and Counseling; Ubiquitous and lifelong learning; Training programs and professional guidance; Teaching and learning relationship; Student affairs (learning, experiences and diversity; Extra-curricular activities; Assessment and measurements in Education.

• In **PROJECTS AND TRENDS**: Pedagogic innovations; Challenges and transformations in Education; Technology in teaching and learning; Distance Education and eLearning; Global and sustainable developments for Education; New learning and teaching models; Multicultural and (inter)cultural communications; Inclusive and Special Education; Rural and indigenous Education; Educational projects.

• In **TEACHING AND LEARNING**: Educational foundations; Research and development methodologies; Early childhood and Primary Education; Secondary Education; Higher Education; Science and technology Education; Literacy, languages and Linguistics (TESL/TEFL); Health Education; Religious Education; Sports Education.

• In **ORGANIZATIONAL ISSUES**: Educational policy and leadership; Human Resources development; Educational environment; Business, Administration, and Management in Education; Economics in Education; Institutional accreditations and rankings; International Education and Exchange programs; Equity, social justice and social change; Ethics and values; Organizational learning and change, Corporate Education.

The proceedings contain the results of the research and developments conducted by authors who focused on what they are passionate about: to promote growth in research methods intimately related to teaching, learning and applications in Education nowadays. It includes an extensive variety of contributors and presenters, who will extend our view in exploring and giving their contribution in educational issues, by sharing with us their different personal, academic and cultural experiences.

Authors will be invited to publish extended contributions for a book to be published by inScience Press.

We would like to express thanks to all the authors and participants, the members of the academic scientific committee, our co-sponsor and media partner and, of course, to our organizing and administration team for making and putting this conference together.

Hoping to continue the collaboration in the future,

Respectfully,

Mafalda Carmo
World Institute for Advanced Research and Science (WIARS), Portugal
Conference and Program Chair

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KEYNOTE LECTURE

CUTTING-EDGE RESEARCH ON MOTIVATION TO LEARN

Prof. Dr. Mojca Juriševič
Associate Professor of Educational Psychology, Faculty of Education, University of Ljubljana (Slovenia)

Abstract

Scholars have long recognized the core role of motivation in supporting students' learning, and numerous empirical studies have evidenced the effect of motivation on the teaching and learning process. Despite the importance of the construct, researchers still differ in their understanding of its nature and nurture, probably due to the adoption of diverse theoretical paradigms and methodological approaches, as well as to existing gaps between professional considerations, on the one hand, and the reality of everyday school life influenced by the broader sociocultural context, on the other.

For the purpose of this presentation, we define motivation within a general cognitive framework as a psychological process manifested by various motivational components and patterns that instigate and sustain goal-directed learning activities, and thus reciprocally relate to learning and performance. Keeping the research in mind, we will address some of the main principles that guide contemporary research and practice related to motivation, e.g., the interplay between intrinsic and extrinsic motivation, the balance between the underlying motivation goals, and the power of teachers' formative feedback in cultivating the motivation to learn. In explaining the basic motivational dynamics, we will use selected case studies and findings from empirical research, specifically related to the motivational structure of high-achieving students.

Finally, central to the talk is an attempt to provide evidence-based reflection on current motivation-related dilemmas from the scientific perspective, and to examine the role of motivation in systematic empirical work, e.g., individual differences in motivation, development of mindsets, the role of praise and feedback, students' lack of motivation, and assessment of motivation.

Brief Biography

Mojca Juriševič is Associate Professor of Educational Psychology at the University of Ljubljana, Faculty of Education. Her research interests span the fields of learning and teaching with studies focusing on topics such as motivation to learn, self-concept, creativity, gifted education, portfolio development, mentoring, and teacher professional development. She has been involved in many research projects and she has published books, chapters and papers in both national and international peer-reviewed periodicals. She is the Head of the Centre for Research and Promotion of Giftedness at the Faculty of Education University of Ljubljana. She is a member of different scientific and professional organizations on national and international level and she serves as the Chair of the division "Psychologists in Education" of the Slovenian Psychologists' Association. She is also an affiliated member of the American Psychological Association.

SPECIAL TALK

THE SEARCH FOR NEW EDUCATIONAL FORMS IN THE UNITED STATES AND ITS INTERNATIONAL IMPLICATIONS

Nina K. Buchanan, PhD & Robert A. Fox, PhD
Professors Emeriti, University of Hawaii (USA)

Abstract

In the three decades since the publication of "A Nation at Risk" in the U.S., a national reassessment of the educational enterprise has taken place (National Commission on Excellence in Education, 1983). The issues of the effects of poverty, of cultural responsiveness and of racial equity have become a central part of the education discussion (U.S. DOE, 2004; Banks, 2005; U.S. DOE, 2013 and many, many more). Criticism of student performance, assessment of the causes of its not being better, or proposals for its improvement are rampant in both the popular press (Bidwell, 2013; Chappell, 2013; Ryan, 2013) and educational research (Institute for Education Sciences, 2008; Reardon, 2011). With rising doubts concerning the ability of traditional public school effectively to educate America's children, many policy makers and educators cite school choice as one of the promising reform strategies to improve k-12 education.

In the Handbook of School Choice (in preparation) six forms of U.S. school choice are cited: vouchers, charter schools, virtual schools, home schools, private schools, and magnet schools. In this proposed Session, we describe each of these forms of school choice and the research evidence these forms have generated. In each case, we compare arguments made both by supporters and opponents and give examples from the U.S. experience. We also briefly describe international variations on each form of school choice.

Keywords: S*chool choice, educational policy, comparative international education.*

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Brief Biography

Nina K. Buchanan is Professor Emerita at the University of Hawaii Hilo. She began her professionaljourney on the Montana prairie as a teacher in a one-room schoolhouse where her 11 students taught her the value of psychology and development on learning. Since then her addiction to learning and teaching has led her from Montana to Indiana to California to earn her Ph.D. in Educational Psychology with emphasis in gifted education and cognitive psychology. In addition to teaching students in grades kindergarten through graduate school, Nina is a founder of the West Hawaii Explorations Academy Public Charter School, Hawaii's first chartered high school that has been recognized as a Blue Ribbon School of Excellence and Intel-Scholastic School of Distinction for achievement in science education. Dr. Buchanan has published widely in gifted education, project-based learning and national and international school choice. She is known throughout the state of Hawaii for her service on the first independent authorizing agency, Charter School Review Panel, and for her leadership roles on several different charter school governing boards. At the national level, she in an emerita member of the American Educational Research Association (AERA), active for over 20 years as a founder of both the Research on Giftedness and Talent and the Charter School Research and Evaluation SIGs. She also serves on the advisory board for the Gifted Education Resource Institute in the School of Education of Purdue University. Throughout her career, she has been and active reviewer of proposals for AERA and US Department of Education grants such as the Charter School Program. She was a contributing editor of Roeper Review and is currently a senior editor of the Journal of School Choice. For the past three years Dr. Buchanan has served as Program Chair for the International School Choice & Reform Academic Conference.

Robert A. Fox is Professor Emeritus of Physics at the University of Hawaii Hilo. He retired after havingserved as Chair of the Department of Physics and Astronomy and Deputy Director of the Pacific International Space Center for Exploration Systems. During that portion of his career, he co-authored 39 papers and presentations on lunar sustainable habitats, atmospheric neutrinos, positron decay, and laser interactions. In addition to his work in physics, Dr. Fox has served as an educational leader and policy maker as an elected member of the Hawaii State Board of Education, responsible for 185,000 students in approximately 200 schools with an annual budget exceeding 2 billion dollars; an ex officio member of the Board of Directors of the National Education Association; Chair of the NEA Higher Education Caucus; Vice Chair of the American Association of University Professors' Collective Bargaining Congress; and President of the University of Hawaii Professional Assembly. More recently Dr. Fox has taken active leadership roles in the American Education Research Association School Choice and Charter School Research & Evaluation Special Interest Groups (SIG). Under his leadership the SIGs have jointly formed the Charter Schools & School Choice SIG. He also has been instrumental in creating the International School Choice & Reform Academic Conference and served as Chair for the past three years. Dr. Fox is a Senior Editor of the *Journal of School Choice* and has been guest editor of the special issue on *School Choice and the Law* and co-Editor of two special sections on the 2013 and 2014 Conferences. His wide research interests include collective bargaining in charter schools, state charter school legal issues, and ethnocentric niche charter schools. His most recent book, co-edited with Nina K. Buchanan, is *Proud To Be Different: Ethnocentric Niche Charter Schools,* was published by Rowman and Littlefield in 2014. His work has appeared in *Barack Obama: The Aloha Zen President*, Michael Haas, ed., Praeger, 2011 and in *The Emancipatory Promise of Charter Schools,* Stulberg and Rofes, eds., SUNY Press, 2004. He was an educational book reviewer for the American Library Association. He is the author or co-author of 52 papers and presentations primarily dealing with various aspects of school choice.

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ENGAGING LEARNING ANALYTICS IN MOOCS: THE GOOD, THE BAD, AND THE UGLY

Mohammad Khalil, Behnam Taraghi & Martin Ebner
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Abstract

Learning Analytics is an emerging field in the vast areas of Educational Technology and Technology Enhanced Learning (TEL). It provides tools and techniques that offer researchers the ability to analyze, study, and benchmark institutions, learners and teachers as well as online learning environments such as MOOCs. Massive Open Online Courses (MOOCs) are considered to be a very active and an innovative form of bringing educational content to a broad community. Due to the reasons of being free and accessible to the public, MOOCs attracted a large number of heterogeneous learners who differ in education level, gender, and age. However, there are pressing demands to adjust the quality of the hosted courses, as well as controlling the high dropout ratio and the lack of interaction. With the help of Learning Analytics, it is possible to contain such issues. In this publication, we discuss the principles of engaging Learning Analytics in MOOCs learning environments and review its potential and capabilities (the good), constraints (the bad), and fallacy analytics (the ugly) based on our experience in last year's.

Keywords: *Learning Analytics, MOOCs, pedagogy, potential, dilemma.*

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1. Introduction

Since 2008, Massive Open Online Courses (MOOCs) have shown significance and potentiality to scale education in distance learning environments. The benefits shine when thousands of students can participate in a course that a normal classroom cannot hold. Due to many reasons of being free, available to the public and require no predefined level of participation, MOOCs attracted a large number of learners from all over the world regardless their educational background, gender or age. Institutions of Higher Education (HE) start to think seriously of adopting MOOCs and make use of Open Educational Resources (OER) principles. Comparatively, famous MOOC-platform such as Coursera was established by Stanford University, and edX by the Massachusetts Institute of Technology and Harvard. Both platforms provide various courses to university students. Besides, MOOCs are not only preserved to university and college participants, but also for primary school children, such as courses provided by the Austrian MOOC provider, iMooX (www.imoox.at).

Typically, MOOCs are based on video lectures, multiple-choice quizzes or peer-review assessments, discussion forums and documents (Khalil & Ebner, 2016c; Lackner, Ebner & Khalil, 2015). Lessons are delivered on a weekly basis, and students commit to attend during the week. Additionally, students can solve assignments and then share and discuss their views in forums or social media networks. Further, teachers post questions and can communicate with students toward creating a domain of presence (Khalil & Ebner, 2013). Nevertheless, frequent studies and reports complain about the low completion rate, lack of interaction (Lackner, Ebner & Khalil, 2015), keeping the learners motivated, engagement issues, and last but not least cheating and gaming the MOOC systems (Khalil & Ebner, 2015a; Khalil, Kastl & Ebner, 2016). As a result, mining student actions on distance learning environments makes the job easier for educationists and researchers to maintain learner behaviors and explain such concerns.

An inclusion and exploration of the term “Big Data” in the education field emerged recently. Two main research communities oriented with respect to discovering new meaning of educational datasets activities: the Educational Data Mining and the Learning Analytics communities (Papamitsiou & Economides, 2014). In this paper, the focus will be mainly on Learning Analytics. We will discuss the potential and capabilities as well as the constraints and the negative sides of the field with strong focus on MOOCs. These criteria are established based on our experience in the last couple of years of implementing Learning Analytics prototypes and strategies in the Austrian iMooX platform.

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2. Learning analytics potentiality in MOOCs (the good)

Analyzing student data on online environments in order to reveal hidden patterns and discover paradigms of activities is called Learning Analytics. In 2011, the Society for Learning Analytics and Research defines it as "… the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environment in which it occurs". The needs for Learning Analytics emerged to optimize learning and benchmark the learning environments. Khalil and Ebner (2015b, 2016c) discussed the various promises of employing Learning Analytics in MOOCs platforms. Another recent study by Khalil and Ebner (2016b) about surveying Learning Analytics techniques from 2013 to 2015 shows that the combination of Learning Analytics and MOOCs related-topic scored the highest number of citations in Google Scholar (http://scholar.google.com) during that period.

Online distance learning environments such as MOOCs provide a rich source of knowledge mining opportunity. By logging mouse clicks, forums activity, quiz performance, login frequency, time spent on tasks and tracking videos interactivity, Learning Analytics researchers can build an enormous amount of data logs. This database of information, if interpreted appropriately, can help researchers from diverse disciplines of computer science, pedagogy, statistics, and machine learning…etc., to intervene directly toward student success. Benefits of Learning Analytics in MOOCs are limitless. In the following, we list the primary benefits of applying Learning Analytics in MOOCs:

- *Prediction*: One of the most popular objectives performed by both Learning Analytics and Educational Data Mining. Techniques are used to predict when a participant is expected to drop from an online course. This could be done by analyzing a student behavior, exam performance, and video skips. Storing numerous records of previous students' activities based on specific modules help researchers predict the prospective action, such as dropping out of a course or detecting students at-risk. Additionally, Learning Analytics is used in predicting performance and motivation (Edtstadler, Ebner & Ebner, 2015). Further forecasting about video watching on a course and relative activity in discussion forums is feasible to be investigated.
- *Recommendation*: Actions on MOOC platforms can be mined for recommendation purposes. An example is when a MOOC provider recommends learning materials to students based on their previous registered courses. In addition, recommendations can be generated to suggest a student answering a specific question in discussion forums.
- *Visualization*: Through Learning Analytics, tracking previously mentioned actions creates a lot of records. Visualizations can be presented to participants via dashboards. Verbert and her colleagues (2014) discussed that dashboards support awareness, reflection and sense-making. On the other hand, analyzing data through visualizing them into plots supports researchers to reveal patterns (Khalil & Ebner, 2016c) and provides feedback and reflection to MOOC participants at the end.
- *Entertainment*: Gaming tools were considered as a Learning Analytics technique in Khalil and Ebner (2016b) work. The survey illustrates how gamification makes learning in MOOCs more entertaining which results in an increased motivation and completion rate among students. Such tools can be badges (Wüster & Ebner, 2016), reward points, progress bars or colorful gauges.
- *Benchmarking*: Benchmarking is a learning process which evaluating courses, videos, assignments, and MOOC platforms are attainable using Learning Analytics. Hence, we can identify learning difficulties as well as weak points in the online courses or stalling segments in video lectures. Accordingly, constructive feedback is generated which concludes into an enhanced educational system.
- *Personalization*: Learners can shape their personal experience in a MOOC. Developers through different types of Learning Analytics techniques (Khalil & Ebner, 2016b) can build a set of personalized items in the MOOC platform. For example, a student can favorite a part of a video or bookmark an article or a document. Further, (s)he can customize notifications and add annotations in videos.
- *Enhance Engagement*: Engagement has recently been an attracting topic in MOOCs. Employing Learning Analytics through data mining techniques such as clustering was used in (Kizilcec, Piech & Schneider, 2013; Khalil, Kastl & Ebner, 2016). Expected results are grouping participants into a subpopulation of students or classifying interactions in videos, assignments and quizzes for reasons of future interventions in MOOC designs or studying the needs of the students' catalogue.
- *Communication Information*: Learning Analytics involves collecting data from sources and processes them. It is further used to report information in a form of statistical analysis to different MOOC stakeholders. Similar to web analytics, students can check their activities and review general statistics using dashboards, for example. In addition, teachers and decision makers can build an overview about MOOC using descriptive statistics.
- *Cost Saving*: Since Learning Analytics provides tools of data analysis, it opens the doors for a broad examination services which makes it possible to determine weak sections of a MOOC. Therefore, decision makers can allocate resources effectively.

3. The negative side of learning analytics in MOOCs (the bad)

Despite the fact that Learning Analytics achieves several benefits when it is applied to education data stream, rising constraints have been identified lately (Papamitsiou & Economides, 2014; Khalil & Ebner, 2015b). The large-scale of data collection and processes drives Learning Analytics to questions related to privacy and ethical issues. An atmosphere of uncertainty among practitioners of Learning Analytics as well as decision makers decelerates its steep growth (Drachsler & Greller, 2016). Through our experience, we encourage educational organizations to adopt the security model CIA, which stands for Confidentiality, Integrity, and Availability. In this section, we list major concerns of implementing Learning Analytics in MOOC platforms:

- *Security:* The stored records of students in databases that belong to Learning Analytics applications represent the heart of their private information. Thus, maintaining database configuration is not always considered by organizations. As a result, breaches of confidential information are possible to happen.
- *Privacy:* Learning Analytics can reveal personal information of learners. MOOC datasets may hold sensitive information such as emails, names or addresses. Privacy has been considered as a threat in Learning Analytics (Papamitsiou & Economides, 2014) and as a constraint (Khalil & Ebner, 2015b). Different solutions can be proposed such as anonymization approach (Khalil & Ebner, 2016a), encryption, or increasing restrictions.
- *Ownership:* Questions related to "who owns the analyzed data of MOOCs" can emerge anytime. Participants like to keep their information confidential, but at the same time, consent policy is essential to ensure transparency. Further, MOOC providers are encouraged to delete or de-identify personal information of their participants.
- *Consent:* Related to ownership of data. Not every MOOC provider clearly declares the usage of students' data. Policies with legislation frameworks should include rules of a collection of personal information and a description of information usage, such as research purposes or third party information selling.
- *Transparency:* Secret processes can hide unfair decision making when analytics is applied on educational datasets (Sclater, 2014). By the same token, when Learning Analytics is applied on MOOCs, providers need to disclose their approach to collecting, analyzing and using of participants' data. At the same time, a point of balance should be made when the Learning Analytics algorithms or tools are proprietary. Sclater argued different code of practices regarding transparency.
- *Storage:* As long as MOOCs are open to the public, a single course can attract thousands of students. Storing big data could be costly, overloaded, and complex as well as hard to manage. Furthermore, according to the European Directive 95/46/EC[1], personal data needs to be stored no longer than necessary.

4. The dark side of learning analytics in MOOCs (the ugly)

Looking for the quality of data is an important factor in Learning Analytics. However, when data records have incomplete segments or polluted information, then Learning Analytics is negatively affected. Moreover, getting a holistic overview of students in online courses cannot only be harvested through their left traces on MOOCs. Are there any guarantees of the Learning Analytics results? What about the accuracy? In this section, we summarize some of the worst-case results that Learning Analytics can produce by employing it in MOOCs.

- *False Positives:* Making decisions, either by analysts or directors, based on a small subset of data could lead to fast judgments and hence trigger "false positives". Consequently, the accuracy of any forthcoming decision in a MOOC system will be influenced. For instance, if a group of students were "gaming the system" and an analyst builds a prediction model for all students based on MOOC indicators fulfillment, then a false positive action is triggered. As a matter of fact, Learning Analytics is not only based on numbers and statistics. Judgments and opinions of researchers play a major role. We always see flounce on MOOCs discussion forums activity and its correlation with performance. Some researchers approved that more social activity in forums is reflected positively on performance while others go against this theory. In the light of that, Learning Analytics is not always accurate.
- *Fallacy Analytics:* Analytics could fail and thus, mistaken interventions or predictions occur. Failures could happen during the main processes of Learning Analytics cycle. Wrong actions in collecting data from MOOCs, errors in processing or filtering and mistaken interpretation of data are possible scenarios of fallacy analytics. Additionally, presenting the results through visualizations might also be within the same page. Visualizations are a great way to report information, but playing with scales or

[1]http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31995L0046:en:HTML (last visited: March, 2016)

using 3D figures might be tricky to the end user (student, teacher, decision maker). Fallacy analytics may be accidental and not intentional; however, using interpreted data based on fallacy analytics can be dangerous to different stakeholders and uneconomical to the MOOC business. Fallacy analytics through misuse of statistics as a method of Learning Analytics corrupts and pollutes research records as well as wastes the time and energy of other researchers (Gardenier & Resnik, 2002).

- *Bias:* Learning Analytics can show significant results of prediction and recommendation. It can also prove hypotheses such as the relation between activity in discussion forums and performance or watching videos and passing MOOCs. Collected data "could feel" that, but this actually returns to the intention desire of the researcher or decision maker. The bias towards a certain hypothesis and the inner determination of proving a theory of students' data leads to biased Learning Analytics.
- *Meaningful data:* Papamitsiou and Economides (2014) mentioned that Learning Analytics mostly uses quantitative research results. Qualitative methods have not yet shown significant results. Learning Analytics can be ineffective and waste of efforts if meaningful data is hard to extract. Dringus (2012) argued two main points regarding meaningful data in Learning Analytics: 1) if the data collected has no impact on improving or changing education. 2) if the data has no meaningful evidence such as lack of clarity about what to measure to get meaningful information.

5. Conclusion

Learning Analytics provides various tools and to optimize learning. In this paper, we reviewed the principles of engaging Learning Analytics in Massive Open Online Courses (MOOCs). We discussed the capabilities (the good), the dilemmas (the bad) and the out of the bound situations (the ugly).

Figure 1. The advantages and disadvantages of Learning Analytics in MOOCs

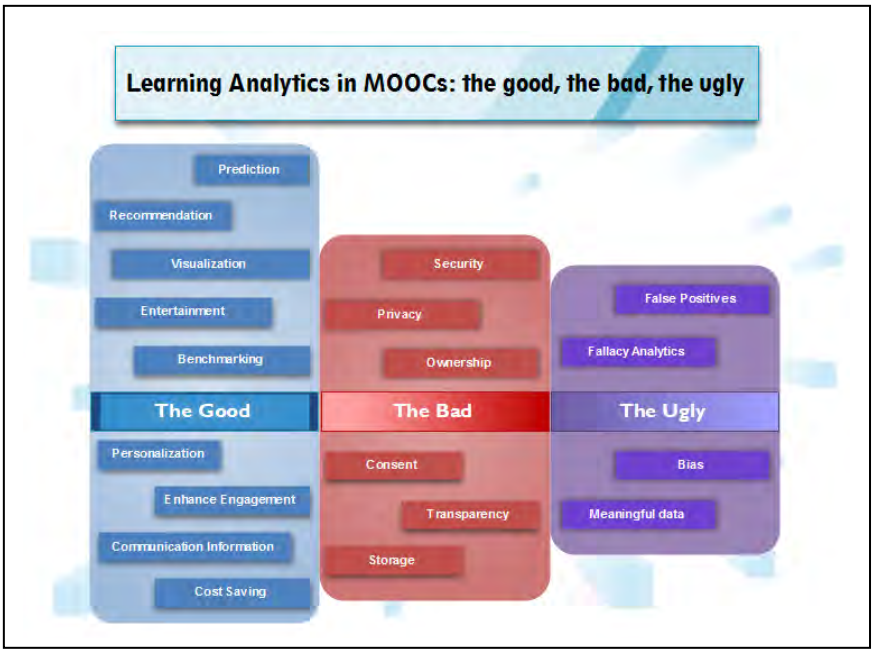

Figure 1 summarizes our results. Generally speaking, MOOCs and Learning Analytics imply high potentiality. Nevertheless, a code of practice should be considered by all stakeholders in order to carry out the optimum outcomes.

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USING TECHNOLOGY-ASSISTED LEARNING TO TRANSFORM EMPLOYEE DEVELOPMENT

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Abstract

The significance of e-learning and knowledge management in the workplace cannot be overstated. In today's technology-driven working environments the accelerated pace of change is a constant, and organizations are pressed to rapidly train and retrain workers in new technologies, products, and services with increasingly limited timelines and resources. The constant and unrelenting need to manage the organizational knowledge base to keep it current and readily accessible to all stakeholders in the work environment is an additional factor driving the need for just-in-time training and retraining of the workforce at all levels.

Forward thinking employers have recognized e-learning as more productive from both the employers' and the employees' perspectives. They acknowledge that e-learning increases the possibilities for how, where, and when employees can engage in training. Some organizations have been slower to adapt to e-learning as a training option because of costs, technical limitations, and lack of understanding its fundamental advantages. These factors have become less inhibiting as costs of e-learning implementation have steadily decreased and the required technical expertise has been aided by newer, more user friendly e-learning formats and programs.

This paper addresses the significant impact that e-learning is having on workplace education by demonstrating how traditional classroom training is gradually being replaced by mediated instruction. It shows the advantages that e-learning has realized over traditional classroom education and how e-learning formats are becoming increasingly prevalent as the preferred method of continuing professional education in the workplace. Examples of successful e-learning courses will be highlighted providing a design model of how to construct effective e-learning for workforce education. Additionally, program evaluation data presented will further describe how the change from the traditional classroom model to a mediated delivery model has had a positive impact on employer and employee needs as it relates to training and workplace education.

Keywords: *e-learning, distance education, mediated instruction, workplace education, training.*

1. Introduction

In today's technology-driven work environments change is a constant, and organizations are pressed to train and retrain workers in new technologies, products, and services with increasingly limited time and resources. An additional factor driving rapid-response, just-in-time training and retraining is the need for organizations to maintain currency of and accessibility to their knowledge bases for all stakeholders in the work environment 24/7.

2. Migration to e-learning in the U.S. corporate workplace

In the U.S. in the early 2000's training by e-learning rapidly expanded as forward-thinking employers discovered technology-assisted training to be an efficient means to meeting their needs. These employers quickly became aware of barriers ─ high cost of developing and purchasing e-learning, lack of time available for employees to participate, and appropriateness of available content. They innovated solutions to the barriers, such as building learning cultures, testing and piloting limited implementations before scaling, communicating value across organizations, and integrating content into their knowledge management systems (Guthrie, 2002).

Employers eventually began to realize the benefits of e-learning: increased options for where, when, and how employees engage in training, expanded employee access to learning, and cost savings. For example, IBM reported saving over $200 million in 1999 by converting to e-learning, and Ernst and

Young reported reducing costs by 35 percent while improving scalability and consistency (Strother, 2002). Forester Research found that companies spread across many locations could make a good business decision by implementing an online learning program to replace face-to-face learning, and for compliance training, desktop skills development, and leadership training, online learning was more flexible, consistent, and repeatable with minimal travel costs (Forster Research, 2009). Further, Forester's findings showed a 69% ROI for these approaches to employee learning (Forester Research, 2009). These studies reveal compelling reasons to turn to e-learning.

As a result of the successes, e-learning continued to grow in U.S. corporations and rapidly gained momentum as a favored choice for employees and employers alike. The Association for Talent Development's (ATD) *2015 State of the Industry Report* found that technology-based training accounted for over 41% of all workplace training offered by organizations in the U.S. (Miller, 2015).

3. E-learning in the government workplace

At the same time in the U.S, efficient and cost-effective training approaches were needed in the public sector and for similar reasons: increasing demand on and expectations for governments to provide more and better services, introduction and rapid pace of technology in government, and financial constraints. Therefore, governments at the local, state, and national levels followed the corporate lead and turned to online learning as a solution for workplace training. Similar benefits to those experienced by the private sector made e-learning attractive to government: convenience, standardization of content, self-service delivery, and cost savings. In a knowledge and information society, e-learning has potential to transform how and when employees learn as well as how they effectively transfer learning to performance. Studies conducted by the U.S. Department of Education (2010) and U.S. Army Research Institute for Behavioral and Social Sciences (Sitzmann, Kraiger, Stewart, and Wisher, 2006) demonstrated that, when compared to classroom delivery, online learning was also more likely to meet instructional objectives and lead to desired learning outcomes.

A case illustrating the migration in the public sector is found in the State of New York. New York's government is a large and complex bureaucracy employing over 159,000 workers who manage the business of the state over some 69 different agencies. This workforce is a diverse blend of education levels, ethnicities, and rural, suburban, and urban populations. Training this workforce to carry out the wide range of duties needed to perform their jobs had been complex, challenging, and inconsistent, historically. Therefore, in 2013 when the state embarked on a reorganization to achieve efficiencies, it introduced consolidations of common functions (New York State Sage Commission, 2013). This reorganization created a condition prime for alternative methods of training to achieve consistency in content and quality as the workforce needed to quickly perform in the new structure.

4. The university as expert e-learning resource for government

As early as 1998 the university-based continuing professional education program, the Professional Development Program (PDP), Rockefeller College, University at Albany, State University of New York, had begun developing e-learning programs tailored directly to state agency needs. PDP was challenged to get buy-in – they needed to demonstrate that e-learning could be engaging and effective. A project in 2001 gave the opportunity. At the request of the State of Vermont, PDP converted classroom training for food stamp eligibility workers into online delivery. Implementation was so effective that within a single year Vermont went from having one of the highest error rates in the nation to one of the lowest. This proof of concept led to NYS agencies' seeking online training in collaboration with PDP. PDP's curriculum designers authored several interactive e-learning courses, including a series of training modules for the New York State Department of Health's Tobacco Control Program in 2005.

Logically, in 2013 when the NYS government entity responsible for implementing the 2013 reform efforts needed a partner, they turned to PDP to meet the workforce training need. A proposal resulted for PDP to develop current, just-in-time courses for supervisory training and six other cross-functional courses with consistent messaging and information to be delivered across the entire state workforce. The six courses were: (1) Equal Employment Opportunities, (2) Sexual Harassment, (3) Providing Reasonable Workplace Accommodations, (4) Performance Appraisal, (5) Attendance and Leave Benefits, and (6) Knowledge Management.

5. Standards and design strategy for e-learning courses for government training

From its early exploration PDP had addressed the need for e-learning to be more interactive and of consistent quality. They established standards that were accepted by sponsors and the university

academicians. In 2012 PDP published the guidelines for best practices in e-learning in its publication, *Standards Guide for E-Learning 2012*.

The guidelines draw upon design principles for multimedia instruction established through research as integral to success: interactivity, coherence, modality, signaling, personalization, and redundancy. The guidelines also draw on the expertise that PDP acquired through its work with government agencies. The guidelines provide standards for authoring well-constructed, user-friendly courses that ensure learners complete a course without experiencing frustration and navigation problems and apply to all courses that PDP develops across a range of content areas.

The design strategy that PDP followed evolved from the Instructional Systems Design (ISD) model in performance-based training (Clark, 2006). The strategy itemized the goals and objectives at the outset, outlines the instructional approach, and provides a basic content outline. The sample course map in Table 1 illustrates this process for a sample course.

Table 1. Course overview

This course is the first in a planned series on supervision that provides supervisors with an overview of key job responsibilities and resources available to them to help improve job performance.	
Target audience:	This course is a mandated training for all NYS employees.
Course structure:	This course consists of three topics focusing on the definition of sexual harassment, what behaviors constitute sexual harassment under New York State law, and individual, supervisory, and agency responsibilities for responding when an incident of sexual harassment is discovered.
Course outcomes:	This course provides learners with a clear understanding of their rights and responsibilities regarding sexual harassment in the workplace. The anticipated outcome is that sexual harassment in state agencies will be reduced because learners will better understand which actions and behaviors constitute sexual harassment.
Course objectives: *After completing this course, learners will be able to:*	Explain how sexual harassment is a form of employment discrimination. Differentiate between appropriate and inappropriate workplace behavior. · Respond appropriately to sexual harassment they experience or witness in the workplace.

Easy-to-navigate media integration is a key factor for on-line learning success. A course uses images to illustrate activities and to represent terminology and topic icons. Figure 1 illustrates a course home page. This page provides access to each of the topics and resources within the course. All key points are graphically reinforced by the use of interaction icons and scenario-based activities that engage the learner. The media treatment repeats for all course offerings.

Figure 1. Course home page

6. Effectiveness of online learning

Evaluation of online delivery continues to evolve as technology-assisted learning evolves. The report *Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and* Review *of Online Learning Studies* (U.S. Department of Education, 2010) differed from prior studies of distance learning in that only web-based learning was included. 45 studies were analyzed across 50 effect sizes. It was found that, on average, students learning online perform modestly better than those receiving face-to-face instruction. Similarly, in a meta-analysis of job-related courses conducted by web-based instruction was found to be somewhat more effective (6%) in teaching declarative knowledge than classroom instruction and equally effective in teaching procedural knowledge (Sitzmann et al., 2006). These classroom and online learners reported equal satisfaction with their instructional experiences.

Learners who self-selected online learning had better outcomes than learners who were randomly assigned. This is likely a consequence of level of comfort with technology and individual learning style.

A helpful approach to evaluating online learning programs is to measure learning effectiveness (cognitive), learner satisfaction (affective) outcomes and skill based outcomes (Wan, Compeau, and Haggerty, 2014). The focus of these measurements should be on how to improve courses that in the long run will make a better experience for learners.

Online learning has demonstrated that if used correctly it provides benefits for both learners and employers. Advantages of online learning include consistent delivery of training to all participants, ability to offer just in time training to meet workforce needs and ability to deliver content in a manner that reduces information overload (Guthrie, 2002).

7. Evaluation of New York State's e-learning initiative

Evaluation of the effectiveness of New York State's e-learning courses for the 2013 initiative indicated outcomes similar to national research findings. Using the course evaluation instruments mandated for state employees, PDP achieved results consistent with the national findings: increased understanding of subject matter and favorable response to online instructional methods.

The data verifies that the majority of participants effectively understood the material and the varied instructional approaches were considered an effective way to present material. Tables 2 and 3 illustrate: Table 2 reports that learners were able to understand the content; Table 3 refers to satisfaction with the instructional methods, such as games, quizzes and case studies.

Table 2. Impact of instruction

The course increased my understanding of sexual harassment in the workplace and New York State's policies prohibiting such behavior.

Times presented	57626	Times answered	56682	Min weight	0
Max weight	5	Mean weight	3.86	Median weight	4

Outcome	%	#
Strongly Disagree (1)	3.34%	1927
Disagree (2)	3.11%	1794
Neutral (3)	19.18%	11055
Agree (4)	50.57%	29139
Strongly Agree (5)	22.15%	12767
Not answered	1.64%	944
Total	100%	57626

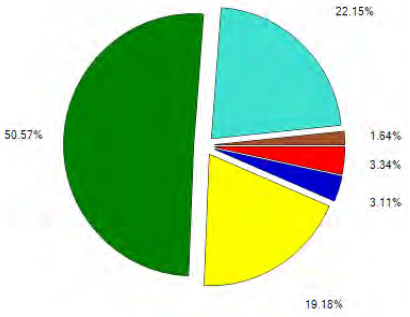
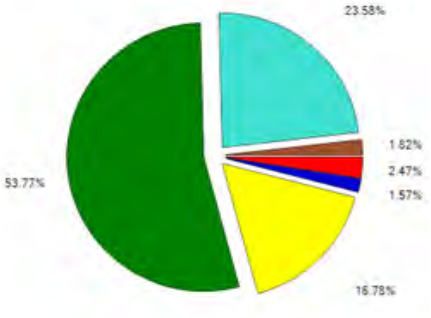


Table 3. Methods of instruction

The instructional methods (e.g., exercises, case studies, screen text, review questions, etc.) helped me understand the content.

Times presented	57626	Times answered	56577	Min weight	0
Max weight	5	Mean weight	3.96	Median weight	4

Outcome	%	#
Strongly Disagree (1)	2.47%	1422
Disagree (2)	1.57%	906
Neutral (3)	16.78%	9672
Agree (4)	53.77%	30987
Strongly Agree (5)	23.58%	13590
Not answered	1.82%	1049
Total	100%	57626



8. Conclusion

The 2013 New York State project demonstrates that implementing evidenced based e-learning principles can produce the desired outcomes, and the proof of concept was achieved. The technology-based e-learning program validated that in a government work environment e-learning can be an effective instructional strategy for developing the knowledge, skills, and aptitudes workers need in their state agency positions to ensure the information and behaviors required to effectively carry out job duties and responsibilities in a uniform and consistent manner are achieved.

Other research studies done in the private sector have found similar results (Freifeld, 2014). In case studies of Economical Insurance, Jiffy Lube, San Diego Zoo, and Greyhound Lines Inc. found scalable training reduced cost, increased return on investment, resulting in higher retention rates by trainees, and delivered consistent content (Freifeld, 2014).

These studies further support the principles that effective e-learning must consist of the following elements: sustainability, usefulness, and potential to return benefits to organizations as well as learners. To achieve these in an online learning format depends largely on how a course is designed, delivered, and ultimately evaluated. This state program validates these presumptions and acts as a guide to successfully transition a course or program from traditional classroom to an e-learning delivery format. This model also illustrates the way in which a strong collaborative working relationship between higher education and state government will achieve desired outcomes.

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TEACHING OF ADVANCED COMPUTER GRAPHICS WITH THREE.JS

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Abstract

Computer graphics is one of the major modules in computer science. Its contents involve mathematical transformations, lighting, shading, texture mapping, modeling, rendering and visualization. While various programming languages, such as OpenGL and Java3D, can be adopted for implementation and demonstration, they are challenging for students to follow since they embed all the knowledge in a big package and involve many data structures and methods with varied parameters. This paper investigates how the latest open source software packages such as Three.js can help the delivery of the module in an easy to understand and follow way. Three.js encapsulates the rendering process, provides many basic functions for such tasks as lighting, shading, texture mapping, and simple object modeling and organization. It also possesses an extremely attractive advantage over the existing 3D programming languages that it can run on currently main stream web browsers. So, the students can test their code on any of the major web browsers and purely focus on the key part for the development of a computer graphics system: object modeling. A comparative study between the traditional and modern technologies is carried out over four classes whose sizes varied from 40 to 20 over the past four years. The performance of the class is measured in several ways: the average marks of the class, feedback from students and external examiners, and the comments from the examination boards. The comparative study shows that the average mark of the class over the assignment has been significantly improved from 60.66% in 2012-2013 to 78.44% this year. These results clearly show that the latest technologies do help students to effectively learn, and thus we should embrace the latest technologies for the teaching of the advanced computer graphics modules. This finding will be encouraging to those who are hesitating whether to adopt the latest technologies for the teaching of the advanced computer science and other modules.

Keywords: *Computer graphics, open source software package, latest technologies, module assessment, effective learning and teaching.*

1. Introduction

Computer Graphics is a typical computer science module. Its teaching is challenging since it usually involves heavily mathematics, object modeling, 3D graphics programming and the development of a graphics user interface. Essentially, a system has to be developed with proper input, transformation, and output. Whether the input has been properly transformed and the environment has been set up appropriately can be easily tested and visualized on the screen. This means that the environment, input, and transformation must all be properly designed. Otherwise, no correct output can be expected.

The high demand for the proper set up, representation, and transformation of all the components in a graphics system means that the system designer must have a very good idea about what s/he is doing and possess comprehensive knowledge behind. The existing 3D graphics programming languages like Java3D (Java3D, 2006) and OpenGL (OpenGL, 2016) are usually complicated and involve a large number of data structures, classes, and methods which are daunting for students and possibly even for staff to learn, grasp and use. In this case, even though the graphics module is interesting and finds numerous applications in the real world, the materials involved still frighten many students away. Fortunately, efforts have been made by various companies, researchers, developers, and practitioners to simplify the 3D graphics programming, with various open source packages developed in the past decade such as WebGL (WebGL, 2016) and Three.js (three.js/docs, n.d.). What is more attractive is that the 3D

graphics applications developed in WebGL and Three.js can run on the commonly used web browsers seamlessly (HTML, 2016).

In this paper, we investigate whether the latest open source 3D graphics libraries like Three.js can help facilitate the teaching and learning of the advanced computer graphics module, involving such topics as: core mathematics, lighting and shading, texture mapping, buffers in WebGL, color and depth, advanced modeling, and ray tracing. The module is delivered in two one-hour lectures followed by a two hours' practical session in each of altogether 10 weeks. In this case, all the demonstration programs and practical sessions will be coded in Three.js. An assignment is set up for 50% assessment of the module on programming and implementation of a system and writing an up to 4 pages' report on, simulating the solar system with three main planets: the sun, the earth and the moon. The assignment is released around 14th October and students hand in their source code and reports around 19th November. While the marking criteria were set up by both the teaching staff, the assignments were always marked by one of them throughout the years.

2. Teaching of the advanced computer graphics module

In this section, we discuss how the module can be taught in an easy to approach manner facilitated by the javascript 3D library Three.js which gives an easy to access to the WebGL. The Three.js package (three.js/docs, n.d.) has the following useful and appealing properties: (i) Three.js is a library that makes WebGL - 3D in the browser - easy to use; (ii) While a simple cube in raw WebGL would turn out hundreds of lines of Javascript and shader code, a Three.js equivalent is only a fraction of that; (iii) Three.js uses the concept of a display list. It means that all objects are stored in the list and then drawn to the screen; and (iv) In Three.js the objects that are being drawn on the screen are called meshes.

2.1. A framework of a computer graphics system

A framework of a computer graphics system can be built below using Three.js (Yadav, 2015) as:

```
<html>
<head>
        <title>My first Three.js app</title>
        <style>
                body { margin: 0; }
                canvas { width: 100%; height: 100% }
        </style>
        <script src="js/three.min.js"></script>
</head>
<body>
        <script>
                // Our Javascript will go here.
        </script>
</body>
</html>
```

This framework can be stored into a file called my3d.html in the current directory, c:\graphics, which can then be run on the commonly used web browsers such as Chrome and Mozilla Firefox: file:///c:/graphics/my3d.html. It is a modified version of the standard html document file (HTML, 2016), starting with a tag of <html> and ending with a tag of </html>. It includes two parts, head and body. The head element is a container of metadata and typically defines the document title, styles, links, scripts, and other metadata. It has a start tag of <head> and an end tag of </head>. The body element defines the document body, has a start tag of <body> and an end tag of </body>. The line "<script src="js/three.min.js"></script>" tells the browser that the minimized version of three.js has been stored in the subdirectory js and will be called in and used for interpreting the subsequent code. Then the 3D contents will be created and inserted into the body of the document.

2.2. Basic content generation

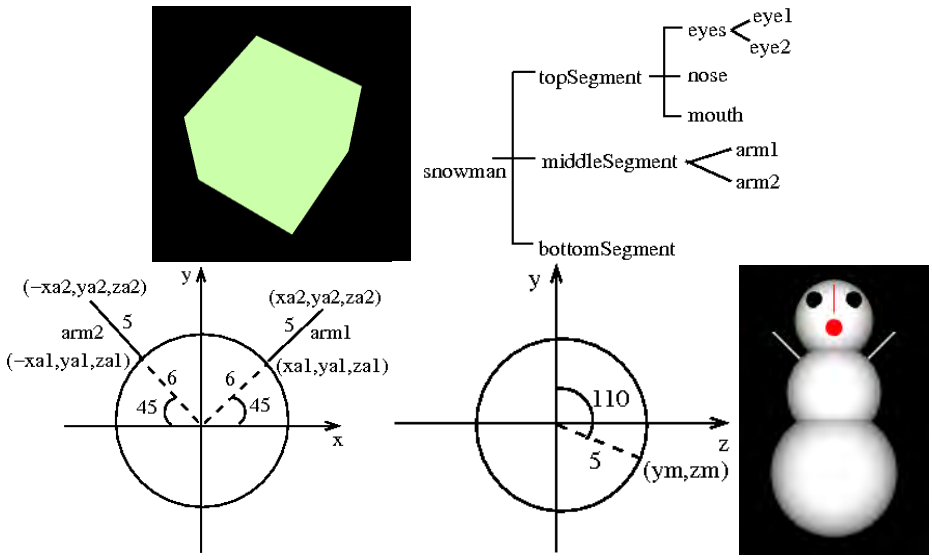
To actually be able to display anything with Three.js, we need three things: a scene, a camera, and a renderer so that we can render the scene with respect to the camera. The renderer can be defined as a variable: var renderer =new THREE.WebGLRenderer({antialias: true}) as a new instance of the class WebGLRenderer, taking the value of "true" for the parameter "antialias": whether the antialias should be implemented to the graphics to be generated. The size of the renderer can be set as: renderer.setSize(width, height) where parameters width and height define the size of the canvas onto which the graphics will be drawn. To make sure that the canvas has the same size as the current viewing

window, these parameters are usually set as: var width = window.innerWidth and var height = window.innerHeight. The rendered document object model (DOM) element domElement should be added into the body of the html document for display: document.body.appendChild(renderer.domElement). A scene is defined and initialized as a variable: var scene = new THREE.Scene() as a new instance of the class THREE.Scene().

While the current scene is empty, we need to create some objects and insert them into the scene for display. In Three.js the objects that are being drawn on the screen are called meshes. Each mesh is defined from two aspects: geometry and material. Geometry is a set of points that need to be connected in order to create an object. Material is simply the paint that will cover the object. Three.js has provided a number of primitive objects that can be directly called for applications. For example, the geometry of a cube can be defined as var cubeGeometry = new THREE.CubeGeometry(1, 1, 1) as a new instance of the class THREE.CubeGeometry with a width, length, and depth all of 1; the material of the cube can be defined as var cubeMaterial = new THREE.MeshBasicMaterial({ color: 0xccffaa }) as a new instance of the class THREE.MeshBasicMaterial where the cube will be rendered as flat polygons using the given diffuse color 0xccffaa in hexadecimal. Finally, the cube is defined as var cube = new THREE.Mesh(cubeGeometry, cubeMaterial) and inserted into the scene as: scene.add(cube).

In order to display the cube, a camera has to be defined relative to which the cube will be rendered and displayed onto the current window. A camera can be defined as a variable: var camera = new THREE.PerspectiveCamera(75, window.innerWidth/window.innerHeight, 0.1, 1000) as the new instance of the class THREE.PerspectiveCamera, simulating how human beings see the real world: the further away an object is, the smaller it appears. This camera has been defined by a number of parameters: a camera frustum vertical field of view from bottom to top of 75 degrees, an aspect ratio window.innerWidth/windown.innerHeight of the width and height of the current window, a camera frustum near plane of 0.1 and a camera frustum far plane of 1000. Note that currently, both the camera and the cube are centred at the original. In order to see the cube properly from the camera, the camera needs to move away a fraction, for example, by 5 units along the z axis as: camera.position.z = 5. In this case, the front size of the cube can be seen along the negative direction of the z axis. In order to see three sides of the cube, we need to rotate the cube along the y axis and x axis respectively by 1 radian, for example, as: cube.rotation.y += 1; cube.rotation.x += 1. Finally, we call the renderer to render the scene relative to the camera and display it onto the current window as: renderer.render(scene, camera). Figure 1 shows the cube generated in the scene.

Figure 1. A cube (top left), the design (top right, bottom left and middle) of a snowman (bottom right) generated with Three.js



From the description above, it can be seen that all the code and operations are based on the meaningful and intuitive classes, methods and parameters without explicit matrices, mathematical transformations and rendering involved. Thus, Three.js is relatively easy to learn, grasp and use.

2.3. Advanced content generation

In this section, we demonstrate the application of Three.js for the generation of advanced contents: a snowman. In order to see the snowman properly, we add the light sources into the scene

to illuminate it for better perception of depth: the ambient light is defined as a variable var ambientLight = new THREE.AmbientLight(0x222222) as a new instance of the class THREE.AbmientLight with a color of 0x222222 in hexadecimal, so that the opposite side will not be completely black and can be seen slightly and add it into the scene as scene.add(ambientLight). The point light is defined as a variable: var light = new THREE.PointLight(0xFFFFFF, 1, 0) where the color of the light is 0xFFFFFF in hexadecimal, the light has an intensity of 1, and will not attenuate linearly from the maximum intensity at the light position from any distance away. To illuminate the snowman properly, we need to move the light source away along the z axis by 400 units, for example, as: light.position.set(0, 0, 400) and insert it into the scene as: scene.add(light).

The snowman can be designed to have three parts (Figure 1): var topSegment, middleSegment, and bottomSegment (Stroia, 2012) and thus is defined as a 3D object as: var snowman=new THREE.Object3D() for the accommodation of the three segments above: snowman.add(topSegment); snowman.add(middleSegment); and snowman.add(bottomSegment). Two arms var arm1 and arm2 are attached to the two sides of the middleSegment symmetrically and var eye1 and eye2 placed at the upper part, var nose at the middle central part, and var mouth at the lower central part of the topSegment. To design the snowman, we have to calculate appropriate positions of these components in geometry and material according to the knowledge and the demand we have. First we define the universal variable whiteMaterial as: var whiteMaterial = new THREE.MeshLambertMaterial({ color:0xFFFFFF }) as a new instance of the class THREE.MeshLambertMaterial with the parameter color taking the value of 0xFFFFFF (white). Lambert material will reflect the incident light equally in all directions so that the viewer will see the same color of the snowman, no matter what position s/he looks from. The bottomSegment is defined as: bottomSegment = new THREE.Mesh(new THREE.SphereGeometry(8, 16, 16), whiteMaterial). It is a sphere with a radius of 8 and approximated with flat polygons: 16 segments horizontally and 16 segments vertically and covered with the whiteMaterial defined above. Note that the bottomSegment is centred at the original (0, 0, 0).

The middleSegment is slightly more complicated (Figure 1. bottom left). So, it is defined as a 3D object again as: middleSegment=new THREE.Object3D(); The actual middle part is defined as: var middlePart = new THREE.Mesh(new THREE.SphereGeometry(6, 16, 16), whiteMaterial).
In order to move the middlePart away from the original, we move it along the y axis by 10 units as: middlePart.translateY(10) and then add it to the middleSegment as: middleSegment.add(middlePart). Both arms can be represented as lines and are symmetric with regards to the y axis. So, we can focus on the design of the right arm. Suppose that the right arm stretches out by 45 degrees from the horizontal line and has a length of 5 units, then its start point will be (xa1,ya1,za1) =(6*0.7, 6*0.7+10, 0) and its end point will be (xa2,ya2,za2)=((5+6)*0.7, (5+6)*0.7+10, 0). The geometry of the right arm is defined as: var arm1Geometry=new THREE.Geometry() as a new instance of the class THREE.Geometry(); then the start and end points will be added into this geometry as: arm1Geometry.vertices.push(new THREE.Vector3(xa1, ya1, za1)) and arm1Geometry.vertices.push(new THREE.Vector3(xa2, ya2, za2)). The material of the right arm is defined as: var armMat=new THREE.LineBasicMaterial({color: 0xffffff, linewidth:15}) as a new instance of the class THREE.LineBasicMaterial with the parameter color taking the value of 0xffffff in hexadecimal and the parameter linewidth taking a value of 15. Finally the right arm is defined as: arm1=new THREE.Line(arm1Geometry, armMat) as a new instance of the class THREE.Line composed of the arm1Geometry and armMat and inserted into the middleSegment as: middleSegment.add(arm1). Similarly, the left arm can be designed through flipping the right arm with regards to the y axis as: var arm2Geometry=new THREE.Geometry(); arm2Geometry.vertices.push(new THREE.Vector3(-xa1, ya1, za1)); and arm2Geometry.vertices.push(new THREE.Vector3(-xa2, ya2, za2)). All the other steps will be the same.

The topSegment will even be more complicated (Figure 1). It is defined again as a 3D object as: topSegment = new THREE.Object3D(); the topPart is defined as var topPart = new THREE.Mesh(new THREE.SphereGeometry(5, 16, 16), whiteMaterial). Then it is moved away from the original by 19 units along the y axis, considering its relative position to the bottomSegment and middleSegment: topPart.translateY(19) and is added into the topSegment as: topSegment.add(topPart); The geometry of the mouth is defined as: var mouthGeom=new THREE.SphereGeometry(1, 32, 32); the material of the mouth is defined as: var mouthMat=new THREE.MeshBasicMaterial({color: 0xff0000, side:THREE.DoubleSide}); which has a red color of 0xff0000 in hexadecimal and where both sides will be rendered. The mouth is finally defined as: var mouth = new THREE.Mesh(mouthGeom, mouthMat). Then the key for the design of the mouth lies in its position: suppose the mouth sphere is centred on the sphere of the topPart and has an angle of 110 degrees with the y axis, then the mouth centre is calculated as: ym=5*cos(110*Math.PI/180), zm= 5*sin(110*Math.PI/180). Finally, the position of the mouth is set as: mouth.position.set(0, 19 + ym, zm). The mouth is finally added into the topSegment as topSegment.add(mouth). The eyes and nose can be designed through following the same procedures. The finally designed snowman is illustrated in Figure 1.

3. The assessment of teaching

In this section, we compare the teaching of the module with different programming languages in different academic years. The syllabus, teaching contents and assignments have been changed slightly over the years due to the feedback from students and external examiners. But the assignments were set up, moderated and marked by the same staff. The assessment of teaching is approached from different aspects: the average marks of the class, feedback from students and external examiners, and the comments from the examination boards.

The average marks of the assignments of the classes in different academic years are presented in Table 1. It shows that the module became more popular from the teaching with Java3D in 2012-2013 and 2013-2014 to the teaching with WebGL in 2014-2015 to the teaching with Three.js this year as the number of students enrolled onto the module has been increased significantly from 16 in 2012-2013 to 39 this year. What is more important is that the average mark of the class has been increased steadily from 60.6% with a higher failure rate of 17.7% in 2012-2013 to 78.4% with a low failure rate of 2.6% this year. Several students developed a perfect system with proper relative positions, movements, textures and shadows among different planets. These results clearly show that the students were well motivated in learning the module and they have grasped the techniques and topics covered in the class very well.

Table 1. The performance of the classs in different academic years

Academic year	#(students)	Average (%)	Std. dev. (%)	Failure rate
2015-2016	39	78.4	17.4	2.6
2014-2015	34	76.7	14.9	2.9
2013-2014	14	67.4	18.8	14.3
2012-2013	16	60.6	20.0	17.7

Some comments from the staff and student consultation committee this year are: “A tough module but taught well, Moves quite fast but students felt that this was OK, and Practical sessions were good but the version of three.js was out of date”. Some comments from students last year are: “Making C++ graphics applications based on libraries and engines (such as UnrealEngine) would've been far more useful, interesting and educational”. The external examiner commented on the module assessment this year: a large amount of computation involved in the answers. The questions are in the right level.” The examination boards welcome the results from the class and accepted them as a whole set.

4. Conclusion

This paper investigates whether and how the latest technologies such as Three.js could be used to facilitate the teaching and learning of the advanced computer graphics module. To this end, we compared this year’s teaching of the module in Three.js with the teaching in Java3d and WebGL in previous years. The comparison shows that Three.js led students to be better motivated with greater achievements in learning the topics and techniques covered. We are excited with the success in adopting the new technologies for the teaching of the computer graphics module. The new technologies do transform teaching and learning processes and outcomes (Kirkwood and Price, 2014). As the modern technologies usually modularize the data structures, methods, functions, and behaviors and encapsulate the commonly used parts without significant changes from one case to another, they are relatively easy to approach, grasp and use. Consequently, we should embrace and employ them for the facilitation of our tasks.

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THE LEARNING PERFORMANCE VECTOR: THEORY-BASED LEARNING ANALYTICS TO PREDICT THE INDIVIDUAL LEARNING HORIZON

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Abstract

Learning Analytics is one of the most promising major trends in educational technology. However, Learning Analytics is very often a rather statistical approach to the understanding of educationally relevant data. Theory-driven approaches are much sparser. In the context of the European Lea's Box project (www.leas-box.eu), we aim at developing methods for analysing data coming from multiple sources on the basis of psychological theories from the area of Intelligent Tutorial Systems, namely Competence-based Knowledge Space Theory (CbKST) and Formal Concept Analysis (FCA). These well-elaborated approaches allow us to identify competencies on an atomic level, to establish structural, multi-dimensional knowledge spaces, and to identify individual learning paths and knowledge gaps. In this paper we introduce an approach to utilize the mentioned theories to predict learning paths, the Learning Performance Vector, and individual limits, the so-called individual learning Horizon.

Keywords: *Learning analytics, competence-based knowledge space theory, formal concept analysis, learning performance vector, learning horizon.*

1. Introduction

Using Learning analytics and educational data mining are more than recent buzz words in educational research: they signify one of the most promising developments in improving teaching and learning. While many attempts to enhance learning with mere technology failed in the past, making sense of a large amount of data collected over a long period of time and conveying it to teachers in a suitable form is indeed the area where computers and technology can add value for future classrooms. However, reasoning about data, and in particular learning-related data, is not trivial and requires a robust foundation of well-elaborated psycho-pedagogical theories.

The fundamental idea of learning analytics is not new. In essence, the aim is using as much information about learners as possible to understand the meaning of the data in terms of the learners' strengths, abilities, knowledge, weakness, learning progress, attitudes, and social networks with the final goal of providing the best and most appropriate personalized support. Thus, the concept of learning analytics is quite similar to the idea of formative assessment. "Good" teachers of all time have strived to achieve exactly this goal. However, collecting, storing, interpreting, and aggregating information about learners that originates from a school year, or even in a lifelong learning sense) requires smart technology. To analyse this vast amount of data, give it educational meaning, visualize the results, represent the learner in a holistic and fair manner, and provide appropriate feedback, teachers need to be equipped with the appropriate technology. With that regard, a substantial body of research work and tools already exist.

LEA's BOX (www.leas-box.eu) is a project, funded under the EU's Seventh Framework Programme and stands for a practical LEarning Analytics tool Box, that provides

- a competence-centred, multi-source formative assessment methodology,
- based on sound psycho-pedagogical models (i.e., Competence-based Knowledge Space Theory and Formal Concept Analysis),
- intelligent model-based reasoning services,
- innovative visualization techniques,
- and features to open and negotiate learner models;

LEA's BOX is dedicated to develop a learning analytics toolbox that is intended to enable educators to perform competence-centered, multi-source learning analytics, considering their real

practical needs. Thus, the project spends significant efforts on a close and intensive interaction with educators in form of design focus groups and piloting studies.

The tangible result of LEA's BOX manifest in form of a Web platform for teachers and learners that provides links to the existing components and interfaces to a broad range of educational data sources. Teachers will be able to link the various tools and methods that they are already using in their daily practice and that provide software APIs (e.g., Moodle courses, electronic tests, Google Docs, etc.) in one central location. More importantly, the platform hosts the newly developed LA/EDM services, empowering educators to conduct competence-based analysis of rich data sets. A key focus of the platform will enable teachers not only to combine existing bits of data but to allow them to "generate" and collect data in very simple forms, not requiring sophisticated hard- or software solutions. Finally, we want to open new ways to display the results of learning analytics - leaving the rather statistical dashboard approach, moving towards structural visualizations and towards opening the internal learner models.

2. The learning performance vector and the learning horizon

In the centre of conceptual research in the field of CbKST and FCA was the so called Learning Performance Vector (LPV) and the Learning Horizon. The principle idea of this constructs is to use CbKST and FCA as means of predictive analytics. The fundamental idea, thereby, is to consider the past learning performance in terms of CbKST-like learning paths , the current progress of an individual learner as well as a summary of peer performance (if available) and to match learning time and remaining time with the learning goals. In such a way we aim at deriving estimations of an individual's learning success and the degree to which a desired learning goal can be achieved. The foundations of this approach are not only competence structures and formal concepts (e.g., competencies over learners) but also temporal information, weighting information of activities and achievements, and difficulty aspects of future learning tasks. In the end, we try to establish an algorithm that is capable of melding those information into robust predictions of learning success – in other terms of the likelihood that a particular student can reach the learning goals in a given amount of time – the Learning Horizon. Of course, the predictions are unstable and blurred in the beginning and certainly the predications are more valid, the more time has passed and the more information the system has. Still, the approach is capable, so we hope, to give early indications of performance problems, so that it is still possible for educators to intervene appropriately. In addition, a particular strength is that the CbKST/FAC approach allows for finding concrete directions where a learner needs support and guidance.

3. Elements of the learning horizon and the LPV

3.1. Competence structures and performance

The first element we consider is clearly a competence structure (Figure 1). Very briefly, we decompose a learning domain (e.g., 2nd grade maths) into atomic chunks of knowledge or aptitude. In a second step we try to find a natural course of learning or, in other terms, we try to find the prerequisite structure: which elements need to be learned before another piece can be acquired. This gives us a combinatorics model of a learning domain and a certain understanding of how learning and development occurs. Now, it must be highlighted that competencies and learning, abilities and aptitudes are latent constructs. One cannot directly observe the real "knowledge" of another person. It takes indicators and evidences, in its simplest form a school test. We know, very well, that tests are not necessarily objective. Students can be inattentive and fail although they have the knowledge or competence, some may guess the right answer incidentally. So in the end, there is a good portion of uncertainty in assessment. When talking about the underlying competencies, we need to account for this fact. And we need to account for that in a careful and conservative way. The CbKST approach does that by establishing stochastic relationships. Each indicator, each piece of evidence, each test result is only one indicator that contributes to the whole picture, but it contributes only with a certain probability. The more evidence we can aggregate, mirroring the same competencies and competence structures, the clearer and more robust our picture (our model of the learner) gets. Of course, we have to consider that different evidences have different weights, a different impact, on the learner model. A simple multiple choice test weighs less than an oral exam within which a teacher can explore the real knowledge of a student, exhibiting abilities in real live weighs more than filling in the right answers.

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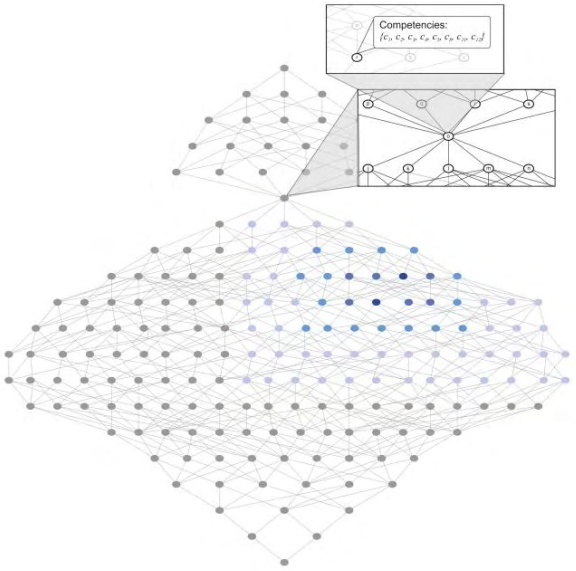
Figure 1. Illustration of a Competence structure; to bottom most node indicate the empty set of competencies, the lines are the possible learning paths, and the top most node indicates the possession of all the competencies of a domain



3.2. Formal contexts

FCA, the analysis of formal context, is a related formal psychological approach. The idea is to identify patterns in a universe of two dimensions. Imagine there is a set of competencies and a set of students. There is a multitude of clusters, some students hold the one some the other competencies. FCA allows to quickly analyse the patterns and identify relevant clusters, even more, hierarchies. If FCA is applied on the competency models of CbKST, we have the opportunity to meld pedagogically inspired domain models with pattern identification mechanisms. By this means we can identify clusters of good and not so good learners, we can establish a hierarchy of performance, and, at each step, we can determine which competencies are lacking, and therefore which educational measures would be necessary. In general, there is a broad variety of educationally relevant questions that can be addressed using the paired CbKST / FCA approach (cf. Bedek, Kickmeier-Rust & Albert, 2015).

3.3. Likelihoods, weights, and their extensions

In recent works we demonstrated that the traditional approaches of using Hasse diagrams for visualizing competence structures and lattice graphs for displaying formal contexts can be extended in meaningful ways. One idea suggested by (Kickmeier-Rust & Albert, 2015) was to extend Hasse diagram visualizations by adding a difficulty (a weight) dimension to the diagram by illustrating the length of edges in correspondence to their weight (difficulty). There are two important aspects to this idea. On the one hand, it introduces weights as levels of difficulties and the necessary efforts to make the step from one to another competence state, on the other hand, it provides valuable information to inspire the LPV and the estimation of a Learning Horizon. In addition to that, a simple yet important fact is that subject matter is increasing in difficulty over time. This definitely must be another variable in our model of learning.

3.4. What peers are doing

Now, when it's about to estimate a student's potential progress and chances to accomplish a course on time, e central element is a comparison to other learners. [It shall be highlighted that this is optional, since the LPV can be computed without peer information!] If a particular student appears being clearly ahead of the majority or, in a worse case, behind the majority, a teacher can receive corresponding and actionable information from analytics.

Here also a meta-perspective comes into play, namely the degree to which a teacher is capable of setting the right learning goals for a particular group of students and the ability to reach the goals. This is a non-trivial aspect to Learning Analytics tools. Oftentimes, a teacher is seen as the ultimate key luminary in a certain domain. This, however, is not necessarily true. Teacher may completely misjudge the abilities and potentials of a group of students (and there is a variety of reasons why this may happen).

So, a dimension of a group comparison can add substantial information about individual progress as well as a teacher's plans. In the end, this analysis offers a fountain of deeper insights.

Finally, it's worth mentioning that a theoretically sound peer comparison offers the option for a motivation boost of individual efforts, almost like the principle of badging or gamification. Position and achievements in peer groups have tremendous motivational powers, however, the must be utilized very carefully and thoughtfully!

4. The algorithm

So what do we have: A competence structure (or competence space). This structure gives us a model of the learning domain, starting from point 0 (in this particular domain) leading to the complete mastery. In other terms, a competence structures is the manifestation of all possible and reasonable states a person can be in. This allows us to identify the progress of a particular learner given the timeline of a course. Mathematically speaking we have the sum of all possible learning paths. This indicates the average learning efforts, given that transitions have specific difficulties or weights (cf. Figure 2).

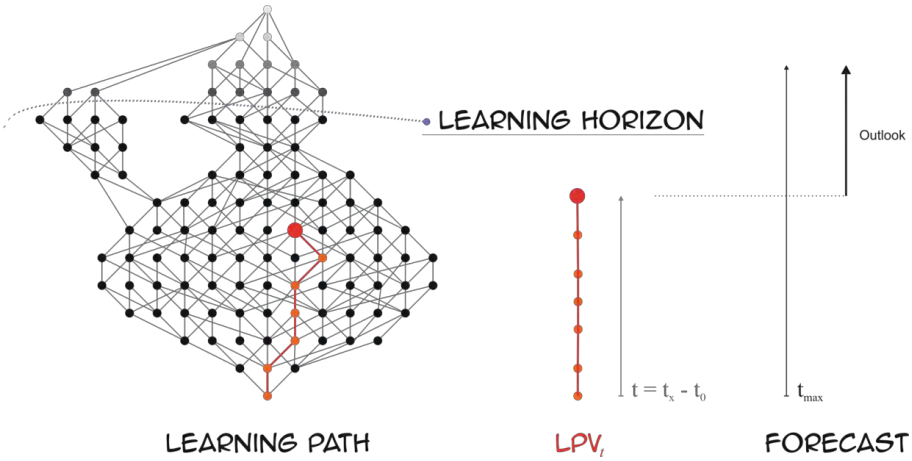
We have a set of competencies Q = {a, b, c, …. } with a relationship c $\geq$ c' among the competencies, which establishes the competence structure. The sum of the resulting competence states is Σ(|Q|r). Given that the transitions from one competence state to another has a difficulty parameter, which in turn is the average of the difficulty parameters of the competencies being a part of the state, we have a set of tuples of the start competence state, the end state, and the difficulty τ = [s1, s2, w]. This results in a set of such tuples for the entire competence structure T = $\Sigma(\tau|Q)$. Also, we have a set of indicators providing evidences for competencies: I = { ei, {c} * w}, with a given weight w. Based on the evidences we can estimate the likelihood of each competency. The probability of a competence state is the average of its competencies $\Pi(s) = \Sigma(\pi)/n$.

To identify the learning path of a person, we identify the state with the highest probability in certain time steps. Depending on the nature of the concrete use case this may rely on the events when evidences are put into the system or, alternatively on a timely basis (e.g., weekly or monthly).

Now for each step we compute the difficulty (as a value from 0 to 1). The sum of the values gives us an indicator for how many efforts a student has to spend on her learning history (the individual learning path). In a next step, given the concrete competence state of the learner, we have to identify the possible paths towards to defined learning goal, which is a (rather small) subset of all possible paths. Equally to the computation of the difficulty to reach the current state, we can compute the potential difficulty of all possible paths to the goal, whereas we have to compute the average difficulty of all possible paths. This now is an indicator for the efforts that are necessary for an individual learner to reach the learning goal.

When link the progress of a student within a given span of time, we can make a prediction about how far a student can come within the remaining time (of a course, for example). So, as a final step, we can identify exactly those states (and therefore the competencies) a particular will be able to reach within the time limits. The set of those states is, now finally, the student's Learning Horizon.

Figure 2. Conceptual illustration of the approach



5. Current status and outlook

The LPV and LH approach appear being an interesting method for educationally relevant predictions that compliments the existing rather statistical methods. While these methods usually make predictions on the basis of a comparison of an individual learner with a possibly large set of other students and their achievements, the introduced approach is primarily based on information about the learning domain, the competencies, their characteristics, and their relationships. The advantages are, on the one hand, that the noise of statistical comparisons is reduced; on the other hand, analyses and predictions can be made without referring to a large basis of existing student data. The latter point is of particular interest when focussing on school education: usually schooling is a diverse analogues setting where not much data is generated where data that is available are not aggregated and where the nature of data is extremely diverse (Kickmeier-Rust, Bull, & Albert, 2016).

The introduced approach is implemented in the Lea's Box Learning Analytics Toolbox (www.leas-box.eu). As emphasized in the introductory section, this online platform is tailored to the concrete demands of teachers and provides a set of internal Learning Analytics tools and, which is a key focus of the project, APIs to link a large number of external tools (such as learning apps, e-learning systems, cloud tools) to the system. The vision is to allow an easy aggregation of all the data that are available, even if there is not much data and not coherent data, and make the most of it in terms of a formative evaluation and feedback and a more evidence based individualisation of teaching.

Presently we are evaluating the validity of the approach on the basis of large data sets from professional learning solutions in Turkey and the US. In Turkey we have access to the Vitamin learning platform (https://www.vitaminegitim.com/vittrin/) which offers a broad offer of courses and tests. In addition we include data from the US product Adaptive Curriculum (https://www.adaptivecurriculum.com/us/), which offers courses for middle and high school levels. The first experiences are quite promising; the predications of the system yield a substantial fit to the patterns we find in the large data sets. We will investigate the predictive power further and will specifically address the question whether the analyses and predictions are also valid for the data lean school scenarios in comparison to the data rich evolution scenarios. The recent developments as well as the continuous study results are frequently posted on the Lea's Box website (www.leas-box.eu) as well on Lea's Facebook account (www.facebook.com/LeasLearning).

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A STUDY ON THE ENTREPRENEURSHIP EDUCATION OF JAPAN BASED ON THE CASE OF THE ENTREPRENEUR WHO WAS A NEET

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Abstract

Japan, as a country entrepreneurs are an extreme shortage, has been recognized from the world. So it is assumed important to increase entrepreneurship education in Japanese University. But various elements are contained in the entrepreneurship education of meaning and purpose. While recognizing the limitations of entrepreneurship education, it is important to clarify the subject of entrepreneurship education in Japan. The purpose of this paper is to consider the clues to solve the future of entrepreneurship shortage problem by the entrepreneurship education to NEETs (not in education, employment or training) and Freeters (part time worker). Approach of this study is based on the case of the entrepreneur who was a NEET through review of the prior research on entrepreneurship theories. As a result of the case study, it is proposed that the subject of entrepreneurship education are the person who became NEET left the company, and the person who became a NEET graduated from college.

Keywords: *Secure society internal labor market, company in manorial system, negative liberty, positive liberty.*

1. Introduction

According to the Global Entrepreneurship Monitor (GEM), in Japan, only about 3 in 100 individuals of the adult population are engaged in Entrepreneurial activity. This percentage is the lowest in G7 countries, except for Canada. This point does not change even if broken down into age groups and by gender. In Japan, Entrepreneurial activity is not active. Also in the analysis of each Entrepreneurial process, even less people are planning to take part in Entrepreneurship in Japan. According to the small and medium-sized enterprises (here after, abbreviated as SMESJ) White Paper Japan (2014), changes in the economic and social structure of the region have emerged due to changes in the population and regional industrial structures. In 1986 when most of the municipalities in the country, except for those in Hokkaido, had their own central manufacturing industry responsible for the employment for in the region. However, around 2012, the number of employees in the manufacturing industry decreased, and other industries (retail, service industry, health care and welfare) increased. Due to these changes related to different social structures in each region, diversification of industries to support employment in the region should be progressive.

According to the IMD World Competitiveness Yearbook (2014), Japan was in 1st place of all 59 survey subject countries until 1993. However, since then there has been a gradual decline with Japan being in 21st place as of 2014. This result shows that for some time now Japan has not been considered a competitive international country. This survey indicated a lack of Entrepreneurship (55th place as of 2014) as one of the factors for the declining international competitiveness of Japan. The world evaluates Japan as lacking Entrepreneurship.

According to the Daiwa Institute of Research (2008), the entrepreneur education of Japanese universities but are not assuming the entrepreneurs only, it has been carried out as an educational enterprise understanding and employment capacity building. To teach, such as the necessary knowledge and simulated experience in entrepreneurship is the main purpose of entrepreneurial education. However, in the case such as undergraduate students, such as entrepreneurs in some cases to fail from, such as lack of social experience, it is difficult to respond to all challenges of the establishment and corporate management in the only university education. Also, some of the existing programs, but not many entrepreneurs and person who has, there is also a case that the students of entrepreneurship education has

been described as high in job hunting. Various elements are contained in the entrepreneurial education of meaning and purpose. While recognizing the limitations of entrepreneurship education, it is important to clarify the subject of entrepreneurship education in Japan.

Therefore, in this paper we reviewed the previous studies on theories about the Entrepreneur and NEET. Based on this review, we consider whether we can make contributions to enhance the Entrepreneurship environment of Japan. Therefore, from the case of Study, the subject of entrepreneurship education in Japan is proposed.

2. Previous research

And, according to the GEM (Global) data analysis of Suzuki (2013), in Japan, less people have the knowledge and skills and experience necessary for Entrepreneurship as self-evaluation. And, this is one cause of the insufficiency of the Entrepreneur. According to his analysis, by giving students an education concerning choosing Entrepreneurship as a desirable career and promoting the opportunity to build networks of Entrepreneurs, many may plan to do so, but in actuality Entrepreneurs do not increase. Even if you implement such education in Japan, Entrepreneurs do not increase. This indicates that the Entrepreneurial education has fallen into paradox. When the student is given the Entrepreneur education in Japan, the extremely high risk of selecting an Entrepreneurial career in the Japanese society comes to be known to the students. In reality, students choose not to select the Entrepreneurial career.

As a theory related to Entrepreneurship and NEET, there is an internal labor market. According to Doeringer and Piore (1971), internal labor markets (ILM) are an administrative unit within a firm in which pricing and allocation of labor is governed by a set of administrative rules and procedures. The remaining jobs within the ILM are filled by the promotion or transfer of workers who have already gained entry. ILM are shielded from the competition of external labor markets. Features of the internal labor market are new hires which are limited to the entrance, the formation of the firm-specific skills through intensive educational training, a promotion system by the carrier personnel evaluation that is in the workplace ladder by the organization and by raising the retirement age of long-term employees. The features are a system that guarantees stability and economic richness of employment and the life that workers desired. Entrepreneurs are not willing to use up their time by repeatedly performing the same work until retirement age in the ILM.

In addition, according to Jacoby (1997), ILM has been providing a variety of benefits such as retirement benefits, corporate pensions, health insurance, employee holdings, company housing and recreation facilities. And according to Mito (1996), the Japanese internal labor market became the "the house to spend your entire Japanese life" by providing a relationship of Win-Win between workers and management. Entrepreneur is considered to be Entrepreneurial in order to leave ILM as the house to spend his entire life. Also, NEET has refused to enter into the ILM house to spend his entire life.

According to Jacoby (1997), in order to maintain the preferred labor-management relations and in order to improve the long-term employment of the labor motivation of employees, large United States companies created the Win-Win relationship using the company union. In order for that purpose, he used the term Modern Manor (Company Manor) as a mechanism that encloses the employee. According to Sano (1992), "the Japanese Company Manor" is a world that has been isolated from the outside, such as the medieval castle. And the freedom of individuals in the organization in the company manor is of course necessarily limited. In the free limited Company Manor, Entrepreneurs cannot be satisfied. Entrepreneur considers starting a business in order to leave the Company Manor. Moreover, since the NEET cannot freely be satisfied with the limited Company Manor. So, they will not been employed.

In addition, within the Company Manor, the limited freedom is like a Golden Handcuff with extensive welfare. According to the Hirano (2015), in Japan and employees of large companies to escape from the Golden Handcuff (welfare), the risk is high. Reluctantly employees sometimes work for the Golden Handcuff. According to An Entrepreneur is considered to be Entrepreneurial in order to escape the Golden Handcuff. Moreover, since the NEET want to be in the Golden Handcuff. So, they will not be employed.

Berlin (1964) defined this as negative liberty to pursue its own demand in the Company Manor. In contrast, according to the Rindova.et.al (2009), the essence of Entrepreneurship is the pursuit of "positive freedom." Entrepreneurial activity is not a passive freedom to aspire to the release from restraints and bondage, but "positive freedom" to aspire to transform the unreasonable world and to realize the world dreamed for a long time ago. According to Chae (2012), it has been proven by several studies the democratic mechanism by positive freedom improve the motivation and efficiency by transforming the organization. Their research includes "Empowerment" (Seibert et al, 2011), "Participatory management" (Doucouliagos, 1995), "Self-Management team" (Manz and Sims, 1993), "Social experiment in the General Food Co. Topika factory" (Zwerdling, 1984). However, still in the

majority of companies, introduction of democratic organization system that gives Positive Liberty have made little progress. And, the reason why the democratization of the organization system of the company does not progress has not been elucidated. The theory of negative liberty and positive Liberty is not only for Entrepreneurs, but can be incorporated into NEET. NEET cannot be satisfied with the negative liberty. However, NEET cannot obtain Positive Liberty by starting a business themselves.

Then, there is a “Secure Society” theory that considers the factors of weakening the "risk taking" mind and enhancing the “Company Manor". "Secure society" is a characteristic of Japanese society. According to Yamagishi (2008), cooperative behavior of the Japanese is strictly limited to the time the person is among "relatives", and they do not completely trust the "outsiders". Therefore, in Japan, because the closed society guarantees "peace of mind", there is the mechanism in place that sees no need for a contract among “relatives”. In a closed society, those that take action to betray or oppose the society become outcast (ostracism). Additionally, since it seems that most Japanese are placed in a “Secure Society,” they live without worry about risk taking. Because of this there is a lack of confidence or even ability to take risk. The core of Entrepreneurship is “risk-taking” but the Japanese mind weakens this idea and wants to strengthen the dependency of the “Company Manor.” In addition, in order to spend life in peace in the closed society, it is necessary to eliminate the diversity of values. This also leads to the exclusion of Entrepreneurs as a heterogeneous Stranger. In addition, Western society that can tolerate a wide variety of values, is called a "trust society" to trust the people by contract.

3. Case study

The subject of this case is a president of a venture company of local industry reproduction. He reproduced the textile industry, the tourism industry, the traditional craft industry by starting a new business. He did not start working at the time of university graduation. Then, after a period of many years of NEET, he was taught and acquired a lot of management skills at Business School for Entrepreneurs. Thereby, he started a new business with declining industries. Information necessary to analysis this case was collected by interview.

The following is the interview results.

✓ After graduating from university during the time of the severe recession, which was said to be the employment ice age, companies had to lay off the middle-aged and elderly workers. For this reason I thought that this is not the era to live by being tied to one company. I do not want to spend my life in only with one company and to be tied to that company. As a result I was not employed when I was a new graduate.

✓ I could not bring myself to do the job given by the company. Therefore I was not employed at the time of new graduates. However, because as time passed I realized that I did not have the ability and courage to start a business or to take the associated risk. So I have become NEET.

✓ Because I had little interest in the welfare provided by a company, I chose not to become employed at the time of the new graduates. Lifetime employment and benefits had begun to adversely affect the performance of companies, so I thought to rely on welfare of the company would not be like myself.

✓ I wanted to achieve results in the goals and work I found on my own. Therefore I was not employed at the time of the new graduates. If I worked for a company, I felt like I would lose my own identity. So I became NEET.

✓ I wanted to find my dreams. Therefore I was not employed at the time of the new graduates. But I needed to improve my abilities in order to realize the dream, but I did not have enough capacity. Because of a lack of capacity, I have become NEET. At present time, I have learned management and business ethics, I am now realizing the dream of starting a business with the ability and motivation.

✓ I wanted to try to work around this world, but participate in a different way. However, I did not have the courage to start a business and to take the risk. For this reason I became NEET. I thought that closed nature of local communities and society is unavoidable. Assuming the closure of the region, I thought I needed to take advantage the situation. I began to think this way, because I learned business ethics in the business school for the Entrepreneur.

✓ I learned to take on challenges while minimizing risk through equity investments. By studying at the business school, I had begun to understand the multi-faceted risk in management. I began to think of certain business models and that gave me the confidence that I now have to start a new business in consideration of the risk.

✓ I learned courage for starting a business from the business ethics of the business school. In order to realize their dreams, Entrepreneurs do not only pursue their own happiness. If you try to change the society, initially, there is resistance from society. However, if you believe that change is correct for society, it can be accepted by society but this takes time.

✓ In a college student, if I had received the entrepreneur education, I had to understand the entrepreneur inferior as a carrier. And I would have to understand the benefits to withstand the hard work in the company. Maybe, I would not have become a NEET and also an Entrepreneur.

Considering the results of the interview are as follows. For a person of free-thinking who want achieved a new thing, it is difficult to activity in "internal labor market" and "Company Manor". Therefore he was not employed at the time of the new graduates. For this reason he became NEET. Also, he does not feel a high value of "Negative Liberty". On the other hand, it had strong feelings about the value of "Positive Liberty". Therefore, he could not exchange “Positive Liberty" with the "Golden Handcuff". He has learned by corresponding to the closed society (secure society) by studying a variety of values in business. In addition, he has learned the management of "Risk Taking" and the response to the various risks. Therefore, by studying the management theories that corresponds to the risk, he became to be able to take risks. Additionally, he has gained "Courage of Entrepreneurship "from the fact that to learn business ethics. This Interview indicates that the Entrepreneurial education has fallen into paradox. When the student is given the Entrepreneur education in Japan, the extremely high risk of selecting an Entrepreneurial career in the Japanese society comes to be known to the students. In reality, students choose not to select the Entrepreneurial career.

4. Conclusions

Based on this study above, the internal labor market structure of Japanese companies caused him to become NEET. He was able to shatter the structure and was miraculously turned from the state of being NEET to an Entrepreneur. Conditions for the miraculous turn were the force that can respond to the severity of being a stranger in Japanese Society, the experience of risk-taking, and the courage to change society in the right direction. And he saved many of the declining of local industries. President of this case did not learn entrepreneurship in a college student, so he was able to become an entrepreneur. When the student is given the Entrepreneur education in Japan, the extremely high risk of selecting an Entrepreneurial career in the Japanese society comes to be known to the students. In reality, students choose not to select the Entrepreneurial career. In the social structure of Japan, it is not advantageous that college students quickly become entrepreneurs after graduation. In this study suggest, it is proposed that the subject of entrepreneurship education are the person who became NEET left the company, and the person who became a NEET graduated from college.

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PROGRAM THEORY EVALUATION OF AN INNOVATIVE PRACTICUM MODEL FOR EARLY CHILDHOOD EDUCATION IN CANADA

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Abstract

This paper presents the results of the theory evaluation phase of a four-year evaluation of a practicum model in place within a College-level ECE Diploma in Québec (Canada). Designed in collaboration with multiple stakeholders (teachers, researchers and external members), the program evaluation employed a participatory and bottom-up approach (Chen, Klein, & Minor, 2009). After introducing the *In Situ* practicum program and the Quebec ECE context, the origins of the program and the difficulties in transferring learning from the classroom to the fieldwork setting identified as the *problem theory* will be illustrated. The *process theory* will follow, explaining how the *In Situ* practicum model targets reflexive practice and competency mastery in a real-world setting. Examples of techniques and learning activities that take place in this practicum will also be provided. The presentation will conclude with the *outcome theory* developed in order to plan the implementation and outcome phases of the program evaluation.

Keywords: *Program evaluation, higher education, transfer of learning, early childhood education, quality.*

1. Introduction

Research highlights initial training as an important predictor of quality in early childhood education (ECE) (Mashburn & Pianta, 2010). However, ECE training is more effective under certain conditions (Pianta & Hamre, 2009). In particular, active learning contexts that integrate collaboration in a real world setting seem to support transfer of learning and higher educational quality (Birman, Desimone, Porter, & Garet, 2000).

In Quebec (Canada), the most common initial training leading to qualification as an early childhood educator is a College-level ECE Diploma. This three-year post-secondary degree focuses on acquiring 22 essential competencies and includes three fieldwork placements, one per year, in childcare centres or family provider settings, under the supervision of a "fieldwork supervisor". The supervisor visits the student in the fieldwork setting for four three-hour observations during the 15-week semester. This type of fieldwork appears to be somewhat lacking in intensity and therefore insufficient in transferring knowledge into a real-world setting (Burke & Hutchins, 2007). Therefore, the Department of ECE at Saint-Hyacinthe College (Quebec, Canada) began offering an innovative practicum model in 2005. This model is unique in Quebec, as it was developed to address the knowledge transfer difficulties identified above by mobilizing teacher guidance and reflexive practice. This *In Situ* practicum takes place in a drop-in centre (DIC) on the college campus that is completely dedicated to the program. The centre serves children and families from at-risk backgrounds who were signalled to the Director of Youth Protection for neglect, as well as refugee families who attend a community integration program.

2. Conceptual framework

This paper presents the results of the theory evaluation phase of a four-year evaluation of the practicum model. Designed in collaboration with multiple stakeholders (teachers, researchers and external members), the program evaluation employed a participatory and bottom-up approach (Chen, Klein, & Minor, 2009). The logical model is a graphical representation of the evaluated program and aims to synthetize its components. This representation is based on Chen's (1990) program theory, consisting of three components. First, the problem theory aims to identify the target population of the program and to

describe the nature of the problem that the program was designed to prevent. Second, the process theory aims to specify and describe the learning activities and the prerequisites necessary for the training method and the available resources to solve the problem. Finally, the outcome theory aims to define the short-, middle- and long-term program outcomes, as well as their respective indicators.

3. Objectives, design and method

3.1. Objectives

The program theory evaluation was carried out from September to June, 2015. Its objectives were to: 1) ensure a common understanding of the project; 2) verify the program's relevance in meeting the needs of the target clientele and the coherence of the proposed solution; 3) prepare for the process and outcome evaluations; 4) disseminate the project's foundations.

3.2. Design

The elaboration of the program theory and the logical model are the result of a process of continuous trainers support and modelling by the research team. The research team also supported the evaluation committee in understanding, improving, and validating the logical model created by the trainers. The goal of this support was to optimize actors' appropriation of knowledge and deepen their understanding of and adherence to the training program. During this process, the research team was careful to respect the rules and principles of program evaluation as well as to associate the data generated with regards to the transfer of learning (the problem theory), coaching centred on reflexive practice (the processes theory) and with regards to the effects of coaching on the transfer of the learning the effects theory).

Thus, three evaluation approaches were combined for the elaboration of the program theory: formative, participative and deliberative (Quiroz, Bigras, Dion, & Doudou, 2015). The *formative* approach emphasized the learning process and its contribution to the improvement of the initiative (Lessard & Leclerc, 2013). This approach favoured a deeper understanding of the program and a critical awareness of the work realized. The *participative* approach favoured the appropriation of the evaluation process by all the participants through close collaboration between the researchers and participants in the program. The values, points of view, and expectations of all involved were considered during each stage of the evaluation process (Cousins & Whitmore, 1998). Finally, the *deliberative* approach attempted to reduce the power disparities between the participants so that choices could focus on the needs of the target group (House & Howe, 2000). This approach is based on dialogue and deliberation as basic democratic principles.

3.3. Method

A three-step iterative process allowed us to gradually develop the program theory illustrated by the various diagrams. First, semi-structured interviews were carried out with the coordinator and program designer regarding the component theory. Then, an electronic open-ended questionnaire was sent to the six trainers who work at the drop-in centre. This questionnaire concerned the problems, which led to the creation of the training program, as well as the observed or anticipated effects on the students, the children, and the parents. Analysis revealed main themes and keywords for each of the components of the program theory. Those keywords were reinvested during workshops allowing the collective elaboration of graphical representations of the sub-theories (history, problem, processes, and outcomes) of the program theory. These workshops conducted with members of the College training team (teachers, educators, supervisors) and then with members of the evaluation team, led to the construction, appropriation, and improvement of the program's logical model. The outputs stemming from these workshops were continually validated through iterative activities involving all of the participants. Finally, it is important to note that this process of program construction is based on the grounded theory method, with the aim of capturing the complexity of this training program's process. This method aims at elaborating a theory highlighting the process which allows individuals to attribute meaning to their experience (Couture, 2003).

4. Results

The problem theory establishes the pertinence and legitimacy of the program. To support the elaboration of this theory, a "problem tree" workshop (Chevalier, Buckles, & Bourassa, 2013) was carried out with the trainers. The problem tree is a diagram of a problematic situation that illustrated the cause and effect relationships between the various conditions or the problematic variables that led to the creation of the program and the consequences resulting from it. During this workshop, the stakeholders

undertook three consecutive activities to identify the problem components. At first, the central problem was identified and inscribed on the trunk of the tree. The causes of the problem were inscribed on the roots. After identifying the consequences of the problem, there were inscribed on the branches. All these components were identified based on the program trainers' perceptions.

The trainers informed us that the program had been developed to mitigate the *problem of transfer of knowledge*. They had been aware of this problem for several years, observing that certain students, after three years of traditional ECE training, experienced difficulties effectively transferring their professional skills into the real-world situations, mainly in complex situations. By complex situations, the trainers meant situations involving challenges intervening with a child or group of children and requiring reflection and analysis. Therefore, this training was first created with the aim of countering this problem of transfer of learning.

The skate holders identified four *causes of this problem*: particular student's characteristics; a lack of consistency between theory and practice; teaching differences between teachers in the department; and the uneven quality of the supervision provided by the childcare centre during the regular internship.

The problem tree theory also identified the *direct consequence of this problem*. The trainers observed four domain of competence implicated in these transfer of learning problems. (1) Reflexive practice; (2) intervention with the children (particularly with children identified as vulnerable); (3) collaboration with parents and health professionals; (4) collaboration with the educators' team and management of conflicts.

Indirect consequences of this problem concerns *middle- term effect* on the students as well as the children and parents with whom they work. For the students, this learning transfer problem lead to a sense of professional incompetence leading to reduced motivation and lack of confidence in their abilities. This low confidence could result in lower engagement in their work. Some new educators might also be more reluctant to welcome "vulnerable" children or may even conclude that those children do not have the right to attend childcare. In consequence, children under their supervision may not develop to their full potential. Indeed, as vulnerable children have been identified as being more sensitive to less stimulating situations, the potential negative consequences to their development may be greater.

In the long term, these children appear to be at risk of more school-related and personal difficulties, as developmental delays could persist throughout their lives and affect their schooling and integration into society.

4.1. Process theory

Five activities (target population, needs, common vocabulary, logical suite and associations of the activities to the teaching techniques) with the trainers during two days, lead to the conception of numerous illustrations of the program process. In this paper, we will focus on the typical journey and also on the inventory of the learning strategies, which seems to be the most innovative aspect of this program.

The *typical program journey* provides an overview of student progress during a semester. Three days of training, or preliminary meetings, are held before the children and the parents begin attending the DIC. The internship takes place twice a week (two full days), over twelve weeks. At the same time, additional activities are held one day a week. Assessments meetings are held on the last afternoon of the internship.

The *inventory of the learning strategies* categorized all the teaching techniques used by the internship trainers with the aim of supporting knowledge transfer related to the 22 program competencies (MEQ, 2000). Trainers identified four categories of learning strategies.

Supporting analysis and reflection includes two methods and teaching techniques: *modelling analytical exchanges between trainers* and *analytical exchanges with students*. These techniques are based on (Socratic or introspective) questioning of the students by the trainers with the aim of provoking awareness, observations (of children and themselves), links between cause and effect, and links between practice and theory. For these two types of questioning strategies, the trainers specified intentionally not providing answers to these questions, as the purpose of the exercise is to encourage students to discover their own answers. The *modelling of analytical exchanges* is the demonstration of a concrete action, allowing the student to witness an analytical exchange between trainers on the floor (during childcare practice).

Support for the improvement of professional practices includes *modelling of best practices; immediate and delayed feedback;* and *assistance with intervention difficulties*. *Modelling includes* two different techniques: modelling and modulation. The trainers define modelling as the demonstration of a concrete action, and modulation as the demonstration of an action accompanied by an explanation of the action or of theory, which supports the action. The trainers define retroaction as providing comments about the student's actions and improvements required. This feedback is conceived of as an objective assessment of their performance. The retroaction could be provided in an individual context or group

settings, in verbal or written format (e.g. during the evaluation of written assignments). Feedback can also be provided immediately following an action or recorded for later sharing with the student (e.g. during the tutorials). *Assistance with intervention difficulties* helps students who are having difficulty dealing with situation involving a child, but can also concern a problem with a parent or with the team of educators.

Support for resource mobilization is composed of three techniques. Invitation to use professional resources takes the shape of proposals or discussions between the trainers and the students to stimulate the students to use their interests, strengths, qualities, or experiences as they carry out professional tasks. Invitation to use external resources distinguishes itself from the previous technique by the type of resources requested. This technique involves external theoretical information such as books, courses, etc. For example, the students are invited to consult their course notes or books on a specific subject. Finally, the trainers also lead exchanges connected to the enrichment of the students' knowledge based on a contribution of information between trainer(s) and student(s) with the aim of increasing and extending general and specific knowledge. The trainers use various specific techniques in order to implement these techniques. They ask the students questions about their theoretical or practical knowledge regarding the situations they experience in the DIC, they give examples to illustrate theoretical elements, and they add factual, technical, theoretical, or experiential information.

Enhancement of professional identity includes both support for professional autonomy, and support for a sense of belonging. To achieve these, sets of techniques are employed to allow students to act and think on their own in the execution of professional tasks while respecting the principles of the profession. At first, the trainers include the students in decision-making. They also encourage the students to carry out tasks that they are capable of completing successfully and, offer assistance only of needed. This type of help is adapted to the students' learning needs and becomes gradually reduced blurred over time. Thus, the trainers are present more often at the beginning of the session, and less often at the end. The trainers also use techniques to increase the sense of professional community and engagement in ECE. To this end, the trainers invite students to share their positive interventions to recognize their professional gestures. They speak positively about the profession and insist on the complexity and the importance of this professional role.

4.2. Outcome theory

The team of trainers participated in workshops with the aim of clarifying this theory and developing diagrams. First, a workshop on the chains of effects allowed them to illustrate keyword outcomes from the questionnaire they completed with regards to the program outcomes, in order to determine the outcomes at each time period. Afterwards, to establish a link between the effects and demonstrate the evolution of changes incurred as a result of the training, chains of effects were developed. This last theory describes the effects of the program on the students in the short-, middle- and long-term.

The short-term effects concern changes that take place during and at the end of the training. The trainers observed that *support to analysis and reflection* is related to an increased capacity of introspection for students during training. This led to a better self-knowledge and to cognitive connections between their practice and theory. The *support for the improvement of professional practices* not only helped students improve their practices with children and their parents but also their communication abilities with the work team and other professionals. Those effects are followed, at the end of the training, by a greater mastery of the democratic intervention process with children and also by a better collaboration with parents and the work team. The *support for resources mobilization* is associated with an increase in theoretical and practical knowledge as well as in intellectual curiosity. At the end of the training, trainers observed that students are more likely to find relevant resources helping them understand complex situations. They better mobilize their personal resources in the exercise of their profession and present a reduction of prejudices about families and children. Lastly, *the enhancement of professional identity* is linked with an increased sense of professional competency. It also leads to an awareness of the specificity and the importance of their role. At the end of the training, those new skills give rise to an observable acquisition of the emotional distance needed for the practice, a professional posture and a desire to make a meaningful difference in children's lives. All those new capacities also generate some transversal effects. By using reflexive practice, students show an improved use of their theoretical knowledge when solving problems related to their practice. Students also demonstrate a superior empathic sensitivity with all actors working with them, showing a higher willingness to improve their capacity and a greater professional autonomy.

The medium-term effects involve observations during the period of professional insertion in the work environment (6 months after the training). At this point, new educators demonstrate better abilities to work in partnerships with all families and are seen as positive contributors to the work team by their directors. They also show strengths in regard to their interventions involving families with specials needs

and for complex problems solving. They display better mastery of the reflexive practice process and enrol in an in-service training process.

Finally, at the long-term effects, from 3 to 5 years after the end of the training, those educators become agents of change and are described as precious resources for their work team by their directors. They are perceived as good educators-guides for future educators and assert themselves for educational practices improvement.

5. Conclusion

After the first year of program evaluation, the program theory was been mapped and the logical model identified. The elaboration of this logical model allowed us to model and to schematize the training program, and to understand its functioning through an analysis of it internal logic. These elements allow an assessment of whether the objectives of the intervention were reached through the actions put in place.

All the material created during this phase of the program theory evaluation, aside from developing a common understanding of the conceptualization of the training amongst all the actors involved, will be useful to support the dissemination of the model to other institutions.

Finally, and with regards to the next stages of the evaluation, the elaboration of the program theory allowed us to identify the questions for the process evaluation. By creating a clear and functional model of the training processes, further implementation of this training program can be estimated, facilitated and optimized. The program theory also provided a solid basis to identify and define the questions regarding the training effects on the students that will be carried out as during the program effects evaluation next year.

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TOURISM-ORIENTED POLICY, ECONOMY AND TOURISM ENGLISH IN JAPAN

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Abstract

Japanese has experienced economic slump (recession) for these 20 years. As a policy to overcome this situation, Japanese government creates a slogan "Japan as the tourism country", and tries to increase the number of tourists from abroad and of international events actively. For example, the statistics of International Congress and Convention Association (ICCA) shows that Japan held 337 international events in 2014, which is 1.5 times as many as 233 events in 2011, and that Japan was listed 7th country in the number of international events in 2014. In addition, Japanese government developed infrastructure and traffic network for tourism. As a result, readers of American tourism magazine "Travel + Leisure" chose Kyoto (Japan) as the place which they wanted to visit most for 2 years in a row.
By the way, "Tourism English (English for tourism or tourist)" and "Education of Tourism English" are important factors to promote such tourism policies. On the other hand, many Japanese can't speak English well in contrast to Japanese economy is strong, so there are a lot of research tasks such as education method of Tourism English teacher development.
Tourism English is listed one of "ESP (English for Specific Purpose)", so the education of Tourism English has different aspects from that of English for daily conversation. For example, Tourism English requires expressing hospitality mind that is essential in tourism; also it requires explaining things and ideas unique to Japan to foreigners clearly and correctly. Now, Japanese government and educational institutions in Japan research Tourism English, referring and absorbing to other counties' researches. This thesis surveys previous researches first, introduces Japanese actions, and compares Japan with other countries prosper in tourism.
Japan has many world heritages with hospitality in Kyoto, Nara, Hokkaido, and Okinawa, also has important places related to "dark tourism" in Hiroshima, Nagasaki. However the number of foreigners who have visited such places is not so many. When Japanese policy for tourism improves, it can give positive affection for progress of world civilization. This thesis deals with the important theme in this sense.

Keywords: *Tourism English, English for specific purpose (ESP), education policy, education system, English as foreign language.*

1. Tourism-oriented policy and economy in Japan

Japanese has experienced economic slump (or recession) for these 20 years. As a policy to overcome this situation, Japanese government creates a slogan "Japan as the tourism country", and tries to increase the number of tourists from abroad and of international events actively. For example, the statistics of International Congress and Convention Association (ICCA) shows that Japan held 337 international events in 2014, which is 1.5 times as many as 233 events in 2011, and that Japan was listed 7th country in the number of international events in 2014. In addition, Japanese government developed infrastructure and traffic network for tourist.

As a result, many tourists from not only Asian countries such as China, Taiwan and Korea but also Europe, America and Africa have visited Japan. According to United Nations World Tourism Organization, the number of tourists who visit Japan was 50 million in 2008, and it increased 140 million in 2014. (Figure 1, 2)

By the American tourism magazine "Travel + Leisure", readers of this magazine chose Kyoto (Japan) as the place where they wanted to visit most for 2 years in a row. The consumption in Japan by these tourists has a good economic effect on hotel industry, food service industry and souvenir industry in

rural city as well as in urban city. In addition, increasing the number of tourists has a good effect on non-tourism related companies too. For example, tourists from developing countries in Asia such as China purchase a lot of home appliances and cosmetics, which is called "Shopping spree". Now, it often can be seen and has a big economic impact (it also has a big conflict). More and more tourists visit Japan for shopping under the influence of weak yen. It is said that Japan generated 18.9 billion dollars as tourism revenue in 2014. However this number is not so expensive because it is 21st in the world, and 7th in Asia. According to Japan Tourism Agency, tourists from foreign countries generated 2.3 trillion dollars as tourism revenue in 2014, which is 1.5 times as much as that in 2013 (Japan Tourism Agency, 2014).

Figure 1. Numbers of non-resident visitors in Japan

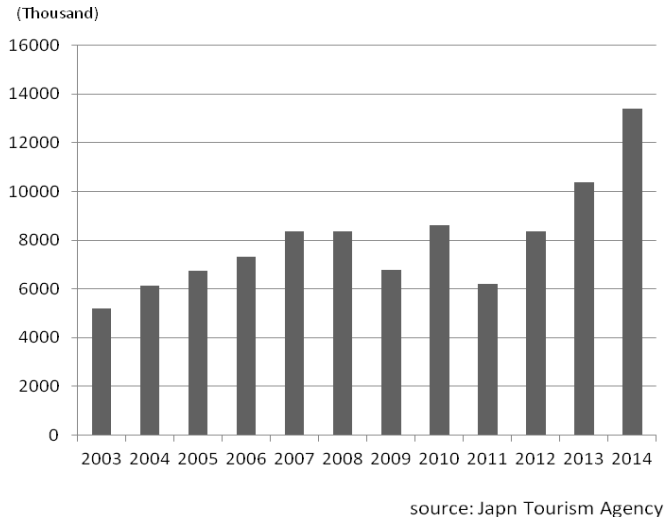
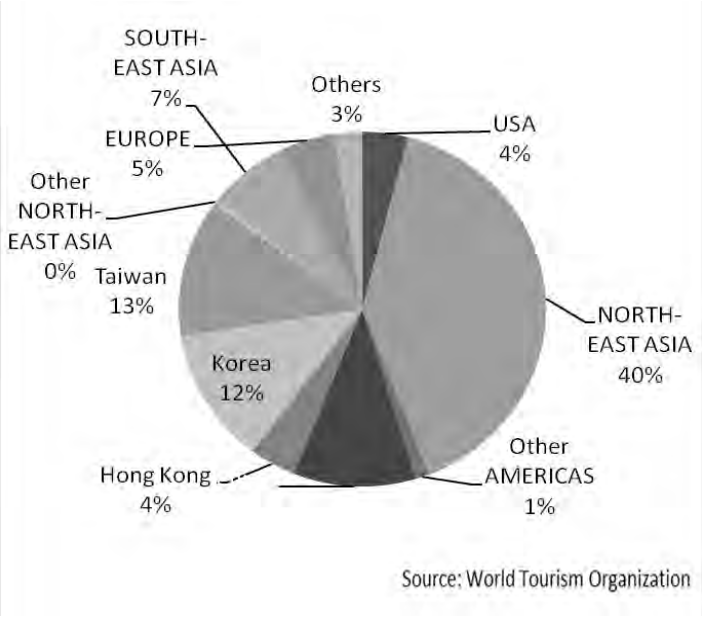


Figure 2. Arrivals of non-resident visitors at national borders, by nationality



By the way, "Tourism English (English for tourism)" and "Education of Tourism English" are important factors to promote such tourism policies. But many Japanese (especially non-business person) can't speak English well in contrast to Japanese economy is strong. However even those who haven't needed to communicate in English are required to enhance communication skills in English so that Japan acquires foreign currency as a tourism nation. It means that people who are over school age also need to enhance communication skills in English. That's why we have to think another way besides improving English education in school. So there are a lot of research tasks such as education method of Tourism English teacher development.

2. Tourism English and Education

Tourism English is listed one of ESP (English for Specific Purpose), so the education of Tourism English has different aspects from that of English for daily conversation. For example, Tourism English requires expressing hospitality mind that is essential in tourism; also it requires explaining things and ideas unique to Japan to foreigners clearly and correctly. Now, Japanese government and educational institutions in Japan research Tourism English, referring and absorbing to other counties' researches.

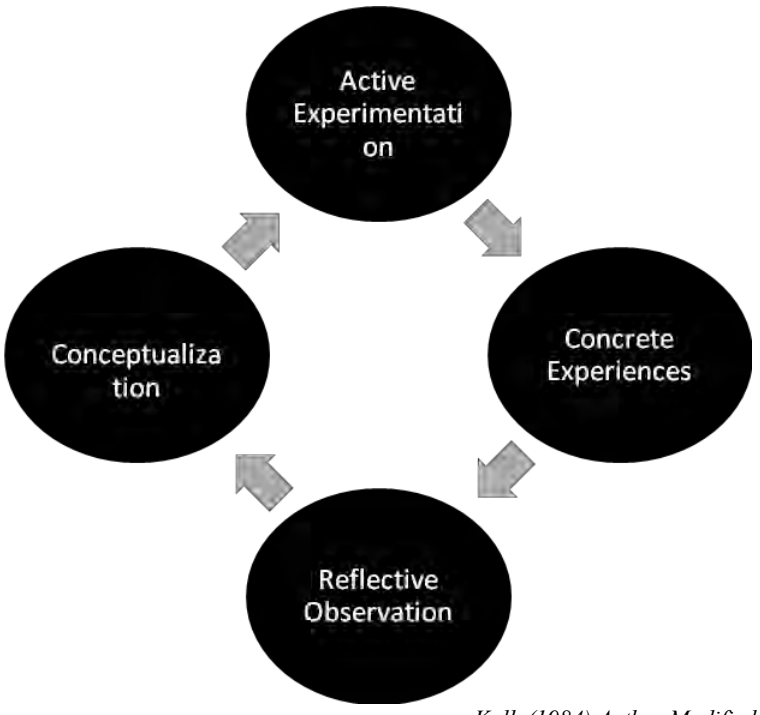
As is mentioned before, Japan aims to be the tourism nation. So many universities have set new faculties and developments to learn tourism and they accept more and more students these days. Japan Tourism Agency (2009) showed the full quota of tourism related faculty and department has sharply increased since 2006 and achieved 4,402 students (39 universities, 43 faculties and departments) in 2009. In March. 2016, as many as 83 universities teach tourism related faculty or department.

"Tourism English aims to develop a deep understanding of the basic meaning of tourism through reading an English textbook on tourism. Also, by comparing "tourism" with "kanko", we can deepen our understanding of both and thereby form our own ideas about them."

Now, we introduce Faculty of Tourism in Wakayama University as an example of tourism education in Japan. Wakayama University is the only national university in Japan, which has a PhD course and which teaches tourism English positively. For example, graduate school of tourism in Wakayama University has a subject to teach tourism English based on the following aim. "Tourism English aims to develop a deep understanding of the basic meaning of tourism through reading an English textbook on tourism. Also, by comparing "tourism" with "kanko (=sightseeing)", we can deepen our understanding of both and thereby form our own ideas about them." Referring to lecture schedule, students can learn the history of travel and tourism, foundations for understanding tourist motivations, destinations, environmental and social/cultural impacts of tourism, and the future of tourism.

It is more and more important for working adults who work for especially hotel industry, food service industry, transportation industry and souvenir industry to teach English in addition to education in university. In this case, e-Learning or in-house training is typical way to teach tourism English, but oversea internship is the most effective way for core human resources. Referring to "Experimental Learning Model" by Kolb(1984), human beings learn many things from their occupation by repeating following steps "Actime Experimentation" ➡ "Concrete Experience" ➡ "Reflective Observation" ➡ "Conceptualization".(Figure.3) Kolb said that when they finish learning one thing, they will start to learn something new. In tourism English as an ESP, putting tourism English into learning curriculums is effective for school age learners, but experimental learning may be effective for adults. So individuals should join overseas internship attractively, and companies should put overseas internship into their employee training.

Figure 3. Experimental Learning Model



Kolb (1984) Author Modified

However there is typical Japanese problems. What is important in Japanese culture is “Omotenashi” and “Aimaisa”. “Omotenashi” has a partly similar meaning to hospitality, but also has a different meaning to it. In short, “Omotenashi” means not only pleasing guests but also eliminating unpleasant possibility. “Omotenashi” includes preventative aspect. Therefore internship and training in western style service industry may not be enough for learning Japanese spirit. In this point, learning tourism English through internship has limitation.

In terms of “Aimaisa”, for example Japanese style architecture has a garden inside of it, Japanese style architecture has a vague space outside or inside of it, and Japanese style garden locates artificial parts resembling nature to let viewers embody artificial parts. The idea of “Aimaisa” takes root not only in Japanese style architecture but also in whole Japanese culture. People need to learn how to express this kind of Japan-specific idea. Tourism English as an ESP must be innovated especially in how to learn and how to teach.

3. Conclusion

This study mentioned tourism policy, tourism economy and tourism English in Japan. In every points, policy to become a tourism nation succeeds because it attracts many tourists and enhances economic effect. Improving tourism English is required in order to attracts more tourists and improve the quality. It shouldn’t accept western system but it should contain curriculums to deliver Japan-specific culture and tradition. That’s why education for tourism English and tourism English study will be needed greatly.

Japan has many world heritages with hospitality in Kyoto, Nara, Hokkaido, and Okinawa, also has important places related to “dark tourism” in Hiroshima, Nagasaki. However the number of foreigners who have visited such places is not so many. When Japanese policy for tourism improves, it can give positive affection for progress of world civilization.

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INTEGRATIVE STEM EDUCATION: FOR CHILDREN AND COMMUNITIES

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Abstract

Quality education is a key to the success of children and the communities in which they live (Havice, 2013, 2015). This is particularly true as it relates to integrative STEM (science, technology, engineering and mathematics) education. Integrative STEM education refers to engineering design-based learning approaches that intentionally integrate science and mathematics education with technology and engineering education. Integrative STEM education may be enhanced through further integration with other subjects such as language arts, social studies, art, etc. (Sanders, 2010, 2012, 2013 & Wells, 2010, 2013). Integrative STEM education involves problem-based and project-based learning that allows learners to explore real-world problems, simultaneously developing cross-curriculum skills while working in small, collaborative groups. Educators in Anderson, Oconee and Pickens (AOP) counties of South Carolina (USA) understand the importance of integrative STEM education to both students and communities. Over the past ten years, 455-plus K-12 classroom teachers, K-12 administrators and business/industry persons have participated in integrative STEM education institutes. Participants are developing knowledge and skills to create and implement relevant and innovative integrative STEM education activities for use in their classrooms.

Keywords: *STEM education, integrated, STEM education, integrative STEM education, problem-based learning (PBL), project-based learning.*

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1. Introduction

We live in a designed and human made world that requires much more from all of us than the basic abilities to read, write and perform simple mathematics. Science, technology, engineering and mathematics (STEM) disciplines affect virtually every aspect of our lives, from enabling people to perform routine tasks to ensuring that people can make responsible, informed decisions that have direct impact on individuals, society and the environment. Integrative STEM education involves thinking, doing and the application of knowledge, tools and processes by people with ideas as well as the will to solve problems to create products and services to meet human needs.

Quality education is a key to the success of children and communities in which they live (Havice, 2013, 2015). This success is particularly true as it relates to integrative STEM education.

> Integrative STEM education refers to technological/engineering design-based learning approaches that *intentionally* integrate the concepts and practices of science and/or mathematics education with the concepts and practices of technology and/or engineering education. Integrative STEM education may be enhanced further through integration with other school subjects such as language arts, social studies, art, etc. (Sanders, 2013, pg. 6).

Integrative STEM education provides children with opportunities for educational engagement and achievement. This approach to education involves problem-based and project-based learning that allows students the opportunity to explore real-world problems, simultaneously developing cross-curriculum skills while working in small, collaborative groups. Children now expect real-world connections to what they are learning, or else they may completely disengage. As a means of learning, action-oriented, hands-on technology and engineering education brings relevance into the classroom. Through the active study of STEM content, children, especially those who learn best by doing, find that their lives are enriched and that their natural curiosity and innovation grows.

Integrative STEM education is also good for communities. The ability of P-12 schools to foster children's learning in integrative STEM education is critical to the long-term economic health of the

world. The job market continues to demand greater numbers of employees with training or post-secondary degrees in STEM-related fields (Burning Glass Technologies, 2014). For this and other reasons, integrative STEM education continues to gain momentum and STEM education has rapidly become an emphasized part of the P-12 school experience in the United States of America (USA).

Educators in Anderson, Oconee and Pickens counties of South Carolina (USA) understand the importance of integrative STEM education to both students and communities. In the past 10 years, over 455 K-12 classroom teachers, K-12 administrators and business/industry leaders have participated in integrative STEM education institutes. Institute participants have developed knowledge and skills to create and implement relevant, innovative integrative STEM education activities for use in their classrooms. The Integrative STEM Institute highlighted in this study was designed to promote the improvement of integrative STEM education by utilizing the *standards for technological literacy* established by the International Technology and Engineering Educators Association (2007). The institute learning outcomes provided participants opportunities for:

- learning about researched teaching methodologies that can enhance student learning;
- exchanging information and ideas;
- developing alliances;
- identifying higher education teaching programs that will ensure quality STEM teachers;
- identifying teaching strategies that teachers can incorporate in classroom instruction to help students be more successful;
- ensuring that Anderson, Oconee and Pickens counties have a skilled and qualified workforce, which will enable local employers to compete in the global economy;
- helping educators utilize educational resources more effectively;
- providing businesses and industries with a well-educated pool of STEM prepared students; and
- improving preparedness for careers in local manufacturing and related industry.

This article outlines an evaluation of a two-day professional development integrative STEM education institute for K-12 teachers and administrators. The purpose of this study was to determine whether or not participants gained confidence in their understanding of the institute's learning outcomes as a result of the program. This study also determined the degree to which alumni of the institute program utilized the teaching pedagogy in their classroom in the academic years following their institute participation.

2. What we did

2.1. 2015 institute evaluation

As part of this study, immediate evaluation and outcomes data were gathered regarding the most recent, 2015 summer, integrative STEM institute. Participants attending that professional development institute were surveyed at the very beginning of the institute and at the conclusion of the last session of the institute. In both surveys participants indicated their current level of expertise on topics related to the institute's eight learning outcomes. The survey also captured participants' reflections on the institute and its relevance for their instructional use in the upcoming academic year.

The institute was open to all kindergarten through sixth grade teachers as well as elementary school administrators and instructional coaches. Nineteen individuals attended the 2015 Integrative STEM Institute, representing kindergarten through fifth grade. The most common teachers present were third grade teachers, comprising 26% (n=5) of attendees. The next most popular grades were fifth with 16% (n=3) and first grade with 11% (n=2). Instructional coaches, multi-grade teachers or building-level administrators were 31.58% (n=6) of the institute participants. Among the instructional teachers present at the institute, 68.42% (n=13) of the participants indicated they planned to teach a mathematics subject in the 2015-2016 academic year, 57.89% (n=11) planned to teach science, 26.32% (n=5) technology, and 10.53% (n=2) engineering subjects.

Attendees with a range of teaching backgrounds and experiences were attracted to this institute. Thirteen (68.42%) attendees had 10 or more years of teaching experience and the remaining participants ranged in experience levels, one of whom was a newly graduated teacher candidate beginning his first full-time teaching appointment. Teachers and administrators represented school districts from two of the three counties eligible to participate. Participants taught in either one of five districts in Anderson County, South Carolina (57.89%, n=11) or in one district within Pickens County, South Carolina (42.10%, n=8).

2.2. The institute's long-term impact: a survey of institute alumni

Our research team used online, e-mail-based Qualtrics online survey software to survey 96 previous attendees of the four most recent integrative STEM institute sessions (2012-2015). The software system yielded 32 completed surveys, a 30% response rate. Descriptive statistics of the survey revealed

the degree to which participants implemented the institute's objectives in their immediate and long-term work as teachers and administrators. The alumni shared how the institute shaped how confident they were in implementing the program's teaching pedagogies and they also indicated the value of the institute's professional development, comparative to their other continuing education programs.

3. What we found

3.1. 2015 institute learning outcomes and program's impact on teacher self-efficacy

Table 1 displays survey results and analysis of the 2015 Integrative STEM Institute participants' levels of expertise regarding the program's learning outcomes, which the participants reported prior to and immediately following their professional development program. The levels of expertise at these two points in participants' knowledge development were compared using an independent-samples t-test through SPSS®. Given that alpha level for the was set to .05, the results of the t-test indicated there was a statistically significant increase in participants' reported understanding of the institute's eight learning outcomes following the institute (n=18) compared to their understanding at the beginning of the institute (n=19).

These results indicate participants believed the learning outcomes for the program were adequately addressed. This is evidenced by participants reporting feeling more confident about their knowledge regarding integrated STEM concluding the institute.

Table 1. Descriptive Statistics and Results of t-tests for Average Levels of Expertise in Integrative STEM Institute Learning Outcome Topics, as Self-Reported by 2015 Institute Participants Prior to and Concluding the Institute

	Pre-Institute Level of Expertise				**Post-Institute Level of Expertise**			**95% CI for Mean Difference**		
Eight Questionaire Items	**M**	**SD**	**n**		**M**	**SD**	**n**		**t**	**df**
1. The role and purpose of integrative STEM education.	3.11	.994	19		4.61	.502	18	-2.036, -.976	-.577*	35
2. How a teacher can use STEM as a curricula organizer.	2.32	.946	19		4.44	.511	18	-2.640, -1.617	-8.45*	35
3. How content standards can be delivered using an interdisciplinary teaching approach.	3.00	.943	19		4.56	.511	18	-2.066, -1.045	-6.19*	35
4. How heuristics are used as a conceptual tool in delivering project/problem-based learning.	2.16	1.167	19		4.44	.616	18	-2.911, -1.662	-7.51*	27.60
5. How integrative STEM lessons are developed and delivered in the classroom.	2.53	.841	19		4.83	.383	18	-2.746, -1.869	-10.83*	25.47
6. How the narrative curricular approach is used to launch STEM learning.	1.89	.875	19		4.50	.618	18	-3.114, -2.097	-10.40*	35
7. How standards are integrated into the learning experiences delivered through STEM curricula.	2.84	1.015	19		4.67	.594	18	-2.38, -1.27	-6.63*	35
8. How one can teach STEM content to the age group one currently teaches.	2.58	.902	19		4.72	.461	18	-2.62, -1.66	-9.17*	27.11

* $p < .05$. *Note*: For outcomes 1, 5 and 8 a Satterthwaite approximation was employed due to unequal group variances.

3.2. The institute's long-term impact: survey of institute alumni

Thirty-two institute alumni completed an online survey that documented the long-term effects of the institute and revealed how successful the teachers were at implementing and sustaining integrative STEM teaching techniques in their classrooms. Demographic results revealed that 50% (n=16) of institute alumni planned to serve as district or building–level administrators, multi-grade level teachers, or teachers in middle or high school grades. The other 16 alumni reported planning to teach elementary students. Five planned to teach fifth grade; fourth grade (n=4); third grade (n=4); with the remaining teachers dispersed among the other elementary grades. The institute alumni who planned to teach 2015-16 (n=16)

reported teaching the following; mathematics and /or science subjects (n=11); engineering (n=6); or technology (n=4) subjects.

Seventy-five percent (n=24) of the alumni reported having 10 or more years of experience teaching within K-12 schools. Ninety-four percent (n=30) of the respondents still teach or work in the same county or district they did when they first participated in the institute.

Ninety-seven percent (n=31) of the alumni worked immediately after attending an institute to independently implement integrative STEM education activities in their respective classrooms. Of that same population, 62.5% (n=20) were able to immediately work with their disciplinary teaching-team (or teams) to implement integrative STEM education activities at their schools. Of note, all but five of the survey responses 84.38% (n=27) of alumni indicated they continued to use integrative STEM education activities in their classrooms and schools. Those five teachers (15.63%), planned to teach elementary or high school STEM fields in the 2015-2016 academic year.

4. What findings mean

The alumni answered Likert-scale questions through their online surveys to reveal the degree to which they agreed or disagreed with a series of programmatic evaluation questions. They reported that they strongly agreed that they gained confidence in their ability to implement integrative STEM education activities in their classrooms and they attributed this self-efficacy to be the direct result of attending their institute program. They also strongly agreed that the program was worthwhile professional development.

At the conclusion of the 2015 institute, participants echoed what the alumni said and indicated they found the program to be a beneficial professional development opportunity. Participants planned to work with fellow attendees and professionals at their schools to implement the integrative STEM education pedagogical activities in their classrooms and/or schools.

The 2015 participants also had an opportunity in their post-institute survey evaluation to recognize several strengths of the institute that were a benefit to them as they learned more about integrative STEM instruction. Frequently mentioned strengths included the hands-on learning activities they experienced, which could later become activities in their own classrooms. They appreciated the institute's alumni panel presentations where speakers shared their experiences implementing integrative STEM in their school systems. Participants also found value in the lesson plan examples provided as well as the opportunities to plan actual class sessions for use in the upcoming academic year.

In this study the findings suggested that K-12 teachers and administrators who attended this two-day institute were energized or re-energized to think about teaching and learning in new ways. Through the institute they learned to develop integrative STEM education action plans. Institute coaches guided participants through the problem solving process and offered suggestions for integrative STEM education activities. The institute participants left the program self-assured in their abilities and confident in the prospect of implementing their new teaching techniques upon return to the classroom. The majority of the alumni were able to successfully achieve that goal and continue to engage in this transformational learning.

This institute can serve as a model program for STEM education professional development. By providing opportunities for learners to identify problems, design solutions, test their design concepts and improve the designs, integrative STEM instructors can help students apply their math, science and technology knowledge to solve problems. Together, they can educate students to be lifelong, creative learners who can thrive as individuals and as members of the larger community. The integrative STEM education institutes in this study were designed to provide a forum for educators in South Carolina who share the goal of transforming integrative STEM education in local schools and this study provides evidence of how that forum has shaped the educational landscape of one region of this state. The K-12 institute participants came as teams from local schools and went away as members of a national pedagogical movement, armed with action plans to improve STEM education at their respective schools.

5. Conclusion

Collaboration was a common theme that resonated throughout the institute highlighted in this study. Throughout the 10-year history, the institute has fostered partnerships among elementary, secondary, high school, college and university teachers and administrators. Those educators, alongside business and industry leaders and other interested STEM stakeholders, have and continue to strengthen integrative STEM education activities in South Carolina.

One of the institute goals was to develop ways to integrate technological literacy into the K-16 curricula. Promoting ways of integrating technology and engineering by educating teachers and administrators will assist in encouraging more students to choose STEM careers. We propose more

professional development opportunities that support integrative STEM education by using integrative STEM education institutes. In addition, continued collaboration among elementary, secondary, high school, college and university educators, as well as administrators, business and industry leaders and other STEM partners, will continue to strengthen integrative STEM education activities. By providing these professional development opportunities teachers and administrators will be more confident in creating integrative STEM education for students. This education will provide learners an opportunity to identify problems, design solutions, test their ideas and improve designs. This experience will in turn assist educators in helping students apply their math, science and technology knowledge to solve problems. Together, educators can help students become creative, lifelong learners who can thrive - as individuals and part of the larger community**.**

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OPEN EDUCATIONAL PRACTICES: MOTIVATING TEACHERS TO USE AND REUSE OPEN EDUCATIONAL RESOURCES

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Abstract

The paper presents the Open Educational Practices (OEP) initiative that was implemented in Greece, as part of the national strategy for digital educational content in primary and secondary education. It aimed at encouraging and motivating teachers to develop and share OEPs that draw upon the use and reuse of Open Educational Resources (OERs), found either at the Photodentro national content repositories for school education or elsewhere. A new Photodentro Repository for Open Educational Practices on resource-based learning was developed and used by teachers to host and share OEPs. A model structure and a template for describing OEPs, along with a set of quality criteria for OEPs are proposed. The country-wide action "i-participate", supported by a network of regional ambassadors and a web portal, and the 1st Hellenic contest for best OEPs in K-12 education are also presented.

Keywords: *Open Educational Practices, OERs, resource-based learning, Photodentro, Open Badges.*

1. Introduction

Digital educational content constitutes a key pillar in many National Initiatives to effectively support ICT in school education (iTEC, 2011). The creation of digital educational resources, the development of on-line services for the systematic management, effective search, and wide availability of educational resources in school communities, as well as the design of methodological and pedagogical frameworks towards the improvement of the learning process are common objectives in the education policies of many countries.

Openness in education is a new paradigm of social production; In (Peters, 2008), Peters explores the movement of open education and the political, social, economic and technological frameworks that enable and permit greater *"democratic use and reuse of educational resources"* and "*the virtues of openness, such as the ethics of participation, collaboration, co-production, co-design and co-evaluation".* Open Educational Resources (OERs) have become a widely discussed topic in recent years. OERs are teaching, learning and research materials of any type, which are either in the public domain or released with an open copyright license (UNESCO, 2012); in both cases, everyone enjoys free access to OERs and free permission to Revise, Remix, Reuse, and Redistribute, the 4Rs of OERs as defined in (Hilton et al., 2010; Wiley, 2009). A significant report by OECD (OECD, 2007) discusses fundamental questions such as what is an OER, who is using and producing OERs, why people are sharing for free, how OER projects can be sustainable. OLCOS report (Geser, 2012) focuses on policies, institutional frameworks and business models, open access and open content repositories, laboratories of open educational practices and resources, emphasizing that *"OERs are understood to be an important element of policies that want to leverage education and lifelong learning for the knowledge economy and society".*

Regarding primary and secondary education, an increasing number of educational institutions and individuals are producing OERs. In addition, more and more Ministries of Education (MoE) are investing in building their own central, nation-wide OER Repositories (i.e. on-line digital libraries for hosting OERs, that provide the infrastructure and the tools to manage, classify, and describe OERs with metadata, as well as efficient search mechanisms), or aggregators (i.e. refaratories, that collect links to OERs stored in various repositories). Examples of national OER Repositories for K-12 education include the Flemish portal KlasCement *(www.klascement.net)* in Belgium; the Photodentro repository ecosystem in Greece

(photodentro.edu.gr); the Scuolavalore portal in Italy *(www.scuolavalore.indire.it);* the "portal das escolas" in Portugal *(www.portaldasescolas.pt*); and the Koolielu portal in Estonia (*koolielu.ee*).

While however there exist several OERs and OER repositories, their adoption by teachers seems to be slow. In (Geser, 2012) the need to "*foster open practices of teaching and learning that are informed by a competency-based educational framework"* is emphasized.

This paper focuses on Open Educational Practices (OEP) and presents an initiative that was designed and successfully implemented by CTI "Diophantus" under the "Digital School" large-scale Hellenic national framework for primary and secondary education. The overall context, including the Hellenic OER Repository Infrastructure for primary and secondary education, is described in section 2; section 3 focuses on the OEP concept, the needs, and the proposed OEP structure; the Photodentro Repository for OEPs is presented in Section 4, while in section 5, the i-participate action and portal for engaging and supporting teachers are given; finally, section 6 presents the 1st Hellenic contest for OEPs, as well as the OEP quality criteria and Open Badges.

2. The framework: the Hellenic infrastructure for open educational resources

Digital School is the Hellenic national framework for the modernization of school education in Greece, consisting of five pillars. The flagship, nation-wide program *"Digital School Platform, Interactive Books, and Learning Object Repository"*[1] was the main program that implemented the educational content pillar (2010-2015). In this context: (a) More than 7,500 Open Learning Objects (i.e. small, reusable OERs (Wiley, 2000) that are semantically and technically autonomous and are distributed under CC open licenses) have been developed by 120 qualified teachers in 10 domain-specific workgroups, each one operating under the supervision of a scientific coordinator; another 1,000 OERs were identified and extracted out of existing educational software products; (b) All school textbooks (~250) have been made openly available online *(ebooks.edu.gr)* in various digital forms, either pdf or editable html, while more than 100 of them were enriched with click-and-play OERs, resulting in interactive textbooks. Linking OERs within textbooks' open html proved to be a good, alternative approach for associating OERs with learning goals of the curriculum; (c) The *Photodentro* Hellenic Educational Repository Infrastructure for K-12 Education has been developed for hosting, organizing, and distributing OERs for schools. It implements the Hellenic National Strategy for educational content, which -among others- promotes the use of OERs for schools; and (d) the social *Digital Educational Platform e-me (e-me.edu.gr)* (Megalou et al., 2015) has been implemented, offering a safe working space for all pupils and teachers, with a modern and intuitive environment, to share their content, communicate, and collaborate with mates, publish their work, download useful apps, and efficiently exploit OERs.

The *Photodentro* ecosystem consists of a series of OER repositories, each one hosting different types of OERs or serving a different purpose: *Photodentro LOR (photodentro.edu.gr/lor)* hosts more than 8,500 open Learning Objects for K-12 education (Megalou & Kaklamanis, 2014), covering a wide range of disciplines and grades; *Photodentro EduVideo (photodentro.edu.gr/video)* hosts ~1,000 short length, curriculum-related educational videos, suitable for in-class use; *Photodentro EduSoft (photodentro.edu.gr/edusoft)* hosts 140 educational software products for download; *Photodentro UGC (photodentro.edu.gr/ugc)* allows teachers to upload and share their own resources, thus representing the user-generated branch of the ecosystem; *Photodentro Cultural (photodentro.edu.gr/cultural)* is a thematic aggregator for educational cultural objects, providing access to 7,500 selected objects from Europeana collections. Last but not least, the *Photodentro Greek National Aggregator* of Educational Content *(photodentro.edu.gr)* has been developed, providing seamless access to 17,200 OERs; it operates as the national service for harvesting educational metadata from various repositories and collections, serving as the focal access point to learning resources for schools in Greece.

3. Open educational practices on the effective use of OERs in school education

Open Educational Practices (OEPs) are teaching techniques that draw upon OERs in order to facilitate collaborative and flexible learning (Beetham et al., 2012). Various groups and scholars have defined OEPs. Ehlers defines OEP *"as practices which support the (re)use and production of OER through institutional policies, promote innovative pedagogical models, and respect and empower learners as co-producers on their lifelong learning path"* (Ehlers, 2011).

[1] *"Digital Educational Platform, Interactive Books, and Learning Object Repository"* Hellenic National Program (http://dschool.edu.gr), co-financed by the European Union (ESF) and National funds in the context of Operational Programme "Education and Lifelong Learning" of the National Strategic Reference Framework (NSRF), coordinated and implemented by the technical partner of the Greek Ministry of Education "Computer Technology Institute and Press - CTI DIOPHANTUS" (www.cti.gr), Strategy and Digital Educational Content Directorate. Duration: 2010-2015. Budget: 8,75 million euro.

Having developed some thousands of OERs and a large-scale Repository Infrastructure for organizing, hosting and delivering them to the educational community, the next strategic goals in the context of the Digital School framework in Greece were:

- to boost the use of OERs of existing OER repositories;
- to involve teachers in the content creation process by motivating and supporting them to use, reuse, remix, and create new OERs from existing ones;
- to encourage the role of teachers as content creators;
- to develop active communities of practice on *resource-based learning*;
- to encourage sharing of *Open Educational Practices*; and
- to foster Open Practices in Education.

Towards these goals, we defined Open Educational Practice (a) as a reusable, teaching practice on resource-based learning; (b) that draws upon OERs; (c) has been implemented in a real educational setting; and (d) its creators openly share with others, along with the associated results, experiences, and reflections.

Thus, in this context, an Open Educational Practice is not just a learning scenario or a set of learning activities that draw upon OERs; in order to be considered as an "educational practice", it was a prerequisite for a learning scenario to have been implemented in a real educational setting, involving pupils, so that it can operate as a workable example for others through its extension, adaptation, or customization. The educational context is determined by the environment that the scenario applies, inside or outside a classroom, the pupils' level, etc.

Resource-based learning has been adopted as the educational approach for Open Educational Practices. The approach actively involves pupils in the effective use of a wide range of appropriate resources (Hambleton, 1992). Resource-based learning is pupil-centered. The emphasis is given to pupil activities and on their development of skills and strategies (critical thinking, problem-solving, communication and creativity). Constructionism, Learning by Design, and Project Based Learning can be used as models for implementing resource-based learning in the classroom (Campbell et al., 2002).

3.1. Describing open educational practices: OEP model structure

In order to support teachers in the development and sharing of OEPs, we defined a model structure for the description of OEP along with an OEP Template that included the following sections:

1. OEP summary;
2. OEP design and learning goals (initial goals set should not necessarily be achieved; unexpected outcomes are considered equally significant);
3. The educational context where the OEP has been applied (what, where, and how);
4. OEP detailed description, focusing on how OERs have supported learning activities and how pupils have been involved in the process; the Role of teacher in the process is described as well;
5. List of OERs used, reused, or produced;
6. Documentation of the OEP's extensibility and reusability, including:
    a. Results and Impact: added value, pedagogical outcomes, changes to the initial design etc.
    b. Innovative characteristics and Relation with existing OEPs
    c. Extensibility and Reusability to other educational contexts

4. Photodentro OEP: a repository for open educational practices

The "*Photodentro OEP*" repository was designed and developed to host, organize, and allow teachers to share Open Educational Practices for primary and secondary education. It is part of the *Photodentro* ecosystem, operating at *http://photodentro.edu.gr/oep*. All OEPs are freely available to everyone and are provided under Creative Commons BY-NC-SA license.

In order to upload and publish OEPs, teachers have to register and create a public profile. LDAP (Lightweight Directory Access Protocol) directory services are used to certify teachers' identity. Teachers are encouraged to include in their profile their professional experience, achievements, studies, publications etc. The list of their OEPs and any other social contribution (e.g. comments and ratings) is part of their public profile; this social approach supports a significant goal of *Photodentro OEP*: to build a *professional* social network of teachers on resource-based learning, OERs and OEPs.

No prior validation is needed for making an OEP public in the *Photodentro OEP* repository; it is part of the design approach to trust teachers at first place and take actions only if an issue appears. Each OEP initially labeled as non-checked; content is then checked under certain rules that aim mainly at avoiding links to external sites with ads or inappropriate content, or potential future broken links. A list of "trusted" educational repositories or aggregators of OERs is provided, including Photodentro, LRE for schools service by European Schoolnet *(lreforschools.eun.org)*, and ODS portal *(opendiscoveryspace.eu).*

As a means of describing and indexing its OEPs, *Photodentro OEP* makes use of metadata based on the IEEE LOM specification (IEEE, 2002). OEPs are organized into collections, each one corresponding to an educational level: pre-primary, primary, lower and upper secondary education. *Photodentro OEP* supports free text search, browsing, and faceted search, allowing users to narrow search results by applying multiple filters. Each OEP has a unique persistent identifier. Everyone can freely preview or download OEPs. *Photodentro OEP* implementation is based on DSpace (*www.dspace.org*), an open source platform for building digital repositories.

Photodentro OEP supports ratings and comments by registered users. A five-star rating system allows users to evaluate OEPs on the following aspects: (a) Overall Approach and Innovation; (b) Focus on 21st century skills; (c) Methodology; (d) Impact, Usefulness and Extensibility; and (e) Description and Presentation of OEP.

Photodentro OEP provides a form-based environment for registered users (teachers) to upload, describe and publish their OEP. The process has three steps: 1- Uploading OEP files; 2- OEP Metadata authoring; and 3- OEP Publishing.

OEP files include: a) an OEP thumbnail; b) The OEP documentation file (pdf). Teachers are asked to describe their OEP following the prescribed OEP model structure. The use of the OEP template is strongly recommended. Guidelines are given as well, encouraging teachers to focus on OEP results and impact, added value, and OEP extensibility; c) Any supporting material like pictures, video, other outcomes (optional); and d) An OEP presentation (optional); a presentation template is provided as well.

Teachers are also asked to provide a small set of metadata that include: title, short description, keywords, OEP type, thematic classification (using the *Photodentro* school taxonomy), educational level / grade, contributors, and distribution license.

5. Supporting and motivating teachers: the i-participate action

The Hellenic Open Educational Practices initiative was supported and promoted by the "*i-participate"* action. The action aimed at motivating and facilitating teachers to use, reuse, develop, and share OERs and OEPs for primary and secondary education. Teachers were encouraged to contribute their resources to the two dedicated National Repositories for teacher-generated content and open educational practices *Photodentro UGC* and *Photodentro OEP* respectively. The overall goal was the development of an innovative and active teacher community on resource-based learning and open practices.

The *i-participate* model was based (a) on a network of (five) regional ambassadors, whose role was to organize and run local and regional events and workshops with teachers, to increase teachers' awareness on OERs and existing repositories, and to motivate and support them in developing and sharing OEPs; and (b) the *i-participate* portal *(i-participate.gr),* a workplace where teachers find supporting materials, are informed about relevant events and workshops, and participate to discussion forums. Within eight months, the ambassadors have organized and run around 30 local events, where more than 500 teachers have participated. Co-organizing workshops with other local events proved to be a successful approach. Webinars also took place. Given that *i-participate* was part of the Digital School framework, the official MoE channels at a regional level have been used to inform teachers.

6. Open educational practices contest

The 1st Hellenic Contest on Open Educational Practices in primary and secondary education was organized and took place in August 2015. Its main goals were: (a) To award innovative ideas and best Open Educational Practices, highlighting creative and constructive use of open, digital educational content in the learning process; (b) to serve as a motivation for teachers to submit OERs and OEPs to *Photodentro UGC* and *OEP repositories*; (c) to increase awareness of the educational community on the results and infrastructure developed in the context of the Digital School program.

6.1. Quality criteria for open educational practices & open badges

The set of Quality criteria for evaluating Open Educational Practices were:

- Overall pedagogical approach and innovation i.e. Does it bring something new? Does it offer added value? Are pupils involved in the process? Do they create something or develop collaborations?
- Focus on 21st century skills, including: Thinking skills (problem solving, critical thinking, logical, numerical); Communication skills (reading, writing, speaking, listening); Teamwork skills; Ability to adapt to changing circumstances; Ability to learn independently; Networking and Social Skills
- Innovative pedagogical practices and methodologies;
- Documentation of the Open Educational Practice, i.e.: Is the OEP description complete and concise? Is the language used appropriate and easy to understand?

- Importance, Usefulness, Reusability and Extensibility, i.e. how useful, reusable, or exploitable is the OEP for others.

The contest had four sections/categories, each one corresponding to an educational level (pre-primary, primary, lower and upper secondary education), and it provided for three Best OEP winners per category. The concept of Open Badges (*openbadges.org*) was adopted to award Good and Best OEPs.

6.2. OEP contest results and next steps

Sixty five (65) OEPs were submitted within three months, the majority of which of a high quality. All OEPs are available at the *Photodentro OEP* repository. Two types of OEPs were identified: (a) where effective use or creation of OERs happened in the context of (usually long-term) projects, either local or European, that schools have participated; and (b) where OERs have effectively been utilized, extended, or customized in a short-length (1-2 hour) session of learning activities in a classroom setting.

The overall approach of the Hellenic Open Educational Practices (OEP) initiative proved to be very successful. The OEP contest is now planned to take place on an annual base.

The OEP contest idea has been endorsed by LangOER European project (*langoer.eun.org)* that aims at raising awareness on OERs for less-used languages and demonstrating best practices. The OEP initiative formed a core part of the LangOER teacher workshop in Greece; the result proved the significance of creating synergies among National strategies and European initiatives.

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A CRITIQUE OF THE TRANSITION FROM THE UNIVERSITY'S TRADITIONAL, LABOR-INTENSIVE LECTURE-BASED SCIENCE (e.g., BIOLOGY) COURSES TO AN IN-HOUSE "ONLINE COURSE" MODEL

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Abstract

Traditional biology lecture formats in which the professor draws diagrams, makes lists of key points, explains complex phenomena, and entertains class discussion are being replaced by a format that closely resembles a contemporary online course. PowerPoint (Ppt) presentations read off the screen by the professor and multiple-choice exams generate a separation between the professor and the student's learning experience, as occurs in contemporary Online courses. Many of forces that promote that separation are reviewed as well as possible alternative models that provide a shared learning experience for both the student and the professor.

Keywords: *Online course critiques, science-course outcomes, improving labor-intensive science teaching, electronic teaching aids, core learning competencies.*

1. Introduction

It is generally recognized that research and learning in the field of modern biology is undergoing a major transformation (e.g., Brewer and Smith, 2009). This transformation is largely being driven by at least 5 major research advances in analytical and computational technologies (e.g., bioinformatics). These include: 1) the sequencing of the human genome; 2) the analysis of the complete protein and RNA compositions of living cells ("proteome" and "transcriptome", respectively); 3) high-resolution atlases of neural (brain) function; 4) detailed insights into ecological effects of climate change; and 5) surprising discoveries re. the genetic basis of human diseases.

As the information platform for the undergraduate university biology curriculum expands exponentially, the traditional model for teaching has begun a process of transition. Although the generally accepted "core competencies" for the undergraduate learning experience emphasize developing the students' ability to think critically, devise solutions to problems using the so-called "scientific method", evaluate evidence, and communicate effectively, that expansion of the information platform presents a challenge to the delivery of those core competencies.

Increasingly, university (biology) professors compensate for the flood of information by altering the structure of their courses to accommodate the plethora of new data. Ppt presentations that represent "data saturation" are increasingly common. If posted on the class's internet site students are relieved of the necessity of regularly attending class. Exams (especially in large classes) often are of the "multiple-choice" type (and computer graded).

The net result is that the classroom experience begins to resemble a typical online biology course. In the process of this transition, emphasis on helping students learn "core competencies" is being sacrificed to memorizing increasing amounts of so-called "new information". As the professor reads the details of a Ppt presentation off the screen, students conscientiously take notes of those details to be memorized in preparation for computer-graded multiple-choice exams. Figure 1 illustrates this phenomenon.

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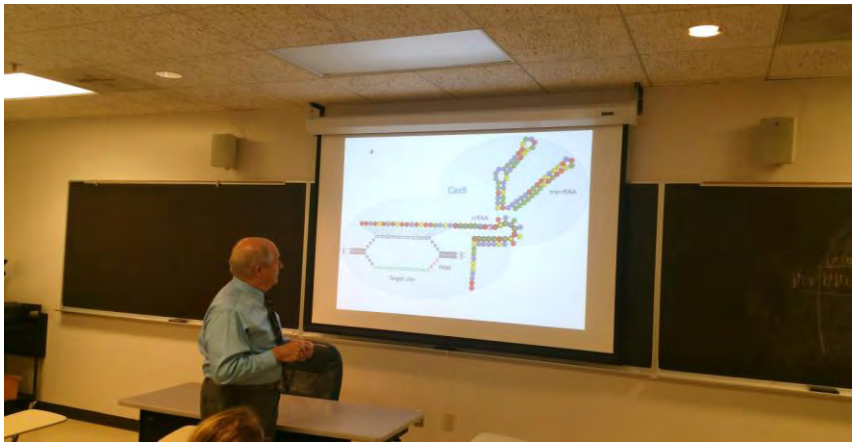
Figure 1. Professor reads details of a complex biological phenomenon off a Ppt screen



Traditionally, the instructor would draw, step by step, an illustration, rather than - in the Ppt mode as illustrated—simply read off the screen as one fully-prepared (color) slide is followed by the next, and so forth. In this mode, students are presented on a slide with a complete phenomenon, rather than having the opportunity to "learn by construction" as each component is drawn on a blackboard, and explained in the traditional way by the instructor. With multi-colored Ppts. too often each slide contains too much information to be understood. Rote memorization as a way of learning is thus inadvertently emphasized by the instructor, and reinforced by multiple choice, computer-graded exams.

2. The present-day shift from hypothesis-driven research to discovery-driven research fosters the counterproductive switch to a learning paradigm that emphasizes Ppt. teaching

Traditionally, the student-learning experience in the science classroom has been developed around a protocol that employs the so-called "scientific method". Hypothesis-driven research (HDR) usually begins with an observation, theory, or idea that in turn leads to development of a hypothesis. The next step is a "controlled" experiment for data collection. That is followed by evaluation of the data, and compiling that data with other information to generate "evidence" that either proves or disproves the hypothesis. The key features of this approach are the facts that the hypothesis must be highly specific, and the experimental test should be very exact. Opportunities for students to develop their analytical/critical thinking skills abound, as do active learning and cooperative learning experiences during hypothesis development.

Discovery-driven research (DDR) is different. It usually involves the investigation of a phenomenon for which there is no obvious starting point for formulating a hypothesis. This situation often arises when there is no well-characterized "model system" for study. A classic example is the human genome project. Lacking an intellectual entry point (e.g., pre-existing fine structure genetic analysis), scientists simply cut the human genome into pieces, carefully sequencing each piece. Finally, once the sequences of the individual pieces were stitched together the entire three-billion base pair genetic code was discovered. No hypothesis figured prominently in that endeavor. Such endeavors are commonly referred to in the scientific community as *fishing expeditions* (i.e., "let's see what we can catch").

Most often, DDR is initiated with a specific technology as its central feature.

Thus, DNA sequencing, RNA micro-array analyses, mass spectra, and other complex technologies are exploited with the anticipation that surprising discoveries will be made that in turn eventually lead to hypothesis-driven investigations. In many instances, however, discovery research fails to generate progress. For example, cancer research has not benefited from such efforts. And other projects, such as evolutionary biology have resulted from a synthesis of observations rather than either hypothesis/discovery approaches. It is usually, however, expected that DDR will eventually generate a starting point for HDR. For example, knowing genome sequences has led to HDR success in establishing cause/effect relationships for details of gene expression (e.g., reviewed by Levine et al., 2014).

3. The dilemma for classroom teachers

Despite the intellectual shortcomings of DDR, it has come to dominate high-profile contemporary biology research endeavors. In the classroom, students are usually anxious to learn about those high-profile projects, rather than employ the academic/intellectual discipline (e.g., analytical thinking) that characterizes successful use of HDR. Thus, the undergraduate learning experience is incomplete:

Critical thinking associated with hypothesis/experimental design is by-passed. It is replaced by detailed Ppt. descriptions. Students are therefore expected to memorize ever more facts, rather than relate evidence to an initial hypothesis.

Likewise, since data collection from DDR inherently lacks a guiding logic for explaining the endeavor, constructing a narrative that leads to "cause vs. effect" distinctions is particularly difficult for the classroom instructor (reviewed by Davidson, 2015). As well, the data from DDR often fails to provide a coherent "learning template" for undergraduate discussion and active learning. Teaching "science as a way of knowing" (Moore, 1984) that enhances deep thinking therefore becomes increasing difficult for the instructor. Indeed, the proliferation of DDR endeavors has recently led to the proclamation that "The data deluge makes the scientific method obsolete" (Anderson, 2008).

4. Various economic and administrative forces weaken the traditional HDR-teaching paradigm

In addition to the dominance of DDR, and the paucity of contemporary traditional "hypothesis tested" discoveries, a number of forces work against student-oriented inquiry models of classroom instruction. These include:

Force #1: Methods for collecting data in modern biology are now predominantly technologically driven, rather than "hypothesis driven". Thus, emphasis on the rote memorization of information derived from DDR (see Fig. 1) by-passes the opportunity for students to develop the verbal reasoning and abstract thinking skills associated with genuine HDR.

Force #2: Reduced (e.g., U.S.A) government funding for public universities leads to large (50-300 students) classes. Those classes routinely use "multiple choice" exams that are computer graded. Opportunities for students to exhibit creative/innovative thinking is thereby minimized. Classroom exams mimic short-form online course exams.

Force #3: In order to reduce costs, universities hire increasing numbers of temporary instructors and/or part-time or graduate-students as teachers (Kezar and Maxey, 2013). The relative ease of employing the information-transfer mode of teaching, usually adopted by so-called "adjunct faculty", deprives students of the opportunity to learn about science by "practitioners" leading to an incomplete understanding of HDR (see Table I).

Force #4: Large research universities (e.g., U.S.A.) reward professors with promotion, tenure, and salary increments based largely on the productivity of their scholarship (i.e., research publications, books, research funding, etc.). They typically lack incentive/motivation to adopt recommendations such as those included in Table I. Adopting those recommendations requires extra time (away from research programs). Furthermore, most professors have become—during the course of their careers-- very skilled learners, and lack patience with the undeveloped learning habits of typical undergraduates. That phenomenon is exacerbated by the different values the millennial generation brings to college. For example, they are often unimpressed by lectures (Jackson, 2009).

Force #5: Large public universities (in the U.S.A.) face declining enrollments. Demographic shifts are leading to a reduction in the number of college-age students. Competition for students is therefore keen, with increased efforts to maintain enrollments by recruiting foreign (esp., Chinese) students. It has been recognized that the verbal communication skills of typical Chinese students enrolled in American universities need English-language remediation (Yang, 2015). Thus, the verbal skills that are a prerequisite for developing critical thinking/abstract reasoning of HDR will require development of so-called "bridge classes" for sub-groups of international science students.

Force #6: Active learning/group learning (outside the formal classroom) requires tables, chairs, erase boards, etc. They are, however, in increasingly short supply. Decreasing budget allocations for infrastructure and administrations out of step with modern instructional needs represent this driving force.

It is likely that those forces, in various configurations and strengths, contribute to the transition to "in-house" facsimiles of authentic online courses. That is, undergraduate courses exhibit increasing similarities to the thousands of courses already offered on the internet. The most important advantageous feature for the university is their low cost. The most disadvantageous feature for the student is, of course, diminished (in person) interaction with a professor. It remains to be seen whether the effects of those forces can be reduced (Mervis, 2012).

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5. Discussion: alternatives models exist

Various models that focus on student-oriented "intellectual development" (e.g., critical thinking, active learning, and "writing as a way of learning") are included in Table 1. Which model is most appropriate for "this for that" course should depend on several factors. These include the topic of the course, the personality of the instructor, level of students (e.g., 1st, 2nd, 3rd year, etc.), size of class, and availability of space for cooperative learning groups, etc.

Table 1. Alternative Models to the "Facsimile Online Course Paradigm

Model	Features	Advantage	Disadvantage
Hybrid	Supplement Ppts. with links to animations and problem sets	3rd and 4th D supplement 2nd D of Ppts.	Role of instructor minimized
Writing	Students write essays to illustrate comprehension	Writing causes students to focus; enhances info processing	Grading essays requires extra time
Review Classics	Early expts. were HDR	Provokes critical thinking re. evidence	Frontier discoveries emphasize DDR rather than HDR
Socratic Method	Emphasis on inquiry	Enhances analytical/ critical thinking	Limits breadth of coverage

6. Concluding comment

For each of the models, reducing the impact on rote memorization as a way of learning should be emphasized. The technology upon which DDR depends is constantly changing. Thus, learning technical details represents mostly mental calisthenic exercises. Learning how to evaluate evidence, in contrast, is a skill that has wide applications not only in scientific formats but in many other human endeavors as well.

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SOMETHING NEW OUT OF AFRICA: THE AFRICAN STORYBOOK INITIATIVE AS A CATALYST FOR CURRICULUM MAKING

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Abstract

The vision of the African Storybook (ASb) initiative is for every African child to have access to stories in a language they know well so that they can practice their reading skills and learn to love reading. Under the leadership of the South African Institute of Distance Education (Saide), open access digital texts for early reading have been sourced from and translated into many of Africa's local and regional languages and uploaded onto a comprehensive website which also has tools for story creation and translation. Users of the website are able to create new stories or to translate existing stories into local languages and thus to contribute to the growing numbers of stories available to teachers, parents and librarians. While the on-going development of the African Storybook website (www.africanstorybook.org) is the major innovation, the focus of this short paper is on innovative use of the resources of the ASb as a catalyst for the professional development of teacher-researchers through engagement in action research projects, one located in a teacher education programme in South Africa and the other in two primary schools in Uganda. Findings from a thematic analysis of data from each project (teaching materials, translated stories, transcribed interviews and researcher field notes), are drawn on to argue that access to a website which has both a bank of stories in local languages and tools for the translation, adaptation and creation of openly licensed stories, together with access to external consultants to support the research process, has enabled teacher-researchers to shift their professional identities from curriculum takers to curriculum makers.

Keywords: *African Storybook initiative, open access digital texts, curriculum making, teacher professional identity shifts.*

1. Introduction

Throughout Sub-Saharan Africa many children are not learning to read competently in the first three years of primary school and thus both 'reading to learn' and 'reading for pleasure' in these early years, and in higher grades, are constrained (Howie et al, 2008; Pretorius, 2014; Barrett, 2015). One of the many reasons for reading failure is the absence of suitable materials in languages with which learners are familiar. Another is teachers' limited knowledge of pedagogic practices that support reading development. The African Storybook (ASb) initiative's main aim is to provide interesting and accessible reading material for young learners but its work in Kenya, Uganda, Lesotho and South Africa also includes teacher professional development. Both aspects of ASb have been the subject of qualitative and quantitative research and evaluation since the inception of the initiative in 2013 (e.g. Welch, Tembe, Wepukhulu, Baker & Norton, 2014; Janks & Harley, 2015; Jiyana & Ndlovu, 2015; Tembe & Reed, 2016; Treffry-Goatley, 2015). This paper begins with a brief description of key features of action research and of the African Storybook initiative after which two action research projects, in which ASb materials have been the catalyst for the research, are outlined. The first is located in a university teacher education programme in South Africa and the second in two primary schools in Uganda. For each project the 'problem' to which the research is a response is outlined and the collaboratively undertaken research process is described. My role in each project is that of research advisor and in this capacity I have been involved in both the design of the research and the analysis of the data collected. I use some of the findings from the first cycle of the on-going research in each project to argue that ASb materials and the affordances of the website for story-making have enabled teacher educators and pre-service and in-service teachers to become 'curriculum makers' and not just 'curriculum takers' (Janks & Harley, 2015).

2. Characteristics of action research

The notion of positive change or improvement, particularly in relation to the achievement of social justice, is central to definitions of action research (Carr & Kemmis, 1986) as is the notion of participation / involvement in a research process which involves collaborative reflective enquiry. Reason and Bradbury incorporate all of these ideas in their definition of action research as:

'a participatory democratic process concerned with developing practical knowledge in the pursuit of worthwhile human purposes ... It seeks to bring together action and reflection, theory and practice, in participation with others, in pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and communities' (2001:1).

Also characteristic of action research is the notion of research spirals or cycles involving planning, acting, collecting data in relation to the action, analyzing / reflecting on the data, using findings from this analysis to inform the planning of the next research cycle, 'so that those involved can define more *powerful questions* for themselves as their work progresses' (Kemmis & McTaggart, 1988: 25, italics in the original). The researchers involved in each project described in this paper have desired to bring about improvement in the literacy levels of young learners and have used some of the resources of the African Storybook initiative to plan, enact and reflect on changes to their professional practices – changes which differ for each project but which are similar in terms of increased capability and agency for each teacher-researcher.

3. The African Storybook initiative

Conventional publishing models which rely on economies of scale, are unable to provide texts in sufficient number or variety in the continent's multitude of languages, some of which are spoken by relatively small populations (Welch, 2012). The African Storybook (ASb) initiative is an imaginative response to the need for many stories in many languages at little or no financial cost to readers. Under the leadership of the South African Institute of Distance Education (Saide), open access digital texts for early reading have been sourced from and translated into a total of 73 languages to date (March 2016) and uploaded onto a comprehensive website. Learners do not have to be online to read the texts: they and their teachers or caregivers can download them onto their own devices or print them, though access to the resources with which to do this is still problematic in some contexts. Since the start of the ASb initiative in 2013, Saide has facilitated the process of story development, translation and adaptation through partner-led workshops in a variety of contexts in Sub-Saharan African countries as well as through the integration of story development and translation into teacher education programmes. It is possible for story developers to create or translate or adapt a text offline and then upload it when the internet is available. When texts are originated in dominant languages such as English or French there are likely to be literacy experts available to evaluate the lexis, syntax, spelling, etc. Finding experts to quality assure stories in a wide range of local languages poses a considerable challenge for ASb.

In the next section I outline how two teacher educators with expert knowledge of the siSwati and isiNdebele languages have worked with two research advisors to design and implement an action research project with a focus on translation and evaluation of stories for young readers.

4. Addressing a literacy gap: student teachers as translators and evaluators of stories in siSwati and isiNdebele for early grade readers in South African classrooms

In order for learners to develop multilingual literacies they need access to 'rich multilingual print resources' (Makalela, 2015: 189). In South Africa such resources are in very short supply for some languages. At the Siyabuswa campus of the University of Mpumalanga two teacher educators responsible for content and methodology courses for student teachers majoring in siSwati or isiNdebele, were concerned about the lack of quality texts available for their students to study and to use in teaching early years learners. They decided to use the resources of the ASb website to initiate an action research project with their third year students. The firs cycle of the project had three goals: (i) to enable student teachers to contribute to the store of reading material for Siswati and isiNdebele early years learners; (ii) to enable student teachers to understand what is involved in the effective translation or versioning of stories; (iii) to give student teachers opportunities to engage with translated stories and to evaluate their suitability for early years learners.

In collaboration with two research advisors the teacher educators designed two assignments based on ASb materials, with student teachers' responses to each assignment and teacher educator field notes constituting the major sources of research data. The first assignment required students who are studying either Siswati or isiNdebele to translate a story from the ASb website into one of these languages. After receiving feedback from the teacher educator responsible for one of the languages, students were asked to improve their translation in terms of grammatical accuracy, appropriate vocabulary level and 'story quality' and to resubmit it for 'quality assurance', after which the translation would be added to the stories available in these two languages on the website. The second assignment required each student to read and evaluate three stories from the website (in any language in which he or she is literate) in terms of suitability for and likely appeal to young readers. After the second assignment had been completed the teacher educators conducted focus group interviews with a convenience sample

of students to gauge their responses to the assignments (e.g. what they had learned, what they valued, what could be improved). A detailed analysis of findings from the teacher educator-researchers' analysis of students' translations and story evaluations, from the focus group interviews and from their field notes is the subject of a paper on student teacher learning by Jiyana and Ndlovu which is currently under review. In this paper I focus on teacher educator learning, drawing on data from the focus group interviews with student teachers, the teacher educators' field notes and my own field notes. With reference to research in education, Baxen et al consider a key question to be 'What factors influence the ability of education participants to convert educational resources into capabilities?' (2014: 100).

Walker et al define capabilities as 'the real and actual freedoms (opportunities) that people have to do and be what they value being and doing' (2009: 567) and capability as 'not just the opportunity for empowerment, or agency, but being able to exercise such agency in advancing the goals one values' (2009: 568). Both teacher educators appreciated the opportunity, afforded by the ASb website and the support of the research advisors, to design new types of assignment. They felt affirmed by the positive responses from the majority of students who commended them for 'an alternative assignment that enabled us to do something that will help us as teachers', for 'giving us the challenging experience of translation', for 'helping us to become more proficient in using ICTs and especially the ASb website' and for 'helping us to think about language that is suitable for young learners' (focus group interviews). They were further affirmed by the interest expressed in their project when they presented a paper on the first phase of the research at the annual South African Education Research Association conference. (As a member of the audience I can confirm that the comments and questions that followed their presentation indicated a high level of interest.) As a result of these positive responses from both students and academic colleagues, the teacher educator-researchers have planned the next cycle of their research in which they will refine the assignment 'process' and, in collaboration with staff at Saide, aspects of the technology. These refinements are in response to challenges for students identified from analysis of the assignments and the focus group interview data. Two examples of planned refinements to the assignments are giving more input to students on Open Educational Resources (OER) and on the importance of student teacher contributions to a 'story bank' and giving more detailed reasons for the editing changes made to the students' draft translations so that students are able to extend their knowledge of the syntax and lexis of these languages. With reference to the website, two examples of proposed changes are an adaptation which would make large group log-ins easier and the creation of an identifying tag for stories in different varieties of a language (e.g.SiSwati (Swaziland); SiSwati South Africa)). The teacher educators have also planned a change to the final year B Ed curriculum so that the students with whom they worked in 2015 will have opportunities in 2016 to originate stories (both text and images) for the ASb website. I argue that the refinements to what were experimental assignments for third year student teachers in 2015 and the planned changes to the fourth year curriculum are evidence of these teacher educators' newly identified capability as curriculum makers and that key factors enabling such capability have been the resources of the ASb website and the guidance of two research advisors from outside their university.

5. Using African Storybook materials for teacher professional development in two Ugandan primary schools

In Uganda, teachers are expected to teach the curriculum through the dominant local language for the first three years of schooling. In the Butaleja district the dominant language is Lunyole but while teachers speak this language fluently, they do not consider themselves to be competent readers and writers of Lunyole. They are more confident in using English in the classroom although they understand that learning to be literate and numerate in an unfamiliar language is very difficult for learners. When the ASb co-ordinator for Uganda, introduced teachers and community librarians to the resources of the ASb website and showed them stories written in Lunyole, six teachers and one school principal from two neighboring schools expressed interest in using these stories to improve their reading and writing in this language. It was decided to constitute a professional development group which would meet once a fortnight for two hours after school with the meetings facilitated by the ASb co-ordinator. After their first meeting the group agreed that their 'study group' should become a group of action researchers who would investigate the following question: Could group reading and discussion of ASb stories in Lunyole lead to increased teacher competence and confidence in reading and writing in Lunyole and to greater use of Lunyole in the classroom? Each teacher recorded notes at each meeting and at some of the meetings they collaborated in the preparation of materials for use in their classrooms (e.g. topic-based bilingual vocabulary charts in Lunyole and English). The ASb co-ordinator recorded field notes during the meetings, wrote reflections in her journal after each meeting and emailed these, together with photographs of the group at work, to the research advisor for discussion in email conversations. At the final meeting for the first phase of their work the teacher-researchers wrote individual reflections and used these in a critical group reflection and to make plans for the second term. Data gathered from all of

these sources during the first cycle of this project were analyzed and the findings presented at a literacy conference (Tembe & Reed, 2016; forthcoming). I draw on the same data and findings to present two vignettes of the group at work and two examples of agentive behavior indicative of shifts in professional identity.

Vignette 1
At their second meeting the teacher-researchers read an ASb first sentence story *Ono indiise* (This is me). Individual reading of sentences was sometimes interrupted by suggestions for correction to pronunciation. At the conclusion to the story reading there was extensive discussion of the spelling and punctuation used in the text. For example, while the word *hifanani* is used in the story, the group agreed that the word in common usage is *hifananyi* and that they would tell learners this when reading the story with them. As a group they decided that it would be helpful to learners to use the phrase *hifananyi hiranyi* to generate further words beginning with *hi* and that they would begin with *Higalamu* (It is wide); *Himaali* (It is black); *Hihosa (*It is white) and *Hirando* (It is red). (Sources: teachers' notes; ASb co-ordinator's field notes; sentence chart prepared by teachers)

Vignette 2
Towards the end of the first term one of the meetings focused on pedagogy. In discussing the drawings in the ASb stories the teachers agreed that these assisted reading comprehension. One teacher told the group that she planned to bring objects, photographs or drawings to class to help learners with word meanings in both Lunyole and English. Her idea was taken up by the whole group, with each teacher agreeing to include objects or images or both in their literacy lessons, to make notes on learners' responses and to bring these notes to a group meeting for discussion. Two teachers showed the group a shortened version of an ASb story and explained how they used this adapted story in numeracy lessons in which they taught subtraction. In the final part of the meeting the group discussed learners' difficulties with prepositions in Lunyole: in a written text they are separate words but many learners appear to hear them as part of the adjacent word. Everyone agreed to bring suggestions for tackling this problem to the next meeting. (Sources: teachers' notes; ASb co-ordinator's field notes)

These examples of research group members' agentive behavior were recorded in the field notes of the ASb co-ordinator. In addition, she noted that at a regional Ministry of Education workshop, in response to a question about whether to teach in Lunyole or English, the teachers participating in the action research project argued in favor of Lunyole and were the only ones to do so. The teacher-researchers have submitted a request to the Uganda School Health and Reading Program, run by RTI International, that teachers' and learners' books be translated from Luganda, one of the 'cohort languages' in the programme, into Lunyole, a language not currently part of the programme. One of the advantages of having these materials translated into Lunyole is that the RTI materials are available for downloading under a Creative Commons agreement.

The vignettes of the teacher-researchers at work and the examples of their public support for the use of Lunyole in their classrooms suggest that having ASb resources available in this language and having opportunities to use these to extend their literacy in Lunyole by working collaboratively, with the support of a Lunyole language expert, have resulted in increased interest and confidence in using the local language in the classroom. For the second cycle of the research project the group has identified a need to understand more fully aspects of the phonics and the grammar of Lunyole and also the need to write stories together so that there will be more material available in Lunyole for learners to read. While these teacher-researchers are arguably not fully fledged curriculum makers (innovators), they are engaged in a process of materials development to support improved teaching of Lunyole as subject in the curriculum and optimal use of Lunyole for teaching and learning across the curriculum, alongside English so that learners become biliterate.

6. Concluding observations

The African Storybook initiative is something new out of Africa, with contributions to its story bank now offered not only from many African countries but also from other parts of the world. It is work in progress. The midterm review (Janks and Harley, 2015) found much to praise and also offered suggestions for improvements, particularly in the area of teacher professional development. First the praise:

Where schools had no access to reading material, particularly in local languages, children are now able to read stories projected magically onto their classroom walls; where teachers were inclined to favor enliteration in English, doubts about mother tongue literacy have largely been dispelled. While traditional choral rote responses to reading persist, more effective practices have been introduced so that children now interact with texts more meaningfully and they are being given some reading instruction… The review shows gains in the level of teamwork amongst the teachers, increased autonomy and greater learner centeredness (2015: ii)

Noting the key role of the ASb co-ordinators in the various sites at which teachers are being supported in using existing ASb materials and in creating new materials for the website, and the impossibility of taking this work to scale, the reviewers recommend making increased use of teacher

education institutions both for working with pre-service student teachers, as in the first action research project described and discussed in this paper, and for short courses and /or workshops for in-service teachers. They also recommend using the resources of the website for modeling and explaining examples of good teaching practices. While they do not elaborate on what these might include, showing video clips of teachers working together to improve their understanding of a language or to create teaching materials, as has happened in the second action research project described in this paper, could be useful, together with model lessons showing teachers using ASb texts to enhance learners' literacy experiences..

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True to the spirit of action research, the two projects described and discussed in this paper were undertaken collaboratively and so I wish to acknowledge the contributions of Cynthia Ndlovu and William Jiyana, lecturers in Siswati and isiNdebele respectively at the Siyabuswa Campus of the University of Mpumalanga, and the third year student teachers who undertook the translation and evaluation work on ASb stories under the guidance of these two lecturers; Juliet Tembe, the ASb co-ordinator for Uganda and the teachers and school principal who worked so enthusiastically with her; Tessa Welch ASb co-ordinator at Saide whose vision and energy have contributed so much to these research projects and to the overall ASb initiative.

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INSTILLING VALUES FOR SUSTAINABLE DEVELOPMENT: TRANSFERRING AN ESD ART-INSPIRED EDUCATION MODEL TO NONINDIGENOUS CULTURAL CONTEXTS

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Abstract

In 2005 the United Nations Decade of Education for Sustainable Development (UNDESD) was established with a focus on the school's role in educating children to become thoughtful stewards of the natural environment. At the close of that decade and the beginning of the Global Action Program (GAP) decade, methodologies with the capacity to effectively reflect policy are of particular interest to educators, especially methodologies from indigenous sources with transfer potential. This study investigates a Japanese indigenous ESD methodology and its potential for transfer to other cultural settings, suggesting that existing methods can be adopted and adapted for use outside of their original cultural setting. The method in question, as performed in a preschool setting, is in effect an ESD practice that lays a foundation for ESD values during the early education years when children are just beginning to form their most basic impressions of the environment and their place in it.

Keywords: *Sustainable development, ESD (education for sustainable development), indigenous, transference.*

1. Introduction

In 2005 the United Nations Decade of Education for Sustainable Development (UNDESD) was established with a focus on the school's role in educating children to become thoughtful stewards of the natural environment. At the close of that decade and the beginning of the Global Action Program (GAP) decade, methodologies with the capacity to effectively reflect policy are of particular interest to educators, especially methodologies from indigenous sources with transfer potential.

This study investigates a Japanese indigenous methodology, *doro asobi* (dirt or mud play) and its potential for transfer to other cultural settings. *Doro asobi* is a structured outdoor play activity in which children are given the opportunity to connect directly with nature via a muddy slime the supervising teachers concoct for them. The activity seems entirely anarchic but is meant in its Japanese context to help children interact with nature in a social setting that the children can structure for themselves. It is considered an outlet for creativity through cooperation in an unfettered encounter with nature. As such, it clearly encompasses critical ESD elements.

I chose to focus on aesthetic learning via this method as a tool for sustainable development education as I believe it can be employed to instill innovative thinking skills as well as the values UNESCO has outlined, particularly with regard to: 1) reinforcing the notion of economy by introducing an understanding of the value of conserving/recycling, 2) providing a kinesthetic experience that reveals an individual's relation to nature, and 3) promoting social equity through the cooperative nature of an art/studio collaboration. Evidence suggests, moreover, that art education creates a framework in which the critical thinking skills essential for innovation can develop (Eisner, 2002, Hetland, 2007) and provides a platform for exercising the diversity of human potential as postulated in Multiple Intelligences Theory (Gardner, 1983).

2. Methodology

Between 2012 and 2014, at schools in Aichi prefecture and in Tokyo, Japan, I videotaped art sessions, interviewed teachers, administrators, and parents in order to better understand school goals, the expectations of the parents and community, and the experience itself as revealed in the reactions of the children participating. I surveyed over thirty Japanese schools before deciding on three schools to use as

models for the videos. These schools were considered "typical good schools" by education professionals, teachers, parents, and local community members: "typical" and "good" in the Japanese sense that they were attended by the average type of child of the average type of parent living in the average type of neighborhood. The schools may still represent a diversity of socioeconomic backgrounds but they do not "stand out" (*medatsu)* in any particular way. Additionally, the chosen schools are not focused on any specific pedagogy but rather have as their primary goal the proper socialization of the child before entering elementary school. (Peak, 1991).

Videos of children engaged in *doro asobi* were taken at these schools in Japan and then shown at preschools in Sweden and the U.S. (Hawaii). Reactions to the clips were recorded and analyzed qualitatively, and the verbal reactions of the observers were documented. In each country, I noted responses from 10 preschool teachers, 6 administrators, and 10 university teaching instructors. I also showed the videos to 10 parents in each country. Rather than focusing exclusively on the cultural differences, as in the practice of Joseph Tobin's video-cued ethnographies of preschools (Tobin et al., 1990, 2009), I hoped to find common ground in the nature of the verbal feedback as a way of determining the effectiveness of the methodology from the instructional perspective.[1]

I showed the Japanese method to teachers in ten schools in Sweden and the U.S. (Hawaii) in order to determine the underlying differences and cultural objectives that frame each culture's preschool curriculum and to ascertain where sustainable development objectives could best be linked to an art curriculum. I chose Sweden because it traditionally has a strong leadership role within UNESCO, particularly with regard to support for ESD and its "three pillars." Hawaii was chosen as a representative of the U.S. system because of its historical and cultural connections to the environment and its vulnerable position as an island culture trying to balance traditional environmental concerns with new economic realities. I showed the method to university pre-service education instructors and municipal officials involved with education at universities in Uppsala, Gothenburg, Dalarna, and Stockholm in Sweden as well as to education instructors and private/municipal stakeholders in Kamuela, Kona, and Hilo, Hawaii. I was interested to see whether the inclusion of art-play might reinforce the role of aesthetics education as an unrecognized avenue for ESD values, even if a single method inspires different interpretations in different cultures, reflecting what Pearson and Degotardi have referred to as the "need to develop legitimate use of diverse practices to reach collective goals." (Pearson and Degotardi, 2009).

All three cultures in the study represent places where there is a tradition of having aesthetics and nature integrated closely into the practices of preschool, the first formal social arena. The three places have similar commitments to pre-schooling. Preschool for the average 3-4 year old is a common experience with over 80% enrolled in Sweden (Skolverket, 2014), 52% in Hawaii (US Dept. of Education, 2014), and 53% in Japan (Ministry of Education, 2012).[2]

3. Background

Research on ESD has suggested that adopting a sustainable development curriculum is key to engaging a child's interest, which from a Dewey-like progressive perspective is a means of enhancing learning potential. It encourages values that foster a long-term view of the individual and the potential for individuals to be "active agents of change" (Davis and S. Elliott, 2003; Davis, J, 2008). In another cultural context, Maruyama found in his work on Japanese ESD projects that ESD helped students achieve a kind of "social competence" difficult to achieve in a traditional curriculum (Maruyama, 2008). As the goals of each society's education mission vary, so, too, will the meanings derived from a particular method. In this study of *doro asobi*, I was particularly keen to see how observers in Japan, Hawaii, and Sweden drew different lessons from the method.

4. The *Doro Asobi* method

In Japan, providing a structured nature activity such as *doro asob*i offers children a unique opportunity even in limited, city spaces. Although its name sounds like chaotic play, it is executed in a very orderly, organized fashion. A large section of the outdoor playground is covered with blue tarpaulin, the sort used at construction sites. Bagged, clean sand is poured onto the tarpaulin and the children, in small groups, enter with their teachers. Shoes are taken off. First the children play in the dry sand. After a

[1]The author has lived in Japan for 25 years and speaks Japanese fluently. In Sweden, interviews were conducted in English, which is a functioning second language for most Swedes.

[2] Each country in our study has a different idea of what constitutes preschool. Consequently attendance statistics in the three countries are difficult to compare. In Japan, many children attend *hoikuen*, or daycare, if their mothers work, and so are not listed in Ministry of Education statistics, since *hoikuen* are not strictly speaking educational institutions. Preschoolers in Sweden and Hawaii have attendance rates of nearly 100% in the year before entering elementary school.

few minutes, the teacher comes with water, gradually adding it to the sand. The muddy texture excites the children and they create forms from the clay-like mud. At this point if it is hot, some children will take off their shirts and shorts and play in the muddy sand in their underwear. Some children form a group and plan a village with roads and houses and people. Other children use the mud to make food, plates, household items, and sometimes characters. Still others use the mud in a kinesthetic way, jumping, throwing, or squishing the cool texture between toes and fingers.

The teachers supervise the materials but not necessarily the children. They may aid with a construction problem and give some advice but for the most part they stay out of the creation process. As one teacher said to me, "This chance comes only once in a while when we get warm weather so I don't want to limit this rare freedom. For kids who can't decide what to do or who to play with, we teachers detect there is a problem and can watch to see if it poses a long-term problem" (J. principal C, 2014). In my observations I noted that Japanese teachers tended to regard the children's creations as "an outcome of forming successful groups rather than as ends in themselves" (J teacher A, 2014). I believe that *doro asobi,* works best in an environment with no over-arching teacher-guided goal, although it helps when there is the type of teacher/student interaction that can transform a play experience into a learning one (Pramling-Samuelsson, 2006).

In the video sessions, it is common to see the teachers interacting with the students. A teacher asks, "What is it?" or "What kind of shape are you making?" or "How does it feel?" The students reply or perhaps do not. The teachers generally do not insist that students put their feelings and thoughts into words. Rather, the teacher's role is that of observer, offering assistance when he/she recognizes a problem. This kind of action reinforces the *amae* (indulgent co-dependent) connection between student and teacher that serves as an important bridge between the indulgence of home life and the indulgence that appears in all close Japanese social relationships (Doi, 1973).

5. School cultures

Swedish instructors observing videos of the *doro asobi* event thought that it would work well in Sweden as it would "allow the children to express themselves through art but not necessarily be bound by art" (S teacher B, 2014). Swedish teachers said it was important to produce a child who would grow up with democratic values and a sense of equality, often referring to Ministry of Education guidelines: "Every child has the right to an equal education" (Skolverket, 2014). One teacher said, "I like the fact that the girls and boys can be equal, playing with their shirts off with no gender hang-ups…. ---it is very natural" (S teacher A, 2013). Reinforcing the importance Swedish education places on learning equality, Årlemalm-Hagser suggests it is outdoor play that provides an ideal opportunity for encouraging gender-free play (Ärlemalm-Hagsér, E. 2003).

Interestingly, values relating to democracy or equality never emerged in the Hawaiian teacher interviews. Hawaiian teachers who watched the *doro asobi* video mainly understood it as a medium for play rather than a method closely related to imparting aesthetic skills or political values. One teacher explained: "The notion of play in the sand is not especially different; Hawaiian kids usually play in the sand at the beach. But that is play, not real education, right?" (H teacher B, 2013). Teachers did like the idea that *doro asobi* allowed children who had no access to the beach to have the opportunity to play so freely in a similar environment. Another teacher said, "Playing at the beach or in the sand allows the child to be creative while also teaching him the limits of the material. Sand will not stay put. It becomes an intellectual challenge for kids. So THAT is educational. And no matter how much time you put into a creation, it will wash away when the tide comes in" (H teacher B, 2013).

6. Conclusion

This study looked at a methodology born in one culture and imbued with educational goals and cultural practices particular to that culture. Transference of any method necessitates an understanding of both the original culture and the culture adopting the method. Interpretations of a single method will vary. In this study, I did in fact find such variations. Swedish preschool teachers interpreted the value of ESD/art classes in terms of how it encouraged a child's self-expression. Japanese teachers, on the other hand, commonly remarked how they felt art activities were useful for encouraging social interaction. US teachers more often than either Swedish or Japanese teachers stressed the importance of personal development and academic readiness.

But there were similarities, too. Teachers in all three cultures shared the view that artistic expression in nature was a "natural" part of childhood. They also shared a desire to find more connections between art activities and the environment and a belief that learning methodologies from other cultures should be included in pre-service teacher training. These areas of consensus among the three groups

suggest there is a cross-cultural foundation for the acceptance of methods like *doro asobi* despite differing perspectives on their benefits. This research proposes that If core ESD learning outcomes are realized by students, then the cultural differences in the perception of the method can be seen as a mark of the transference necessary to effectuate desired ESD outcomes.

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EURO4SCIENCE: USING FORENSIC SCIENCE AS AN EDUCATIONAL STRATEGY

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Abstract

According to the European Commission, around six million young people drop out of school each year – about 14% of all pupils. Besides the costs and negative consequences to individuals, this phenomenon hinders economic growth and competitiveness.
Due to the popularity of crime television shows, such as CSI: Crime Scene Investigation, teenager students are particularly open to the forensic "CSI" thematic and iconography.
With Euro4Science, we developed an educational strategy inspired in forensic sciences and aimed at mitigating early school dropout while promoting interdisciplinarity and cultural exchanges, favoring social inclusion and keeping close links to each school curriculum.
The Euro4Science project is an European strategic partnership (Erasmus+) that is, it includes schools, university, associations and private companies with a common goal of improving education innovation.
Following a 6 month test period in a university laboratory environment, a Beta Version of a Forensic Science Education Toolbox was applied in a series of teacher's workshops involving three partner countries (Portugal, UK and Bulgaria).
The Forensic Science Education Toolbox allows and encourages the use of recycled and/or affordable price materials enabling its exploration by schools in different stages of educational and lab resources. The inclusion of a diversity of topics from physics, chemistry, biodiversity, genetics and societal challenges of modern science and technology encourages interdisciplinarity.
A total of 85 teachers from different subjects such as: Biology, Geology, Physics, Chemistry, History and English, attended the partnership core and dissemination workshops.
Results from teacher's workshops evaluation show there are significant perspectives of good applicability to different national secondary (and even basic) school curricula.
The Euro4Science project culminates with so called "CSI Weeks", science fair weeks where students from each participating country demonstrate their forensic school year projects to a public composed by foreign colleagues, local stakeholders and especially younger students.
Euro4Science is devoted to spread, as widely as possible, this forensic science educational motivational strategy in particularly to less developed countries.

Keywords: *CSI effect, Euro4Science, transdisciplinarity.*

1. Introduction

The Europe 2020 strategy proposed by the European Commission includes the goal of reducing the average European rate of early school leavers to less than 10% by 2020 (European Council, 2010). According to Eurostat, by 2015 the provisional 10.9% of the population aged 18-24 with at most lower secondary education are not in further education or training (provisional data for EU 28 countries) (Eurostat, 2016). The reduction in young people deciding to pursuit higher education in scientific and technological areas is also a serious concern (OECD, 2006; Commission of the European Communities, 2007) as it has several impacts and high costs to the member states, jeopardizing the economic prosperity and quality of life of all citizens (Osborne & Dillon, 2008). This topic has been recognized by several international organizations such as the OECD, UNESCO and even the World Bank, which consensually have developed awareness-raising efforts and supported initiatives in favour of change, commissioned the implementation of discussion forums, supported the achievement and the publication of studies,

and sponsored projects to raise awareness and mobilize policy makers, researchers, teachers and educators, as well as citizens in general, to understand and counter the reasons of scientific and technological disaffection of young people (Cuadra, Moreno, & Crouch, 2005; European Commission, 2005; Eurydice, 2011; UNESCO, 2006).

Currently, and due to the popularity of crime scene based television series ("CSI: Crime Scene Investigation"; "Bones", etc.) students show a great openness and motivation for forensic issues.

Through the Euro4Science project, an educational strategy related to school curricula and inspired on forensic sciences was developed with the objective of promoting young people motivation to learning, thereby helping to mitigate school dropout. Moreover, this project aims to promote interdisciplinary and cultural exchanges between students and teachers from different schools and countries.

The Euro4Science project, included in the European program Erasmus+ (KA2), is based on a strategic partnership that includes schools, associations and private companies from Portugal, UK, Bulgaria and Poland, and coordinated by the University of Aveiro in Portugal.

Under the project, a Forensic Science Educative Toolbox was designed and developed and tested during a 6 months period at the University of Aveiro. The Toolbox is inspired on the real forensic crime-scene investigation suitcase used for evidence collection by crime scene teams (CSI team). Strategies regarding the use of the Toolbox were then evaluated by teachers through workshops in Portugal, Bulgaria and the UK. The receptiveness of students in secondary and basic education of the mentioned countries was also tested in pilot classroom context.

2. Forensic science educative toolbox

The Forensic Science Toolbox is an educational kit designed and developed to be used by students under teachers' supervision. In this kit, students can find different materials that allow them to perform several activities related to Forensic Sciences and adapted to the high school context, bearing in mind the respective school curricula. The activities proposed enable teachers to educate and inspire their students in the principles of scientific inquiry, analysis and creative thinking.

This kit consists of a main box with materials and several support documents:

- *Toolbox*: a "mysterious" box containing materials that allow the simulation of crime scene analysis techniques to be used as a pedagogical and scientific basis in the classroom. All materials of the Toolbox are inexpensive, recyclable and can be complemented by the resources available in schools.
- *Students Guide*: a working manual for the implementation of the activities, including guidelines for the use of material in a classroom context or other environments, such as science clubs, youth groups, etc. These activities are associated to learning contents, addressing scientific concepts adequate to each education level.
- *Teachers Guide*: a manual that includes detailed guidelines for the use of the Toolbox in a classroom context. Specific lessons that join different activities are proposed, with the possibility of shortening or widening the length and level of lesson.

The proposed activities are supported on fictitious crime cases. Those cases consist in suggestions of integrated skills around a story, using the resolution of the problem/mystery and complemented with the discussion of the sociological implications with students.

The Forensic Science Toolbox allows and encourages students to explore different topics related to Chemistry, Physics, Biodiversity, Genetics and Science in general, promoting interdisciplinarity as well as the interconnection to societal challenges.

After a review of potential forensic experimental activities capable of meeting educational requirements, a wide range of activities was tested in the Forensic Genetics Laboratory in the Department of Biology, University of Aveiro. Figure 1 lists the selected activities, corresponding to three large core areas:

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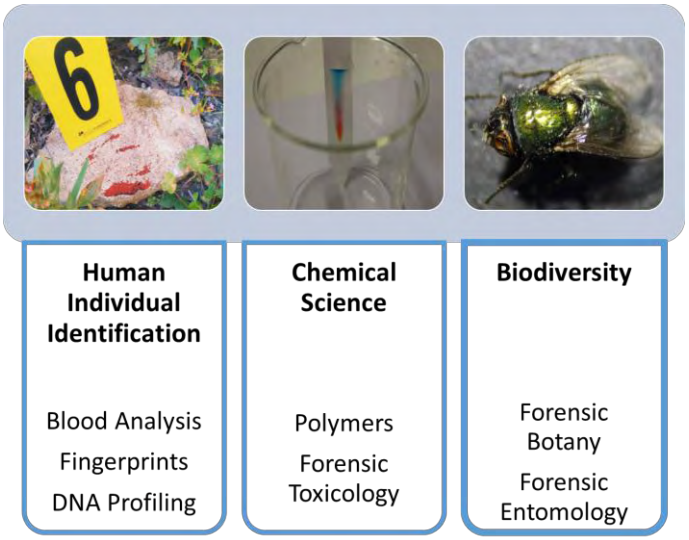
Figure 1. Areas and activities introduced in the Forensic Science Toolbox



3. Teachers workshops

After the planning, design and optimization of the Forensic Science Toolbox, the kit was presented and tested by teachers of different subjects and school years, who provided their feedback regarding the Toolbox implementation.

The presentation of the Toolbox was made through 3-day practical workshops in three countries (Portugal, the UK and Bulgaria). The workshops had the participation of 84 teachers from different subjects, such as Biology, Geology, Chemistry, Physics, History and English, targeting students ages 14 -17, from 15 different schools. Teachers from the following schools participated in the workshops: Portugal (Escola Secundária José Estêvão, Escola Secundária c/ 3° ciclo de Albergaria-a-Velha, Escola Secundária Homem Cristo, Escola Básica EB 2/3 Luís Sttau Monteiro, Escola Básica Integrada Dr. Fernando Peixinho, Escola Secundária Dr. João Carlos Celestino Gomes; Escola Secundária de Vagos, Escola Secundária da Gafanha da Nazaré, Escola Secundária de Oliveira do Bairro, Escola Secundária João da Silva Correia, Escola Básica e Secundária Oliveira Júnior, Escola Básica e Secundária Dr. Serafim Leite, Escola António Alves Amorim); Bulgaria (Secondary High School acad. Emilian Stanev) and United Kingdom (Skipton Girls' High School).

Figure 2. Teachers Workshops

4. CSI Weeks

The Euro4Sciene project end with the implementation of CSI Weeks, science fairs where students from each country present their forensic-inspired education projects to an audience of teachers, students and the community outside of the school.

The CSI Weeks held in the UK, Bulgaria and Portugal, involve an exchange of 10 students and 2 teachers from each country. For the period of one week, students participate in various activities and present the socio-cultural context of each country along with their experience in the use of the Forensic Science Toolbox in the classroom context during the school year as well as new contributions inspired in forensics.

Figure 3. CSI Weeks

5. Conclusion

The development of a forensic-inspired educational Toolbox (integrated within the European Erasmus+ Project Euro4Science) with a close conjunction to school curricula and educational objectives constitutes an opportunity to use an educational tool with highly engaging content, multiple possibilities of interdisciplinary exploration, and capable of reaching and motivating students at various levels of education.

The use of the Forensic Educational Toolbox does not require special technological resources, allowing it to be used in a variety of school environments. The project strategy is also based in the involvement of teachers in the evaluation and improvement of the proposed activities through training actions (workshops). Those workshops received great interest from teachers from the partnership and have already disseminate throughout surrounding schools and with a great potential of internationalisation namely in developing countries due to the flexibility of suggested activities.

The Forensic Educational Toolbox can be complementary to other educational resources, contributing to minimize the disinterest and dropout of students in critical ages, and also contributing to the motivation of teachers.

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Euro4Science website: http://euro4science.eu/

Euro4Science Facebook page: https://www.facebook.com/euro4science/

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THE ROLE OF THE HUNGARIAN INSTITUTE FOR EDUCATIONAL RESEARCH AND DEVELOPMENT IN SUPPORTING THE STATE EDUCATION SYSTEM

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Abstract

The Hungarian Institute for Educational Research and Development (HIERD), operated and maintained by the state, is an institution providing general and strategic support services for the educational sector. The present study intends to introduce the contribution of the institute to the state education system. In the past years, the role of HIERD has significantly grown in this area with the drafting of a unique textbook development model, the renewal of methodological journals, the development of an online learning supporting system and the fulfillment of professional tasks with a national impact.

Keywords: *Public education, textbook development, National Public Education Portal, pedagogical support, pedagogical periodicals.*

1. Introduction

The Hungarian Institute for Educational Research and Development (HIERD) as a background research institute of the ministry responsible for education has long supported the Hungarian education system with developments, research, methodological publications and services. Development activities aim to increase the effectiveness of school education and are supported by related research. The aim of the institute is to continuously renew and modernise the structure and content of the Hungarian public education according to the current professional and social requirements, support the decision-making process in educational matters as well as accumulate and spread knowledge concerning public education and its social environment, while exploring the demands of society and promoting international contacts of Hungarian public education. By aiming to function as a pedagogical knowledge centre, our Institute provides complex professional support for teachers, and effectively mediates between the actors of the education system, thus enabling the effective implementation of the intents of the education management and the government.

Despite the wide range of professional activities of the institute, the present study intends to highlight the main contributions of our institute to the state education system. In the past years, the role of the Institute has significantly grown in this area with the drafting of a unique textbook development model, the renewal of methodological journals, the development of an online learning supporting system and the fulfillment of professional tasks with a national impact.

2. Development of new generation textbooks

In a phasing-out system, textbook development and publishing has become a role of the state in Hungary. The Hungarian Institute for Educational Research and Development plays a major part in the state-led process, from the school year 2014-2015, preparing new, so called pilot textbooks. Practicing teachers, digital developers, and experts of theory and practice from higher education and public education work together in the development process. The new concept behind the new textbooks, developed in our Institute within the framework of the TÁMOP 3.1.2-B/13 (Social Renewal Operational Program 3.1.2-B/13) project is to introduce an experimental phase, during which teachers who volunteered to teach from these new textbooks provide feedback to the developers. Through this complex process, the involvement of several hundred teachers took place, teachers whose experience gained in the course of practice using the developed criteria and methodology was delivered as feedback to the developers. The developers processed the teachers' observations and incorporated the feedback in the

revised, finalized version of the textbooks, producing a marked improvement in the quality of the textbooks. The system of providing feedback is made up of two parts: a questionnaire-based survey, to be completed at the beginning and the end of the school year, and continuous filling in of an electronic work diary, where detailed feedback can be given about specific problems and tasks. This process was the one during which pilot textbooks finally became the *new generation of textbooks* in our country.

The average price of the new textbooks is 300 HUF per copy (around 1 euro), which is the quarter of the previous mean cost of textbooks. The new, national system of textbook publishing has already resulted in more than 1.5. billion HUF savings, out of which some 500 million HUF is the saving of families (textbooks became so much cheaper), and 1 billion is the saving of the national budget.

The new study materials are built on modern, student-centered educational principles, and focus on the development of competences of the pupils. The textbooks are built on close linkage of theory and practice, effective learning strategies and applicable knowledge, thus prepare students for lifelong learning. The new books are based on the current student-centered paradigm, and focus on the development of skills and competences. During the development process, an emphasis is put on making good use of the experiences of practicing teachers, as well as scientific and teacher training institutes.

A new, so far unprecedented guiding principle in the process of textbook accreditation of the pilot books is to substantially consider the opinions of teachers, students and the parents about the books when preparing the final versions. This is the reason behind the law using the term „pilot" textbook. Such development process (of pilot, review and re-editing) was not possible beforehand, in the system of market-based textbook publishing.

3. Development of the National Public Education Portal

In the course of the paper-based textbook development, special attention was paid to the adaptation to the digital form and transposition into digital content of textbook knowledge. As a result of the cooperation of HIERD and Microsoft Magyarország Kft., the *National Public Educational Portal* (also called Smart Portal) had been launched by the fall of 2015 which created novel possibilities to support learning both at school and at home. The use of new textbooks is therefore supported by a digital platform. By clicking on the chapter titles of the textbooks, one can find animations, videos, interactive tasks and collections of links, which facilitate effective and exciting learning at home and in schools alike. These are partly materials developed in the HIERD, and partly materials collected from all over the internet, and systematically organized on our page, to which new resources are continuously uploaded.

The most important goal of the development process was to build a new learning environment to foster the integration of modern technical instruments in the work of schools. The Smart Portal is providing a tool for using and creating many different digital learning sources and enable teachers and parents to plan, monitor and track learning progress and to measure competency and development. The Smart Portal, functioning as a Learning Content Management System (LCMS) combines the specificities of a Content Management System (CMS) and a Learning Management System (LMS). Accordingly, the Portal is capable not only to store, to search or to play a wide range of digital learning objects and curriculum units but it also allows to modify or edit these contents by the user: teachers and pupils can alter learning materials by rearranging and integrating new elements according to their own learning or teaching purposes. The flexibility of the Portal helps browsing, searching and editing learning content. The users don't need any special ICT device or additional softwares: the contents on the Portal are displayable on personal computers, laptops, digital tablets and also on mobile phones. The public elements, tests and materials of the Portal can be reached without registration.

The system also stores the results of the solved exercises so the procession of the children's development and learning progress are trackable. Students, their parents and teachers can also share results with each other. Out of thousands of interactive exercises, animations and short clips reachable on the National Public Educational Portal, individual learning itineraries can be created that contribute to students' personal development and to the expansion of the toolkit of pedagogical differentiation: the teachers can create different groups according to the performance of the pupils. The website includes workbooks, curricula and teachers' support materials. By clicking on the chapter titles of the textbooks, one can find animations, videos, interactive tasks and collections of links, which facilitate effective and exciting learning at home and at school.

An important part of the development process was to harmonize the contents of the Smart Portal with the National core curriculum. The learning materials can be filtered according to grade, subject, chapters and topics. The digital learning objects are partly materials developed by the HIERD, and partly materials collected and adapted from external sources, and systematically organized on our Portal, to which new resources are continuously uploaded.

The main purpose of the Portal is to elaborate a pedagogical knowledge management system that ensures the integration of the results achieved in the field of public education, especially the substantive and methodological developments realized in the frame of other SROP projects.

The Smart Portal offers a new support for the process of learning and teaching. Although the development of digital contents is a long-term process, the development of the Smart Portal established the conditions for a complex e-learning system which is able to fulfill the demands of the end-users in terms of content, methodology and technology.

4. Pedagogical professional support and talent support

Our Institute holds a key role in the renewal of the system of *pedagogical professional support* given to teachers and schools nationally. This includes professional consultancy, specific support related to subjects and methodology, organisation of accredited trainings for the professional development of teachers and holding related examinations, and keeping record of these. We provide professional support for regional pedagogical institutes, coordinate their network and report on their results toward the educational management. The HIERD manages the complex development of the system with the involvement of pedagogical institutes, and oversees the continuous implementation of professional results in everyday practice. For further information, please refer to the Projects section.

Special stress has been placed on professional support for teachers in the past three years in Hungary. For the operation of the *career path model* introduced for teachers, the Hungarian Institute for Educational Research and Development developed a manifold support system of which one element was the restructuring of the continuing education system for teachers, the deep renewal of instruction methods and the broadening of the continuing education offering. Continuing education that is modularly designed, blended and embedded in process, as opposed to conventional training, better takes into account individual abilities and schedules and the individual path of the teacher, and it offers opportunity embedded in the education process to try out the knowledge acquired as well as for further professional support post-training.

Another important focus of our Institute is talent support. The *Arany János Programs* is a talent support program for disadvantaged students. Our Institute operates the advisory boards of the dormitories, the networks of mentors of the dormitory programs, develops and monitors the programs, keeps contact with the institutions, their managerial boards and their associations, and awards related tenders. The Secretariat of the Council of *National Scientific Students' Associations* manages tasks related to the activities of scientific student circles in higher education institutions: it provides professional support for their activities, coordinates their biannual competition, and keeps a record of the results. The basis of the scientific student associations system is extra-curricular research activity, conducted with the guidance of teachers, and the summary of the results of such activity in papers by students.

5. Pedagogical periodicals

One of the priorities of HIERD is to provide a wide range of *pedagogical periodicals*, so that it can reach pedagogical professionals and others who are involved in education. *New Public Education* is a more magazine-like journal with monthly issues. Its intention is to address pedagogues with interviews and articles with useful information about the current and future courses of education. The *New Pedagogical Review* is a theoretical and practical, scientific and personal pedagogical magazine. Current debates, round-table-discussions, peer-reviewed studies, book reviews, teacher reports, and international overviews can be read in the issues to grant forum for teachers and educational researchers. *Educatio* is an interdisciplinary periodical for those who try to understand the social context of education. It has four thematic issues per year with studies, research reports, reviews and interviews. *Book and Education* will guide the readers into the world of libraries, literature and reading. The periodical is edited by the Pedagogical Library and Museum of the HIERD. A relatively new product of the HIERD is *Mikkamakka*, a monthly magazine for young children. With its beautifully illustrated thematic issues, book reviews, games, informative articles organized around a main topic (such as sustainable development, water, music, etc), it tries to reach pupils and introduce them to contemporary literature and the pleasures of reading.

The periodicals are available not only in print format but also on an interactive online platform (*folyoiratok.ofi.hu*) with additional content, advanced search functions, archives and a webshop. Schools and Educational Centres receive *New Public Education* and *Mikkamakka* for free. All periodicals address different audiences and cover various fields of interests in order to give full scope of education's present state for those who are interested and involved in the process.

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6. Conclusions

In a nutshell, the purpose of research and development done by the Hungarian Institute of Educational Research and Development is to continuously renew Hungarian public education. The Institute provides professional, nationwide support for the educational sector, including the areas from early childhood education through public, vocational and higher education to adult education, professional development of teachers, special education, minority education and informal and non-formal education as well.

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ACADEMIC CAPACITY BUILDING IN LIGHT OF THE CAPABILITIES APPROACH

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Abstract

The paper recounts how I have been contriving to guide young academics to frame conceptual-theoretical frameworks that might help them contextualise an educational problem or situation under investigation and to challenge the theoretical and practical issues in that particular area of scholarship. In the process, I work on the assumption that the purpose of research is to attempt to falsify existing theories and to develop new ones to replace them if necessary. I also relate how I have used the capabilities approach to guide me through the academic capacity building effort.

Keywords: *Academic capacity building, capability, capability theory, adult education, theory*.

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1. Purpose of the paper

After my early retirement as Dean of a Faculty of Education in South Africa approximately 15 years ago, I ventured into academic capacity building at tertiary education institutions, in other words among university lecturers. Whereas before 1994, education scholars in South Africa were allowed to focus more on teacher education and the supervision of post-graduate students than on their own research and the publication of their research findings, more emphasis was placed on the latter by the turn of the century. The time was ripe for me to enter into a new profession, namely that of academic capacity builder and specialist researcher. For the next 15 years after my retirement, I was in the fortunate position to interact with large numbers of relatively inexperienced lecturers. It was in the course of these interactions that I observed that although most of them were well-trained subject specialists, many seemed to be lacking in pre-theoretical (i.e. philosophical – in both directions: transcendental and transcendent) insight (cf. Merriam, 2008: 8). Many also lacked the skill to apply and / or develop theory with which to understand and explain the phenomena under investigation and to critique the contributions of other scholars from a theoretical vantage point. After having discovered that these were the main problems with which young and inexperienced academics struggled, I began concentrating on the task of guiding them through the minefield of theory building / construction / formation, and the application thereof in research and in subsequent publications.

Before I could undertake the task, however, I had to find a theory that would guide me through this capacity building minefield. I was aware at the commencement of my "new" profession as academic capacity builder, due to my original occupation as Foundations of Education specialist, that my walk through the academic capacity building minefield together with my relatively inexperienced colleagues required that I be guided by a theory of education. I found the capability theory to be suitable, a theory originally conceptualised as a capability *approach* by economist Amartya Sen and later developed into a capability *theory* by law specialist Martha Nussbaum and others (Wells, 2015). Although strictly speaking the capability theory is not a theory of education, its precepts are such that it offers insight into academic capacity building as a form of education. The capability theory seemed to be appropriate for supporting and giving direction and purpose to academic capacity building since there is very little difference in the meanings of "capacity building" and "capability building". They both mean "the ability or power to do something" (Stevenson & White, 2011).

2. The capability theory: a springboard for academic capacity building as a form of education

Academic capacity building at university level can be defined as "a form of adult education among individuals who have already been educated in the *paideia* sense (i.e. they are already fully formed persons) as well as relatively well trained in a specific academic discipline but nevertheless have a need for further

training for mastering specific advanced academic knowledge or skill". Put differently, academic capacity building is to help already well-educated academics master a specific advanced academic skill, such as writing scholarly articles.

Guided by this definition, I made a study of the capability theory, and garnered the following pedagogical insights from it (cf. Sen (2010), Nussbaum (2000), Bessant (2014), Cockerill (2014), Dang (2014), Robeyns (2005) and Wells (2015)):

- Each academic who attends a capacity building session possesses a number of capabilities, i.e. the potential to do and be what they have reason to value. The course should therefore assist them to do and become what they wish.
- The session should be enabling, among others help attendees to make informed academic choices.
- Each attendee has the right to choose what they wish to be and do, and how they wish to attain those ideals.
- Each of them has a unique value system, and hence reasons for attaching value to their experiences in the session.
- Each attendee has already demonstrated the fact that he or she possesses the agency to effect changes in their circumstances and will be able to do so in future on the basis of knowledge and skills acquired during a capacity building course. They have to apply this agency in mastering a new "functioning," as Sen would say – that of article writing.
- Each attendee should be afforded the freedom to choose what makes sense to him or her, or would be meaningful in the context of his or her professional work as an academic.
- Attendance of the course should enable each attendee to share in the "good life," well-being and quality of life that a university lecturer is supposed to enjoy.
- Each attendee has a threshold of achievement; the same achievement should not be expected of all of them. Their achievements should reflect their respective individual capabilities.
- Each attendee is a complete person, and should therefore not be seen as only an academic but also as an agent in a wider context.
- Each of them should also be seen as an end, and not as a means.
- Each attendee is a unique person, different from all others and part of the diversity of the university's academic staff.
- The course should encapsulate conversion factors that should be converted to improve the attendees' academic capacity.
- All the interventions during the course should be morally justifiable.
- Attendance of the course should reinforce the attendees' sense of affiliation, i.e. make them proud to be part of the academic institution and willing to contribute to the realisation of its purpose and aim.

The purpose of attending to the capability needs of less experienced academic colleagues on the basis of these insights flowing from the capability theory is purely educational, as Nussbaum (2011: 22-23) has convincingly argued: it is aimed at unfolding the powers that the attendees bring to their profession; their basic capabilities are nurtured, unfolded and shaped through the guidance that they receive in capacity building sessions.

3. The composition of a conceptual-theoretical framework as a special academic skill

Soon after commencing with the capacity building seminars, I discovered that, generally speaking, although newly appointed academics were well trained in their special disciplines and particularly in the research method thereof, some of them were at a loss when it came to the dissemination of their research findings in scholarly articles. More precisely, I concluded that they needed academic capacity building in three areas of scholarly article writing: having results that are worthy of dissemination, understanding the format and possessing the linguistic ability to present the findings effectively. Research (Van der Westhuizen, Van der Walt & Wolhuter, 2011) revealed that the inability to construct a conceptual and theoretical framework was one of the major shortcomings in many articles. In addition to drawing attention to all the steps that one should follow when constructing an article, I began concentrating on capacity building regarding the construction of conceptual and theoretical frameworks.

I began by encouraging prospective article writers to replace the "literature review" section in their articles with a *conceptual and theoretical framework* section. I took this step in view of my belief that the purpose of science and research is the testing and evaluation of extant theory regarding a particular problem. I agree with Popper that the purpose of science and scholarship is the constant formulation of theories and efforts to refute or falsify them. This approach differs from that formulated by McMillan and Schumacher (2001: 8) who contend that "the ultimate aim of science is the generation and verification of theory." I contend that a scientist values research for "its manner of exposing to falsification, in every conceivable way, the system

to be tested' (Popper, 1959: 42). It comes down to a matter of orientation: in contrast to verification, falsification implies that one is intent upon proving why a theory might be false, inaccurate, in need of further development or adaptation. As Popper (1962: 28) concluded, "our knowledge can only be finite, while our ignorance must necessarily be infinite". The chances of proving a theory true once and for all seem slimmer than revealing its shortcomings and possible fallibility.

I developed the following four step procedure for helping article writers compose their conceptual and theoretical frameworks:

1. The first step is the conceptual work. The key concepts of the study are firstly conceptually delineated and defined with the aid of dictionaries and other resources. After this, they are conceptually linked to show how they cohere and might form the basis of a possible explanatory theory.

2. The article writer then gives an overview of the state of scholarship regarding the conceptual unit that had come into existence through the linking of the key concepts. The purpose of this review (the so-called literature review) is to discover the state of theory regarding the problem under investigation; the review is done to reveal both the strengths and weaknesses of existing theory and facilitate application of a critical approach (Popper, 1962: 26), in other words identify weaknesses in existing theory that might be attacked, or to their strengths that might be considered for further application.

3. The third step is to either find a master theory that would enable the article writer (researcher) to subsume the theories found to be promising and worthy of a longer life in the scholarly arena of the particular discipline and problem statement. This is a difficult exercise because it implies a rather sophisticated understanding of the discourse in the subject field (discipline). As facilitator, I assist the attendees in this search for an appropriate theory. It is at this point that many of them conclude that their training as future scholars had been seriously lacking. (The attendees are encouraged to also attend to the (pre-theoretical and theoretical) foundations of their theory as they work on their conceptual and theoretical frameworks. Space unfortunately does not allow me to elaborate further on this aspect of scholarship.)

4. The fourth step is even more daunting, and that is the challenge to come up with a theory might in future begin bearing their name, as in Einstein's $e=mc^2$, or Bronfenbrenner's ecological systems theory, or Von Bertalanffy's general systems theory, or Rawls' social justice theory, or Keynes' economics theory, or Piaget's theory of cognitive development, or Kohlberg's theory of moral development, or Vygotsky's zone of proximal development theory. (I usually have to put attendees' minds at rest at this point by telling them that by retirement most academics find that they have mastered only the third step reasonably effectively.)

4. The discussion part of the article

The Popperian approach to theory building comes to the fore particularly in the discussion section of the article, i.e. the section in which the results of the (empirical) investigation are evaluated (verified or falsified, as the case might be). The argument started out with a number of key words or phrases that were conceptually linked together to form the starting point of a theoretical inquiry, proceeded through the literature review and the quest for a master theory and ideally ended with the development of a new theory that might affect the scholarship in the field for many years to come – that is, of course, until it is refuted and replaced by a more appropriate explanatory theory.

In the discussion section of the article the author evaluates the theory expounded in the article, and shows why extant theory has to be refuted and replaced by more appropriate theory, or has been confirmed by the research. Hess (2004: 1238) is correct when he avers that the conclusion section of an article explains the meaning of the results to the reader, but the article writer should go further than that by also explaining how the results of the study could impact on the current state of scholarship in the field.

5. Concluding remark

There is of course much more to article writing than could be discussed in this paper. The point of the paper, however, is that there are particular parts of article writing that are truly challenging. One of the most daunting is to maintain a theoretical thread right through an article, from conception of the research project right up to the discussion towards the end of the article, and even to the recommendations and final conclusion. Inexperienced academics need guidance (in the form of academic capacity building) to be able to meet this and the other challenges of article writing, in other words to develop the necessary academic capabilities. The capability theory offers valuable insights into how this could be effected.

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GENERATED CONFLICTS IN IMPLEMENTING NEW CURRICULAR REFORM TEACHING PRACTICES

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Abstract

Studies at the national and international levels conducted over the past 30 years have shown the necessity of working with students' parents to promote school achievement and perseverance and even more importantly in times of curricular reform. Furthermore, in order to better face these new challenges, research indicates that the school should act as a learning organization and encourage discussions and collegiality between its various actors (complementary services, counselors, teachers, parents and students). The new curricular prescriptions are changing the established dynamics between the actors and are likely to introduce tensions that must be resolved at the collective level. A two-year study analyzed two Quebec science teachers' agentive actions taken to meet the curriculum demands with their 256 students by introducing a novel teaching sequence. Although appreciated by students, its implementation provoked conflicts at another level. The current study aims at gaining understanding of these tensions that arose following the introduction of new actions and that emerged from the clashed values promoted by the school board and the parents. Data were collected during formative interventions using four in-depth interviews with two science teachers conducted in the year 2011 and then in 2012. Analyses were based on Vygotsky's (1978) individuals' zone of proximal development. The results highlight the need to move across boundaries and to adopt Engeström's (2000) collective activity systems that will allow all actors, including parents, to identify common grounds and to make sense of the new science teaching approach aiming at promoting students' autonomy, critical judgment, and school success levels.

Keywords*: Curricular reform, tensions, school communities collegiality.*

1. Introduction

There have been calls to reform curricula in Quebec in order to promote environmental education, with a focus on guiding action and developing innovative strategies from the perspective of environmental protection (MELS, 2007; Barma, 2011). Environmental issues are intrinsically linked to science, technology and social activities. They are therefore useful as a way to introduce the renewal of educational practices (Sadler, Chambers & Zeidler, 2004). In Quebec, the provincial curriculum approaches environmental education expects teachers to propose learning and evaluation situations that are open, and complex. This requires a remodeling of their practice. To actually put into place these practices in a classroom represents a challenge to the majority of teachers as their training is traditionally focused on disciplinary content and centered on the evaluative process (Barma, Power, Daniel & 2010; Urgelli, 2008).

In times of curricular reform, challenges have also been identified with parents of students. Several of them are particularly concerned and sometimes preoccupied. These ways of doing and learning are different from those that many parents have known (Dodd, 1998). Often parents react negatively to these non-traditional practices if they do not understand the issues related to their youngsters' learning (Deslandes & Lafortune, 2000; Dodd & Konzal, 1999). In order to better face the new challenges related to education reform implementation, research indicates that the school should act as a learning organization and encourage discussions and collegiality between its various actors (e.g., parents, school principal, teachers) (Barma, 2008; Deslandes, 2006; Deslandes & Bertrand, 2001, 2005). The new curricular prescriptions are changing the established dynamics between the actors and are likely to introduce tensions that must be resolved at the collective level. The current work aims at gaining a deeper

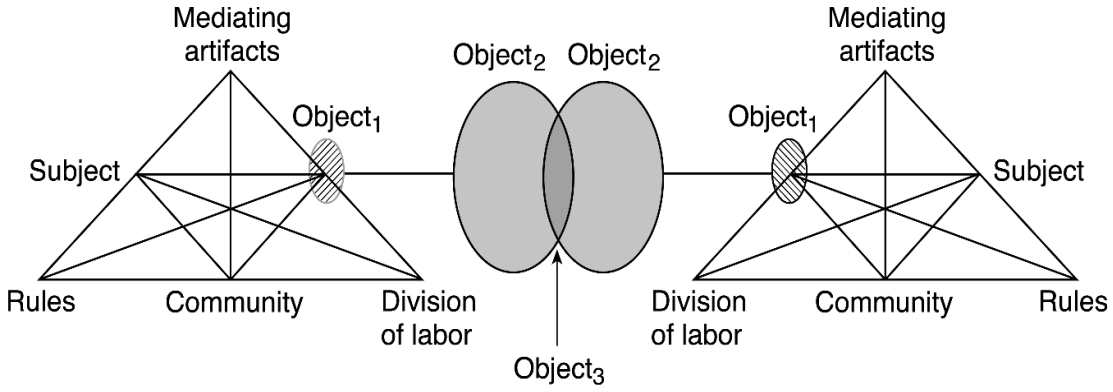
understanding of the tensions that arose in a school community following the introduction of novel instructional strategies in four science classes over two years (Barma, Lacasse & Massé-Morneau, 2015).

2. Theoretical Background: CHAT and boundary crossing zones

The third generation Cultural-Historical Activity Theory (CHAT) (Engestrom 1987, 2001) is at the heart of our study. Drawing on Vygosky's (Vygotsky, 1978) and Leont'ev (1978) works, Engeström has illustrated a model for considering the implementation of a new teaching approach as an activity system in which actors or school community members (e.g, teachers, directions, and parents) are confronted with primary contradictions necessary to foster an expansive form of learning. Areas of tensions and contradictions are at the core of CHAT and are understood as part of any human activity. The ability of subjects to mobilize other actors of the system and to unite them around the same object is a generational prerequisite of an innovation within an organization. "These [learning-centred] relationships are not based on written contracts but rather on the norm of reciprocity, based on the complementarity of the knowledge, resources, and interests of the actors" (Miettinen, 2006, p. 176). They have an important role in the transformation of human actions. In third generation CHAT, an activity system as a whole is the unit of analysis, thus acknowledging that human activity is goal-oriented and tool-mediated not only by individuals but also by collectives (Engeström, 2015). The model comprises six interacting poles: the subject, tools or artifacts, rules (norms, values, etc.), community (e.g., teachers, principals and parents) and division of labor (e. g, changes in role, tasks and responsibilities) (see Figure 1).

From a methodological standpoint, Engeström (1999) argued that his model provided a dynamic reading grid for the analysis of the transformation of social practices. The concept of expansive learning proposed by Engeström supposes that the minimal unit of analysis is represented by two activity systems showing their interactions and a potentially shared object (Engeström, 2001). It also represents the specificity of the third generation. At this level, we illustrate how actors within the same community who share similar goals and motivations produce a new outcome. "A collective activity system is driven by a deeply communal motive which is embedded in the object of the activity" (Engeström, 2000, p. 964).

Figure 1. Two interacting activity systems as the minimal model. Third generation of Activity Theory (Engeström, 2001, p. 136)



The motives of the parents, teachers and school principal involved in the implementation of the new teaching strategy seemed far from one another at the beginning of the project. In order to understand how they could meet and come to share a common object (i.e., engaging science students in meaningful learning activities with community support), the concept of *boundary* is key. Kerosuo defines boundaries as 'established distinctions and differences between and within activity systems that are created and agreed upon by groups and individual actors during a long period of time while they are involved in those activities' (2006, 4). The construct of a hybrid space in the form of a new activity implies that multiple levels of activity systems expand their own activity to establish a zone of proximal development. At the frontiers and across the boundaries of their respective activity system, teachers, parents, and the principal brought their own resources and expertise. (Morselli, Costa, & Margiotta, 2014) bring to our attention the fact that for boundaries to be crossed the rising of tensions is necessary and can reveal fruitful.

(Gutiérrez, Baquedano-López, & Tejeda, 1999) illustrate how apparent conflicts and differences in learning organizations can be transformed into collaborative and productive 'Third Spaces' which can also be understood as hybrid spaces or expanded activities (Engeström, 1999). Bridging home and school is often the source of tensions although both spaces are mutually constitutive (Deslandes, Barma & Morin, 2015). Transforming school activities by expanding them through the building of hybrid spaces is

an idea coming from third generation activity theory (Engeström, 1996). In Quebec, the activity of teachers is somehow attached to student performance at provincial standardised tests and other forms of assessment of disciplinary content (Barma, Power, & Daniel, 2010). Students should rather be offered a broad variety of situations conducive to active participation inside/outside the school. Applying Gutierrez and Calabrese-Barton's (2015) notion of building a Third Space or a hybrid space, the implementation of a new teaching strategy touches organizational, pedagogical, and parent's perceptions.

3. Objectives

In this study, we highlight some areas of tensions that arose between the main actors of a school community when implementing innovative science teaching practices and how they acted as a form of springboard for the modelisation of a new form of activity. We also aim to extend and develop our conceptualizations of a hybrid space in the form of new activity systems that will make sense of the new science teaching approach aiming at promoting students' autonomy, critical judgment and school success.

4. Method

During a period of two years (2010-2012), Barma and her research team acted as formative interventionists with two science teachers endeavoring to implement new teaching approaches with their 256 students. Even though students appreciated the novel practices, tensions arose following the introduction of new actions. To gain better understanding of these tensions, data were collected using four in-depth interviews with two science teachers. Questions included among other things, the obstacles and facilitating conditions they had met in implementing the new teaching approach. They were tape-recorded and afterwards transcribed. They yielded 126 pages of excerpts. Analyses were first based on Engeström Activity Theory Framework (2001) that depicts an activity system as being object-oriented, mediated by artefacts (instruments), and comprising the community, rules and division of labor poles. Three years later, Barma, the leading researcher, was contacted by the school principal and asked to collaborate to a 'new project' that had been put together by the school alumni.

5. Findings

As reported in a previous work, areas of tensions were identified between teachers' values versus the community's in implementing innovative teaching practices. Teachers reported favoring nontraditional ways of teaching and giving more room to adolescents' autonomy and critical judgment while the school administrators and the parents were looking for traditional teaching practices and students' academic performance. Parents are hoping their adolescents will be able to well manage in a competitive world in which the field of sciences offers full of financial possibilities. In the context of a private school, parents seem to view themselves as clients, thereby legitimizing their role when trying to impose their own terms, their own way of doing things. Moreover, working from a marketing mindset, the school administration appeared to view parents as clients and consequently, responses positively to their claims. All in all, whether it is a question of norms, values, ideologies or beliefs, the school community members did not seem to exhibit attitudes and actions in coherence with the essential conditions in applying changes in teaching approaches.

In addition, even though teachers were willing to implement innovations, they reported little availability of resources. These were mainly related to inadequate computer software at times, lack of any time allocated to share ideas with other colleagues and very little knowledge on the part of the school principal regarding the participants' innovative teaching project. Obviously, the communication channels between the school principal and the participants do not function well. The above contradictions could be use as mirror date in a sequence of an expanding learning cycle (Virkkunen & Newnham, 2013).

These identified areas of tensions made us realize the need to move across boundaries and led us to conceptualize a hybrid space in the form of collective activity systems (Engeström, 2000) that would allow all actors to be on the "same grounds", to share. The parents involved in the school alumni committee decided to put the emphasis on the importance of science and technology. Figure 2 summarizes our interpretation of teachers' representations and parents' activity systems.

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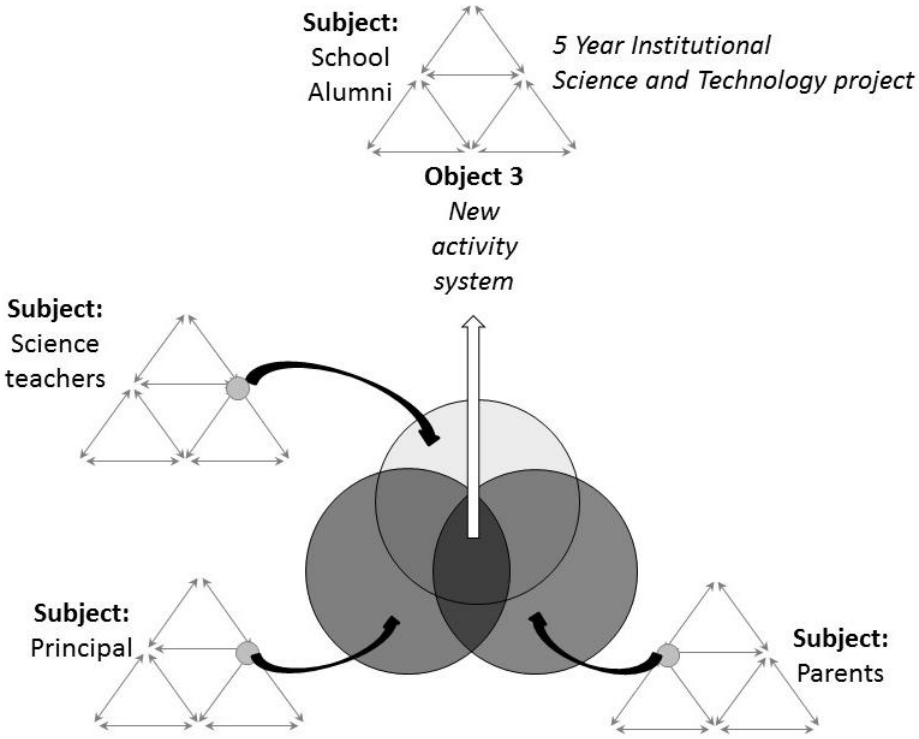
Figure 2. An emerging activity system following the convergence in the object of teachers, parents and school principal's activities



Although the institutional Science and Technology project is only at its first phases, it is a concrete example of the successful modeling of a new activity system to overcome documented tensions over the past three years. The research team is following closely its implementation in light of the necessity of working with students' parents to promote school achievement and perseverance and even more importantly in times of curricular reform.

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OBSTACLES HINDERING TQM IMPLEMENTATION IN SECONDARY SCHOOLS IN SAUDI ARABIA

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Abstract

In its quest for continuous improvement and quality, the education sector has been adopting modern management methods, such as Total Quality Management (TQM).
The Kingdom of Saudi Arabia (SA), along with many other Arabic speaking countries, has made strategic investments in the country's education system to leverage TQM principles, in order to meet international standards of efficiency and effectiveness.
Despite substantial investments, the implementation of TQM in the education sector has not achieved the promised benefits. Some suggest this may be related to TQM's origin in manufacturing. This study aims to explore the nature of the obstacles that impede the implementation of TQM in the public education sector in Saudi Arabia, and the critical success factors needed to overcome them. The study includes a review of the published literature to identify factors and barriers that may affect quality change programmes in education institutions. A field study was undertaken within secondary schools and in the Education Ministry of Saudi Arabia to assess these factors and barriers.
This involved a questionnaire, with a selection of seventeen obstacles often cited in the literature which affect quality change programmes in education institutions. The questionnaire was distributed as a hardcopy to secondary schools in the different regions of Riyadh. Sixty one headteachers ranked their top ten most significant obstacles in order of importance. The result of the ranking was statistically analysed.
Four major obstacles: Top Management Commitment; Training; Tools and Techniques; and Reward and Recognition were identified as substantially hindering the TQM programme within the secondary schools. This result was further validated through interviews with headteachers and Education Ministry officials. They confirmed that the result was an accurate snapshot of the current TQM state. This study suggests that, if the investment in TQM is to deliver the promised benefits in secondary schools, then further work to improve Top Management Commitment is a priority. However, this must be done in a way that Top Management Commitment is understood and practiced in the Saudi cultural environment. The authors are developing tools and techniques for recognition and reward systems, to improve TQM in the public education system in SA.

Keywords: *Total Quality Management, schools, obstacles, education, headteachers.*

1. Introduction

Globalisation's interconnectivity and influence on the economic and political arena, cultivates the need for the advancement of knowledge and technology amongst all nations, and this has a direct effect on their education establishments. The exchange of new ideas, beliefs and knowledge permeates national boundaries through each strata of society, and shifts understanding and opinions, changing local preferences and prompting the emergence of a more blurred 'global culture' amongst nations. Education systems, therefore, have to facilitate a response to assist the future generation with the new challenge and opportunities that are occurring (ALNabhani, 2007).

Since the 1980's, Total Quality Management (TQM) as a management system has become widely accepted in industrialised countries, as a means to achieve superior performance and a quality differentiator, following the lead of the United States and Japan (Deming, 1986; Juran, 1989). Some educators believe that Deming's TQM can be modified to improve standards of education elements even though there is no visible, tangible product (Hassan, Fan and Johnstone, 2014). Therefore, Carnoy and Rhoten, (2002) stress that it is an imperative challenge for education to distinguish locally the core necessary reforms needed from the "ideological packaging" and "transnational paradigms" of the related modern systems.

The published success of TQM in several industries in the rest of the world, and their quest to meet international standards of efficiency and effectiveness and continuous improvement using modern management methods to develop Knowledge Capital (Stromquist, 2002), has prompted many Arabic

countries (including the Kingdom of Saudi Arabia) to make strategic investments in the country's education system to leverage modern management methods such as (TQM).

The role of TQM in education is, however, controversial. Zabadi (2013) challenges the interpretation of quality within the school system. Köksal (2011), states "*TQM in education is not a panacea*", and does not have supernatural powers to solve all problems in schools or the classroom. TQM implementation worldwide has prompted an increase in the recent published literature on the failure of TQM. This appears to support the current experiences in Arabic Countries, including SA, where despite substantial investments, the implementation of TQM in the education sector has not achieved the promised benefits.

2. Literature review

This study has researched sixty papers from 2000 to 2014 related to TQM implementation in the Education Sector. This has identified 46 barriers most frequency referenced as obstacles that impede the implementation of TQM in the education sector. Applying the Principle of Causality, five obstacles can be determined as the root cause of many barriers that hinder successful implementation of TQM in in the education sector. These are: Lack of Top Management, Lack of Training and Lack of Sufficient Tools and Resources, which can be considered the major obstacles in the earlier phases, and Lack of Benchmarking and Lack of Culture change in the later stages of the change programme.

1- Lack of Top Management Commitment (TMC): Kanji and Tambi (1999) observe that this is the most significant barrier in more established universities in the UK. In Pakistan Secondary Education study, Suleman and Gul (2015) determined that leadership, accountability and cooperation are important to TQM implementation which also requires commitment to a clear long range vision and teamwork.

2- Lack of Training: This is considered the first step in familiarisation and equipping employees to handle the uncertainty of change (Talib and Rahman, 2010). Sallis (1993, p. 128) points out that "*It can be the key strategic change agent for developing the quality culture*". Kohn (1993) states that commercial language or TQM jargon causes difficulties for all stakeholders, and prevents translation into educational institutions.

3 - Lack of resources and funding: Suleman and Gul (2015, p. 131) conclude that the *"lack of resources* and funding is *responsible for the overall poor institutional performance"*. Morgan and Murgatroyd (1994) explain that informed decisions on performance require tools to implement institutions' quality measurements. Additionally, Juran (1989) explains that a recognition and reward system is a critical tool for promoting organisational performance development. Sallis (1993) reinforces these views by stating that employee performance is optimised only when achievements are recognised and rewarded.

4 - Lack of culture change: Gotzamani and Tsiotras (2002) have highlighted the need to change the organisational culture, which requires that groups of individuals must also alter their behaviour and attitudes and adopt new practices. However, Blankstein (1996) states that academic staff may refuse to change and adapt their behaviour and practices. Goetsch and Davis (2006), explains that this is the result of a natural conflict between the advocators of change and the resistors as a "clash between cultures".

5 - Lack of Benchmark: Huq (2005) explains that TQM processes originate from the industry sector, with no ideal benchmark of TQM in education, and that few guidelines or precise criteria exist. Thus, it is difficult to for academic institutions to compare best practices to external sources and identify relevant gaps for improvement.

3. Methodology

Questionnaire and interviews were used in this study. The questionnaire content was designed using the research from sixty papers related to TQM implementation in the Education Sector, and 17 obstacles were selected to develop the closed end questionnaire; (validated by a panel of five experts). The respondents were headteachers of secondary schools in Riyadh in all four regions of the city. The appropriate ethical process and approvals were undertaken to assure voluntary contribution and anonymity. The questionnaire statements included a ranking scale in which the headteachers (HT) were required to select their top ten factors in order of the difficulty perceived in hindering their implementation of TQM in their school.

The questionnaire was completed by 61 secondary school headteachers. In addition, semi-structured interviews with 35 Headteachers were conducted. Further interviews were conducted with five headteachers and three senior officials from the Ministry of Education in SA to validate the findings. Semiotic Content analysis was undertaken from the interview notes to identify key themes and issues.

4. Results of the headteachers survey

The headteachers ranked their obstacles in the questionnaire. The final result has ranked the 17 obstacles in the order most frequently listed in the Top 10. Semi-structured interviews were conducted with 35 headteachers in order to understand if there were interdependencies and causal relationships within the obstacles. These were then finally grouped into the main themes determined by the headteachers' perceptions and insights, and the Top 4 major obstacles were identified as the root causes underpinning many other significant obstacles.

Table 1. List of 17 (ranked by frequency) in Top 10of Significant Obstacles of TQM implementation by Head teachers

Significant Obstacles	Ranking	Inter relationship with other Obstacles			
		Lack of TMC	Lack of Training	Lack of Resources	Lack of Reward
Inadequate knowledge or understanding of TQM	1	*	*		
Lack of training programmes	2	*			
Lack of top management commitment and belief in the programmes of TQM	3		*		
Weakness of commitment in employee involvement and empowerment	4	*			
The absence of precise criteria for determining the level of performance	5		*		
Weakness of focusing on customer satisfaction and their expectations	6	*			
Poor organisational communication	7	*			
Lack of use of quality measurement and benchmarking	8		*		
Lack of infrastructure suitable for the application of TQM	9			*	
Inefficient information systems used in the company	10			*	
Inappropriate Reward and Recognition	11			*	*
Weakness of commitment to quality strategy requirements	12	*			
Resistance of some staff in the school	13	*			*
Lack of qualified human resources	14		*	*	
Lack of material resources necessary for the application of quality standards	15			*	
Weakness of attention to a quality culture	16	*			
Expect immediate results	17	*			
Total		**9**	**5**	**5**	**2**

The result of this final analysis of the interviews with the 35 headteachers reveals that they consider the Lack of Top Management Commitment as the cause of nine other obstacles; Lack of Training and Resources are the root cause of five other obstacles, and finally, Inappropriate Reward and Recognition is the source of two obstacles.

4.1. Results of the validation interviews

At the validation interview, specific comments from the eight representatives explained what they considered to be the most significant current obstacles to TQM implementation, and these have similarly been clustered by category. The number of matched statements per representative were counted and the main obstacles according to the Head teachers and the MOE Officials are: Training programmes, Top Management Commitment, Tools/Resources and finally Inappropriate Reward and Recognition. Their comments provide an insight into the nature and impact of these obstacles discussed below.

- *Lack of Top Management Commitment:* The key concerns raised by the Top Management Commitment were threefold. One was related to the MOE which was explained by headteachers as follows: "*it is not clear what the MOE wants to achieve and centralised decision limits our accountability*". Secondly, the MOE expresses that "*Headteachers personal ambitions conflicted with the intent of the new quality initiatives"*. Thirdly, the MOE raised concerns that "*a lack of modern leadership strategies of Headteachers needs a continuous programme to build their capabilities".*

- *Lack of Training:* Headteachers complained about three significant issues related to this obstacle. Firstly, "*it was too short, not informative and not sufficient*"; and "*no opportunity to provide any feedback or measure the impact of the training*". Secondly, that "*teachers aren't included in this TQM training".* Thirdly, the MOE and headteachers considered that "*there is a lack of on the job training for support"*.

- *Lack of Tools and Resources:* Representatives raised several major and wide ranging issues related to this obstacle. These included: "*insufficient budgets, inadequate infrastructure, tools and systems"*. Headteacher comments included that "*there are no uniform standards or criteria, guidance or support from MOE on how to implement TQM effectively".* Also, *"the new technology has not produced the expected results"* and *"inefficient information systems are used in the schools"*.

- *Lack of Reward and Recognition:* Representatives agreed that Reward and Recognition is a "*hot topic"*. The MOE explained that "*There is a reluctance of teachers to apply for the headteachers post as there is no recognition and reward scheme to incentivise promotion to Headteachers level*".

The headteachers pointed out that "*Teachers are mostly aggrieved by the lack of recognition*" and MOE acknowledged *"we need to build a quality system with contain standards, performance indicators, and measures"*

5. Findings and discussion

The literature review and this study appear to be in agreement that Lack of Top Management, Lack of Training and Lack of Sufficient Tools and Resources are major obstacles. However, the literature review has identified that Benchmarking and Lack of Culture Change are major obstacles only in the later stages of TQM. The validation interviews held with the eight representatives confirm that these final findings are an accurate snapshot of what is agreed to be early stage implementation. According to the representatives, the Lack of Top Management Commitment is the driving contributor. These opinions are also supported by (Talib *et al.*, 2011) in their comprehensive international research into TQM within the service, manufacturing and production sector. This study concludes that unrealistic expectations, absence of process focus, lack of information flow, education and training and the failure to engineer the vision and benefits of a continuous improvement culture are all attributes of this key obstacle.

The perception that TQM originates within the private sector makes it more difficult for Saudi public sector managers to adopt and adapt. (Al-Qahtani and Al-Methheb, 1999). Steers, Nardon and Sanchez-Runde (2010, p. 77) highlight how when a new management philosophy is introduced from a different culture the cross-cultural differences need to be recognised, and that these differences are "*not a bad thing… they just require more work at times*" to address the complexity of the compromises needed when introducing new concepts.

According to Ahmed (1998), it is the task of organisational leaders to bridge the gap between theory and the real world and provide a culture and climate that delegates, nurtures and acknowledges innovation at every level. However, Darandari *et al.* (2009) and Alruwaili (2013) state that Saudi institutes operate on centralised systems, and the recently introduced TQM theories rely on delegating decision-making power be driven at all levels, which is in conflict with this centralised decision making.

Furthermore, TQM relies on informed and delegated decision making. However, Alruwaili (2013) notes that Saudi management culture relies heavily on guesswork, gut feeling or at least management by command. Therefore Brigham (1993) warns that there is a risk that the core message of TQM may get lost in the communication "muddle" between the "cultural gap" caused by two cultural styles of leadership -Transactional leadership and Transformational leadership.

Atkinson (1990) proposes that mapping the ideal (TQM) culture to the current prevailing one will anticipate the "culture gaps" and indicate the challenges that need to be confronted upfront.

McNabb and Sepic (1995) resolves that leadership behavioural "soft skills" training needs to be emphasised at the earliest stages if more modern leadership styles are to be encouraged and adopted. According to Darandari et al. (2009), the NCAAA in SA has adopted these principles within their quality assurance programme and introduced a management accredited training quality assurance system within universities and colleges, but this approach also needs to be applied to the rest of General Education in SA. The NCAAA have also specified the importance of an accompanying performance system with a clear structure of standards supported by a recognition and reward systems that encourages the attainment and continuous progression of these scale of intended outcomes to support and enable Top Management Commitment. Rice (2003) advocates that when employees are more confident about what is expected of them, they are more likely to accept a risk and action change, especially if they know management are likely to recognise and reward their efforts accordingly.

6. Conclusion

The results reveal that there are a number of challenges being faced by girls' public secondary schools in implementing TQM in Riyadh in Saudi. The most significant obstacle is the Lack of Top Management Commitment. Furthermore, training and tools and techniques that support the recognition and reward of desired behaviours and practices are essential to enable readiness for change and improve the Level of Readiness for TQM implementation in the public education system in SA.

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MEASURING LEARNING GAIN IN ACTIVE CITIZENSHIP IN HIGHER EDUCATION

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Abstract

This paper tackles the tricky issue of learning gain, which is being explored at a modern university in the UK through an employability initiative. This initiative focuses on the graduate attribute Active Citizenship, which is explored using a tool to measure students' learning gain in this area. The research is based on analysis of students' cognitive, pragmatic and attitudinal engagement with Active Citizenship. During the pilot phase, cognitive interviews were conducted with 20 undergraduates from different subject areas to investigate how survey questions would perform as part of the instrument. A total of 923 undergraduates participated in the main survey. Exploratory Factor Analysis (EFA) will be conducted on the survey data to test a three-factor structure: (1) Knowledge and awareness of different perspectives/ cultures/ values, (2) Actions taken within the community, and (3) Proactive attitude to improve society. This factor analysis draws upon theoretical support from the European Commission (1998). The research supports the higher educational goals of encouraging alumni to be active citizens, and has ramifications for the sector as a whole where employability is growing in importance, and employers are increasingly seeking ethical and social engagement. The research reported here also gives a voice to students themselves in the learning gain debate, which is a surprisingly rare undertaking. In addition, the attribute Active Citizenship is an important and challenging focus for engaging students in initiatives that promote leadership in a contemporary globalised context. This paper will interest not only higher education practitioners, but also researchers in learning gain and education for sustainability.

Keywords: *Active citizenship, employability, higher education, cognitive interview, survey.*

1. Introduction

There is a growing interest in measuring learning gain in Higher Education, which can be defined as 'distance travelled' (HEFCE, 2015), that is, a measureable improvement in learners' knowledge, skills and competences demonstrated by students at two points in time. This issue has been relatively under-explored in the UK (McGrath et al., 2015). It has been instead more thoroughly used in the US, but focussed on the cognitive aspects, particularly critical thinking and written communication (e.g. the Collegiate Learning Assessment).

This concept is being explored at a modern university in the UK with a population of 20,000 students from a holistic point of view, that is, not only focused on cognitive aspects but also on procedural and attitudinal with the graduate attribute 'Active citizenship'. This attribute, together with four more -Academic literacy, Research literacy, Personal literacy and critical self-awareness and Digital literacy-, constitute an employability initiative in this British university that introduced these five graduate attributes into all taught programmes in 2012. In other words, the graduate attributes were developed in order to define and create opportunities for students to develop the skills and attributes which would enable them to take up valuable and satisfying careers, and contribute to society and the economy.

Active citizenship is defined by The European Commission (1998) not only as the development of intercultural understanding (affective level), but also the acquisition of operational competence (cognitive level) and both are best gained through practice and experience (pragmatic level). In this UK institution where the study takes place the graduate attribute 'Active Citizenship' is defined as containing four core elements (see table 1):

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Table 1. Core elements in Active Citizenship

1) Prepared to proactively engage with both local and global communities
2) Knowledge of the local and global perspectives of one's discipline
3) Critical awareness of the complexity of diverse perspectives, cultures and values and the ability to question one's own perspective and those of others
4) Ability to use knowledge and skills to improve society through actively engaging with issues of equity, sustainability and social justice

2. Objective

The objective of our work is the development of an instrument to benchmark and track engagement with the elements of active citizenship as a measure of learning gain as part of a project funded by the Higher Education Academy (HEA) in the UK. It will take the form of a scale of questions, which have recently been inserted into the bi-annual Institutional Student Engagement Survey.

3. Method

3.1. Participants

The participants were 923 undergraduates studying their course in the departments of Business, Health Life Sciences, Human & Social Sciences and Technology, Design & Environment from a British university. Students in their last year were excluded of the study since they were already required to fill out another survey for another study.

3.2. Instrument development

The preliminary version of the instrument was under revision in November 2015 by four programme leaders and in December 2015 by a methodologist and an external advisor. After some amendments, a second version was under revision along February 2016 through cognitive interviews that were conducted with 20 undergraduates from different subjects in order to investigate how well questions perform when asked of survey respondents. This data collection was conducted after receiving the ethical approval from the institution. Lastly, after some amendments the third version of the instrument was analysed by five judges in March 2016.

3.3. Instrument

Our instrument measures learning gain in the graduate attribute 'Active citizenship'. It comprises 15 statements rated on three Likert-type scales (Figure 1).

Figure 1. Dimensions of Active Citizenship

From the total of 15 items -7 of them taken from the literature review-, three belong to the first dimension, eight to the second and four to the third (see Table 2):

Table 2. The Active citizen ship instrument

Cognitive level	- Becoming aware that understanding of your subject may vary depending on local contexts and culture - Understanding people of other backgrounds (economic, racial/ethnic, political, religious, nationality etc.) (*) - Worked with students from other cultures and/or backgrounds e.g. in groupwork, team projects in order to learn from other points of view
Pragmatic level	- Participated, as part of your course, in activities/projects which engage with the community - Doing volunteer work (*) - Participating in extra-curricular or co-curricular activities (societies, sports, etc. via the institution or the students' union) - Gained work experience in a paid or unpaid role e.g. an internship, field experience or placement (*) - Contributed to your programme of study in a paid or unpaid role e.g. as a module assistant, research assistant, e-pioneer or peer assisted learning mentor etc. (*) - Hold a formal role within the university e.g. as a chair of a departmental or student society, or as a student ambassador (*) - Participate in a study abroad programme (*) - Participate as a volunteer at Brookes or the wider community (*)
Attitudinal level	- Adopting a responsible and ethical position within your chosen profession or discipline - Becoming motivated to make a positive contribution in your community even if it is at a small level - Developing a proactive attitude/"positive spirit" to improve society - Engaging with ideas of equality, sustainability or social justice

Note. Items ranged from 1 to 4
Note. (*) pre-existing items drawn from work by Sharpe et al. (2014)

Information on some socio-demographic background variables was also collected, covering the participants' gender, age, native language, course, year of study, country of origin, previous studies and/or work experience, and principal source of income during this year.

3.4. Data collection

Undergraduates received a web link through e-mail that redirected them to the survey. Their voluntary participation was requested and the confidentiality of their data was assured. Data was collected from 10th April to 13th May 2016 with a response rate of 13%, providing a confidence interval of +/-3%.

3.5. Statistical analysis

The structure of the instrument will be examined through Exploratory Factor Analysis (EFA) in order to test a three-factor structure: (1) Knowledge and awareness of different perspectives/ cultures/ values, (2) Actions taken within the community, and (3) Proactive attitude to improve society. This factor structure finds theoretical support in the European Commission (1998), which states that active citizenship must comprise not only the development of intercultural understanding (the attitudinal level, Factor 3), but also the acquisition of operational competence (the cognitive level, Factor 1)—and both are best gained through practice and experience (the pragmatic level, Factor 2).

4. Discussion

The innovative nature of this research is the application of learning gain theory to the study of students' professional development. In practice this means further embeding Active Citizenship into all taught courses at all levels (Foundation, UG, and Taught PG). Another innovation is the collection of data from the students' perspectives in the topic of learning gain, which implies collecting their perceptions of learning gain and not learning gain itself. We think this approach is very linked to students' satisfaction towards their institution –an interesting and useful element that, from our point of view, should be considered when taking curricular decisions. Moreover, our work constitutes a first step in promoting students to be leaders in the contemporary globalised context which they belong, since a next step will be the development and dissemination of discipline-linked resources on active citizenship, shared through sectore wide events and a website.

To finish, we believe that our work can call the attention of a diverse audience -higher education practitioners, researchers in learning gain and educators for sustainability- interested in the internationalisation of the curriculum at university, which involves providing students with global perspectives of their discipline, giving them a broader knowledge base for their future careers and helping them to develop a set of values and skills to operate in diverse cultural environments (HEA, 2014).

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ENTERPRISE PORTFOLIO – A NEW LEARNING MODEL FOR MULTICULTURAL SKILLS AND WORK LIFE CO-OPERATION

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Abstract

The purpose of this paper is to introduce a multicultural learning and work life co-operation model which was designed for a degree programme students at Lahti University of Applied Sciences. The paper describes the model, the Enterprise Portfolio (EPF) and its background, goals, piloting process and experiences.

The model aims to improve foreign students' readiness to find employment in Finland after graduation. The idea is to provide students with a chance to learn Finnish and to develop their multicultural skills by involving them in teamwork with Finnish students. Additionally, they will have the opportunity to make Finnish working life contacts at the beginning of their studies. The secondary aim of the model is to develop Finnish students' multicultural skills and to improve their English language communication skills as well.

EPF is based on the learning model called Yritysportfolio (YPF) which was developed at Lahti University of Applied Sciences for Finnish business degree students. The idea of YPF is to combine first year business studies with the practices of working life. In EPF, foreign and Finnish students form multicultural teams in order to gain experience in working in a multicultural environment and to improve their Finnish and English language communication skills. When a team is formed, it looks for a company to co-operate with and gathers business information about it by visiting the company and interviewing the company's representatives. As a result, the company receives documentation and development suggestions as an online portfolio.

The EPF was piloted during the academic year 2014-2015. Based on the student survey and the feedback workshops the EPF successfully reached its goals, but improvements have been planned and will be implemented in the academic year 2015-2016.

Keywords: *Learning model, multiculturalism, working life, language skills, teamwork.*

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1. Introduction

Lahti University of Applied Sciences (LUAS), Faculty of Business, faces the same challenge as other universities in Finland: most of the foreign degree students who complete their studies in Finland, leave the country after graduation. As Finland offers higher education that is free of tuition fees, Finnish society and companies would benefit more, if they were able to utilize the expertise and international competencies of foreign graduates (Centre for International Mobility [CIMO], 2012b). However, it has been acknowledged that it is difficult for foreign students in Finland to find places where they can do practical training or gain employment after their graduation. The main reason for this difficulty is the high level language requirement demanded by Finnish workplaces and the insufficient amount of Finnish language courses offered by many universities of applied sciences (Federation of Universities of Applied Sciences [FUAS] 2013, 12).

To meet this challenge, the Faculty of Business at LUAS has started to take action towards ensuring the better integration of foreign degree students into Finnish work life, thus helping them stay and find employment in Finland after graduation. One of the many measures for this is the new learning model called Enterprise Portfolio (EPF). The aim of this article is to describe the background to the creation of the EPF, describe the learning model and also present the pilot project and its results. The emphasis is on presenting the pilot process and the feedback it received.

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2. Background

According to the Institute for Economic Research in Finland, the impact of foreign students on the public economy is positive only if the students stay in Finland after their graduation, and if they find employment in the Finnish labour market at the same rate as the Finnish job seekers of the same age (Garam, Jaalivaara, Kuosmanen, & Suhonen 2014, 29). However, it is very difficult for foreign students to find employment in Finland. For example, one year after graduation less than half (46 %) of the foreign students who graduated in 2011 had found employment (CIMO 2014). For immigrants and for people with a foreign background in general, finding employment and integrating into Finnish society requires sufficient Finnish language skills and knowledge about Finnish culture and society (Ministry of Education 2009, 46).

When studying Finnish language courses at the universities of applied sciences, students are able to attain at least a Basic User level (A2.1 of the Common European Framework of Reference for Languages) knowledge of the language. The Basic User level, however, is not enough for the students to be able to compete for employment with Finns and to meet the language requirements of Finnish workplaces. In terms of language skill development and attaining intermediate-level Finnish language skills (B1), it is essential that the students interact with Finns from the very beginning of their studies. (FUAS 2013, 12)

According to the International Student Barometer survey which measures the satisfaction of international degree students and exchange students in their study experience in different countries, it is obvious that compared to other countries, those students who come to Finland find it more difficult to get to know local students. In the foreign students' opinion, the lack of connection between international and local students is an apparent flaw in their study experience. Furthermore, international students are also more dissatisfied with the lack of employment opportunities provided by their studies and with their opportunities to gain work experience and practical training places during their studies. (CIMO 2012a).

3. Enterprise portfolio is based on Yritysportfolio

At the Faculty of Business of Lahti University of Applied Sciences, a learning model called Yritysportfolio (YPF) has been in practice since 2001 for the Finnish students. The model combines theory with practice already during first year studies whereby students apply assignments to the target companies chosen by themselves. The students work as a team acquiring information about a company by interviewing its representatives and by using a variety of public sources. They analyse the information and consider development suggestions for the company whilst also completing course assignments. Finally, they gather the assignments into a portfolio, which is given to the target company. At the end of the academic year, the results of the portfolio work are presented to the other teams, the company's representatives, and the staff and students of LUAS at an event resembling a business fair.

As a consequence of the students' positive experiences and the improvement in their practical business skills due to the help of the YPF model, an idea was born: a new learning model for foreign students, which could be developed on the basis of the YPF. The idea was encouraged by Häme University of Applied Sciences' PAJATSO project, which had acknowledged that the best way to utilise the foreign students' international competencies is to bind their studies to regional development, while simultaneously conducting projects related to work life and business cooperation (Niittymäki 2014, 6).

4. Enterprise portfolio

The aim of the new learning model, EPF, was to offer foreign students the possibility to interact with Finnish students and Finnish work life representatives already at the beginning of their studies, thus gaining instant experience of multicultural team and project work. For foreign students, it is challenging to reach a sufficient competence level in Finnish, however, the EPF helps to meet that challenge by providing opportunities to learn Finnish in real life learning situations. For the Finnish students participating in the EPF, the learning model aims to improve their multicultural skills as well as their English language communication skills. Improving these skills is important, especially for those Finnish students who do not study abroad.

4.1. Learning model and its piloting

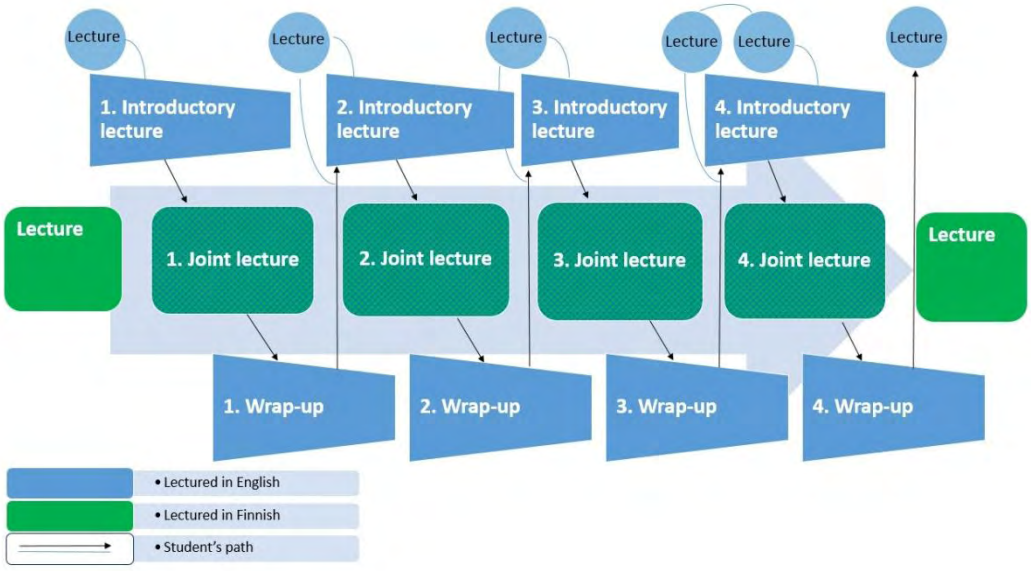
The piloting of the EPF started in September 2014 at the Faculty of Business. The pilot project was run with first year foreign and Finnish students from the Business Information Technology degree programme in two study modules (15 ECTS) called 'Liiketoiminta tutuksi' and 'Understanding

Business'. In addition to the students, every lecturer of the study modules and a Finnish language instructor participated in the pilot project.

The foreign students' need to get to know Finnish students better was also recognised, and for that reason teams of 5-6 Finnish and 1-2 foreign students were formed. The students completed a team role test and its results were utilised when forming teams, ensuring each team would have a good combination of personalities to support effective teamwork. The multicultural teams searched for a target companies. Team forming, finding a local target company and following the rules of Finnish work life were supported by meeting every team on a weekly basis during the first two months of the pilot project. In addition to the team's active work, guidance was given in meetings of ten minutes. After finding a target company, the guidance meetings were lengthened to 20 minutes and the focus shifted to the so called EPF assignments. The EPF assignments are assignments in the first year business courses: Company's Business and Personel, Logistics, Marketing and Sales, Financial Management and Customer Communications and Negotiation Skills. When completing an EPF assignment the team utilises the theory of the course and applies it to the target company and its business conduct. Consequently, the team, especially foreign students, familiarise themselves with Finnish work life, which later enables the team to brainstorm development suggestions for the company. EPF teams use an ePortfolio and networking service called 'kyvyt.fi' to save, share and create content in a communal way. The results of the EPF assignments are written in Finnish and summaries are made in English.

In order to reach the learning goals of the courses' theoretical information and to offer foreign students the chance to improve their Finnish skills, two learning paths were created. Foreign students were given the blue path and Finnish students the green path as shown in Figure 1. The foreign students took introductory lectures where they familiarised themselves with the topic of a coming joint lecture, which was to be held in Finnish. Foreign students also learnt about the key concepts and how to pronounce them in Finnish and wrote them into the vocabulary of the Moodle eLearning platform. After the introductory lecture, the foreign students received active listening tasks and participated in the joint lectures with Finnish students. The number of joint lectures varied on the course depending on the number of the themes in the EPF assignment. In a wrap-up lecture, the foreign students discussed the themes of the joint lecture and the lecturer checked that the core content of the theme and the active listening tasks had been learnt. Learning the key concepts in Finnish, collecting the vocabulary, listening to lectures in Finnish and doing active listening tasks supported the foreign students' learning of the Finnish language. The Finnish students had course lectures in their own group as well as joint lectures with foreign students, which were held in Finnish.

Figure 1. Learning paths for foreign and Finnish students in the EPF learning model



During spring 2015, the pilot project continued with new courses in the study module. New teachers were acquainted with the EPF learning model and began to implement it in their courses. The guidance meetings with students continued and the lecturers supported the teams in the new EPF assignments. The same lecturers who had supported the teamwork during the autumn also did so during the spring.

Student teams collected the results of their EPF assignments in the kyvyt.fi service using them to create an ePortfolio about their target company, who also had access to it. The study year culminated in the trade fair resembling EPF Highlight Event in May 2015, which was organised together with the first year students who had completed the Yritysportfolio. The teams gave a ten-minute presentation on their own target company in Finnish, which included the foreign students of the team speaking in Finnish to contribute to the presentation. During the fair, the teams also presented the target companies at dedicated booths, while company presentation videos in English were shown in a separate screening room. About 180 students, 30 company representatives and 20 lecturers participated in this successful EPF Highlight Event, which garnered much positive feedback.

4.2. Results of the pilot

Feedback on the EPF was collected from the students through surveys and also during the workshops. The electronic surveys were implemented in December 2014 and in April 2015. Two feedback workshops were run in April 2015: one for Finnish students in Finnish and another one for foreign students in English. During the workshop each student wrote down the things they had learnt during the EPF and gave feedback on things which did not work so well. The students discussed these topics in groups of 2-4 students and then selected the most important areas out of both categories. Next, each group presented their results and gave the other groups the chance to ask questions about their findings. At the end, the students voted on the most significant things they had learnt during the EPF, and the things which did not work so well.

During the workshop, working in a multicultural team was voted the most significant thing that the Finnish students had gained from the EPF. The multicultural teamwork had improved their English language communication skills and lowered their threshold for speaking English. In the survey, the average of the answers given to the question “How much you have learned teamwork and project work skills by doing EPF project?” was (using a Likert scale from 1 to 5, 1 corresponding to “nothing” and 5 meaning “a lot”) 3.9 in the autumn and 3.5 in the spring. A slightly lower average in the spring can be explained by the fact that the students’ first taste of the teamwork and project work had been gained in the autumn. Both the Finnish and the foreign student groups answered the question in the same way. Based on this feedback it can be concluded that the EPF model was successful in improving the students’ multicultural teamwork and project work skills.

The foreign students voted that the most significant thing they learnt was the business practices in Finland. Additionally, learning to study independently, visiting the target company and meeting company representatives were important to them. The foreign students thought that working in a team with Finnish students had increased their ability to understand Finnish and cooperate with Finnish people. In the courses that used the EPF model, the students gave presentations both in English and Finnish and using two languages in a presentation was also found to be an important skill in their opinion. In the survey, the statement “The EPF project has increased my motivation to learn Finnish” received a 3.33 average from the foreign students in the autumn and 3.29 in the spring (using the same Likert scale as above). The average remained the same during the academic year and, therefore, based on the results of the surveys and the workshops, the EPF model can be said to have motivated foreign students to study Finnish reasonably well.

According to both Finnish and foreign students, the division of the workload amongst team members was a challenge. Both groups felt that foreign students did not have a chance to show their skills, because the Finnish students were responsible for doing the EPF assignments and the task descriptions were written in Finnish. Likewise, writing the results of the EPF assignments in Finnish and making a summary in English was challenging because foreign students had just started their Finnish language course. As a result, in the answers to the open question “What would help you to work in the multicultural team?” both foreign and Finnish students wished for a larger and clearer role for foreign students. In the feedback workshops, the students suggested that the result of some EPF assignments could be written in English.

Two feedback workshops were organised for the lecturers to share their experiences and discuss development ideas in December 2014 and in May 2015. The lecturers agreed that the content and the goals of the EPF are meaningful. However, joint lectures were challenging because lecturing as a teaching method did not fit the purpose of all the courses that well. It was also challenging to give joint lectures due to the very limited Finnish skills of the foreign students.

4.3. Further development

Based on the feedback and suggestions of both the students and the lecturers the Enterprise Portfolio will be improved in many ways for the academic year 2015-2016. Firstly, the task descriptions of EPF assignments will be written in both Finnish and English. Finnish will remain the main language of

the portfolio but some parts of it can be written in English, as the students suggested. This will lead to a more equal workload. In addition, the interaction between foreign students and the company representatives will be deepened by increasing the use of English during company visits.

Secondly, instead of joint lectures, learning Finnish will be supported by doing functional exercises related to the themes of the assignments for each course. In this way, the emphasis on learning Finnish will shift from listening into interactive methods of learning, which should increase the motivation of foreign students to study and use the language.

Thirdly, there will be a new theme in the portfolio: a glossary of key terms. The teams will gather the key terms of all the EPF courses and write them in both English and Finnish, defining the terms in English. This will strengthen the students' vocabulary, in both languages, in their own field of study and support the foreign students' Finnish studies.

5. Conclusion

The EPF successfully achieved its goals. During the pilot study year, the students worked in multicultural teams and did project work for companies. In this way, the foreign students received the possibility to interact with Finnish students as well as with Finnish work life representatives. Foreign students were given opportunities to learn Finnish language in various study situations, and, in their opinion, their understanding of Finnish was improved and their motivation to study it was increased. The teamwork also improved the Finnish students' multicultural skills and lowered their threshold for speaking English.

In the future, the foreign students' Finnish will be supported in functional ways because the joint lectures were impractical for learning Finnish. In addition, in order to create a more equal workload between the team members, more English will be used when creating the ePortfolio. By implementing these development ideas, it is expected that the EPF will better achieve its goals during the academic year 2015 to 2016.

As the foreign students who participated in the pilot were first year students, it is not yet possible to evaluate if they will find employment in Finland. However, based on the results of the pilot year, the EPF learning model has improved the foreign students' readiness to be employed in Finland and we can assume that they will have increased opportunities to find employment in Finland after graduation.

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APPROACH TO STUDYING AND FLIPPED CLASSROOM: AN EXPERIENCE IN UNIVERSITY

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Abstract

This research aims to describe, through the use of quantitative techniques, which components of the self-regulated approach to studying (organization, preparation, self-assessment, strategies, metacognitive sensitivity) characterize university students who accept a different form of teaching that can be supported by the use of technology. These components have been identified through the use of the standardized approach to studying questionnaire QAS from the battery A.M.O.S. Ability and motivation to study assessment and guidance (De Beni, Moè, & Cornoldi, 2003). The research involved the participation of 129 students who voluntarily chose to participate in an experimentation of a teaching unit, activated during the academic year 2014/2015 at the University of Salento, using a flipped methodology: a pedagogical approach structured as a form of blended learning that is gaining popularity also in the academic education. The paper will offer also a pedagogical reflection on the strengths and weaknesses of this innovative methodology in the improvement of teaching in schools and universities.

Keywords: *Flipped classroom, metacognition, teaching, approach to studying, self-regulated learning.*

1. Introduction

Recent developments in the education and technology research indicate the importance of encouraging new forms of teaching/learning that foster interaction between the formal and informal dimension of the process of knowledge acquisition (Gordon, 2000; Bonaiuti, 2006; Ferri, 2011; Parmigiani & Pennazio, 2009). Only recently the educational research has focused on the investigation of the effects of innovative teachings on self-regulation processes, there are in fact few empirical studies that describe the relationship between the activity carried out in the virtual community and the self-regulative development (De Marco, Albanese, 2009, Barnard, Paton & lan, 2008; Narciss, Proske, & Koerndle, 2007). According to the authors of this paper, students (university) in favor of experimenting forms of teaching alternative to the traditional ones have a good self-regulation skills. Therefore, the research intended to identify and recognize the ways of learning that a certain group of students implements. In particular, the paper wanted to analyze the approach to studying of students who voluntarily adhere to university courses that provide non-traditional teaching methods and that leverage the use of technology.

The education debate on teaching is recently questioning how teachers could improve their didactics and use the class-time more efficiently than the traditional lesson. A "new" way to create a more dynamic didactic, through the use of technology, is the flipped classroom or flipped learning. It was in 2000, when Baker and Lage introduced the flipped approach, subsequently the Khan Academy popularized this methodology through online videos and activities.

The flipped approach developed in this contribute followed the orientation given by the social constructivism, according to which "in the intentional learning classroom, students are encouraged to engage in self-reflective learning and critical enquiry. They act as researchers responsible to some extend for defining their own expertise" (Brown, 1992). In these classes teachers are called upon to play an active role to act as models for learning and guiding students in the discovery process. Teachers learn to provide an education based on the need to know, which allows them to meet the needs of students, rather than to set a goal or a planned sequence or rigid teaching unit (Brown and Campione, 1998). In a flipped classroom the lesson material is delivered outside the classroom setting through on line material or video-lessons. Following this approach the students can study the lessons at home. The class time for students is used to undertake collaborative and interactive activities related to the subjects they study at home. In a flipped classroom the students practice in class what they are learning, consistently with the constructive alignment approach recommended by Biggs and Tang (2007). The flipped classroom

structure demands active engagement both from the students and teachers. Sam and Bergmann (2013) suggest that students, prior to attending class should read a chapter, watch a video or explore a new topic. Then, the teacher may facilitate a discussion based on this information to deepen the students' understanding.Through the class inversion, the teaching explanation, or part of it, is done at home so that the time gained by canonical explanation is invested in interaction between students and between students and teacher who, in this structure, uses its expertise to build the real learning process with the student, inverting, also his role from a transmitter of knowledge to broker of meanings.

2. The approach to studying

The theoretical framework underlying the Test Amos: Skills and Motivation to study: assessment tests and orientation (A. Moe, R. De Beni and C. Cornoldi, Erickson, Trento, 2003) used in the study is the metacognitive model proposed by Cornoldi (Cornoldi, 1995). Metacognition is a kind of reflective self-awareness or "knowledge concerning one's own cognitive processes and products… [and] the active monitoring and consequential regulation of these processes in relation to the cognitive objects or data on which they bear" (Flavell, 1976, p.232). In this sense it is important to distinguish between knowledge and control, that is the knowledge on cognitive functioning and control of the operation. Metacognition therefore is expressed by the ability to be able to assess their own cognitive processes and, also, by monitoring their cognition (Cornoldi, 1995; De Beni et al., 2001, De Beni, Trentin, and Rizzi, 2008). Specifically, metacognitive knowledge means the ability to recognize the usefulness of the strategies during the study, while control refers to the actual use that the student makes of these strategies. The correspondence between the utility and use of strategies has a crucial role in the academic success (De Beni, Meneghetti and Pezzullo, 2010 Meneghetti, Cornoldi and De Beni, 2006).

Numerous researches related to the field of self-regulated learning testify that the self-regulating processes are fundamental in ensuring a functional study (Boekaerts, Pintrich, & Zeidner, 2000; Pintrich, 1999; Pintrich, Smith, Garcia, & McKeachie, 1993; Veenman Van Hout-Wolters, & Afflerbach, 2006; Zimmerman, 2002; 2008). According to these models the student is not a passive recipient of information and becomes an active protagonist of their learning process (De Beni, Meneghetti and Pezzullo, 2010). Researcher agree that meaningful processing strategies lead to higher performance on achievement measures for the material studied compared to shallow strategies; and considering all ages, students with limited strategy use are those who struggle academically (for a review, see Gettinger and Seibert 2002).

The study approach questionnaire (QAS) requires reflection on the central strategic aspects related to study behavior in particular it examines five components of the self-regulated learning, out below.

The first component concerns the *organization* that is the student's ability to define time, place, manner, objectives and instruments. Students well organized are aware of the deadlines and they ask about the type of test they will face (De Beni, Moe, A., & Cornoldi, C., 2003, Wilding and Valentine, 1992). Many investigations highlighted that high achievers use better adaptive strategies than lower achievers (Wolters 1998) using effective strategies, such as organization (Kleijn et al. 1994).

The second component refers to *processing* as the ability to "work" on the concepts and deepen the content.

The third component of the model approach to the study concerns the use of *strategies* that is the ability to choose the controllable aware and effective procedures to understand and remember the concepts.

The fourth component relates to *self-assessment* that is the self awareness of their way of studying. A successful student adequately assess their own way of study and level of knowledge (De Beni, Moe, A., & Cornoldi, C., 2003).

The fifth and final component concerns the *metacognitive sensitivity* indicated as the propensity or attitude of an individual to reflect on their knowledge and to identify the most effective ways to refine it. This aspect is critical to acquire and use specific metacognitive knowledge (Cornoldi & Caponi, 1991).

3. The Project Tic & DIL and the experimental design

The project Tic & DIL: Information, Technology and Communication and Teaching of Reading, developed by the working group of the CNTHI: Centre on New Technologies for Inclusion of the Department of History, Society and Human Studies within a PON (National Operational Programme) for the development of E-learning in the University of Salento was undertaken in Semester 2 (February-June 2015). The project developed a learning environment for students of the undergraduate and graduate program of the Faculty of Education. The whole investigation involved a total of 380 students (see Pinnelli, Fiorucci, Sorrentino, 2015). The whole project articulates its assessment on three levels:

assessment of learning outcomes, assessment of the two methods (blended and flipped), evaluation of the approach to study. All the 380 students were asked to chose between a traditional teaching or a teaching supported by technology. A total of 120 students choose the traditional path while 260 accepted to be involved in a flipping classroom path. In this contribute we will present the data analysis of the last level of investigation in the following paragraphs. The purpose was to investigate in which terms digital learning involves the acquisition of basic skills that affect metacognitive competences.

3.1. Methodology

The investigation wanted to answer the following questions: "What is the approach to the study of the students who prefer university courses that use technology?"; "Students who choose alternative teaching methods are more organized?"; "Among the five components of the approach to the study, which is the area on which we should work more with university students?". The research involved the administration of the Questionnaire Approach to Study (QAS) included in the battery Amos: Skills and Motivation to study: assessment tests and orientation (De Beni et al., 2003) aimed at analyzing the extent to which the student implements some studying behaviours. The proposed behaviors concern the 5 areas that characterize the efficient student, described above. The questionnaire is based on a 5 points Likert scale. It is composed of 50 items: 10 for each of the aspects considered, of which 31 investigating the presence of skill and 19 that assess the absence of the ability. The questionnaire was made available on the virtual platform of the trial of the didactic Tic&DIL via Google Drive. The Questionnaire was anonymous and it was administered after that the students finished their exam. A subset of students who joined the Project Tic&DIL of the Faculty of Education of the University of Salento participated in this investigation. In particular, the research involved 129 students of the Bachelor's Degree in Pedagogical Sciences, the MSc in Psychological Intervention Methodology, and the three year degree course in Pedagogy of Childhood at the University of Salento.

3.2. Data analysis and results

The comparison with normative data (table 1) shows greater organization and use of strategies by students who spontaneously choose courses that include the use of technologies. The averages of the scores of the parameters *organization* and *strategies* in groups that use technologies, and in particular a didactic overturned, are higher than the normative group.

Table 1. Approach to Study Questionnaire QAS. Comparison between Means and Standard Deviations between the Tic&DIL university group and the normative data in the 5 areas and in total

	M university students TIC&DIL	M normative QAS	SD university students TIC&DIL	SD normative QAS
Organization	**3.87**	3.74	**0.32**	0.53
Processing	**3.18**	3.18	**0.96**	0.44
Self-assessment	**3.84**	3.78	**0.51**	0.42
Strategies	**3.75**	3.6	**0.49**	0.48
Metacognitive sensitiveness	**3.25**	3.26	**0.78**	0.48
Total	**3.57**	3.51	**0.70**	0.32

In order to test whether there was a significant difference between the means for the two areas (*organization* and *strategies*) of the group of university students and normative data, it was applied the Student's t-test to the five indexes of the approach to study.

As regards the aspect of *organization*, the difference between the means is 0.13 with $t = 2.6$ ($df = 282$) which is significant for $p < .005$ in the Student's T test for independent samples. In reference to the aspect of "strategies" the difference is 0.15 $t = 2.72$ ($df = 282$), which is significant for $p < .005$ in the Student's T test for independent samples. While no significant differences are deduced for the parameters self-assessment, processing and metacognitive sensitivity.

In relation to the overall average the difference between the averages is 0.06 $t = 0.95$ ($df = 282$), which is only significant for $p < .25$, thus a not statistically significant difference, but still important.

In order to test whether between the different areas there were significant differences it was also applied an ANOVA for independent samples. Considering the average scores of students in the five areas of the QAS there are significant divergences between the different areas of self-regulation [$F(4, 640) = 61.42$, $p < .05$].

Table 2. ANOVA. Analysis of variance for independent samples in the five areas of the QAS for the Tic&DIL student's group

ANOVA						
Source of Variation	***SS***	***df***	***MS***	***F***	***P-Value***	***F crit***
Between groups	55,83	4	13,96	**61,42**	6,38485E-44	**2,39**
Within groups	145,44	640	0,23			
Total	201,27	644				

4. Conclusions

The analysis of the results shows that this sample of university students who spontaneously used virtual environments as learning opportunities is more organized and used better strategies to study for a test. This is in line with the view taken by Mammarella et al. according to which: "metacognition brings into play the self-regulating aspects of an individual which are particularly critical when he must adjust their own learning process, as typically happens in e-learning." (Mammarella, Cornoldi, Pazzaglia, 2005). The application to a particular task will call out different self-regulative strategies and this is particularly meaningful when we take into account the world of technologies.

An important finding reported by Cornoldi et al. is that the number of exams taken by students correlates with the organization, processing and metacognitive sensitivity (De Beni et al., 2003). In the perspective of a quality of teaching closer to the needs of university students it can be argued that students who use a strategic approach to the study and have excellent organizational skills, that is planning study times and timing of tests and examinations, choose when it is possible, teaching pathways that involve a greater involvement of the student in the classroom and at home.

Following the proposal of the researchers De Beni, Meneghetti and Pezzullo (2010), to be more "meta-cognitive" in structuring of at distance-training courses and taking into account the individual characteristics of university students it is hoped to continue to offer students courses in line with their approach to study. In addition, as shown by De Beni et al. (ibidem), we can no longer consider the metacognitive teaching and distance education as areas of work separate and independent. According to them the metacognitive approach should become a way of working and an essential tool at the base of the organization of distance learning courses. Furthermore, if this is true for e-learning courses, it is much more evident for the flipped model which implies a continuous reflection and planning of learning time and study both from teacher and student.

Considering that mediated learning (E-L, Mooc, Flipped Classroom) is becoming a stable and habitual way in the university education, and that "online education is improving, expanding, and becoming openly available for free" (Bishop and Verleger, 2013), it is essential to start early in the training of metacognitive skills in the students, in order to clear the cultural gap and to allow everyone to act in the virtual classroom at the same level. The network, like other educational contexts, is explicit, therefore it is not neutral but it has some specificities and requires specific cognitive strategies, such as the skills of reflection and metacognition and organization and content management, these are some of the cognitive features peculiar to act and study in web environments.

In conclusion, the flipped classroom methodology seems to want to apply the pedagogical principles of the social constructivism creating a "new" learning environment where all the students have to reflect to their own learning and grow into "communities of learning" (Brown, 1992). Already the Pedagogy in the past has led to the concept of intentional learning classrooms. Now we called them flipped but the principles are basically the same: the students are active members of such communities and the teacher has to become a guide, helping students in their discovery process. However the difference is that now with the advent of technology, the facility to access to them, and all the available educational tools, we have no excuse to avoid this happen in all ages, and in all the educational contexts.

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EMBODIED EDUCATION THROUGH ART AND THEATRE: "E.M.I.", EXPERIMENTATION OF A MULTIMODAL INTERFACE

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Abstract

In the contemporary world, Internet and digital technologies seem to amplify the possibilities of learning for the New Generations, the "Digital Natives". But does the so-called "augmented reality" mean increased intelligence but reduced humanism? (Benassayag 2016). The research "Embodied Education through art and theatre" attempts to create an experiential (embodied) background, starting from the relationship between the artistic and theatrical languages, the neurosciences and the discovery of the MNS Mirror Neuron System (Gallese, Rizzolati 1996), in order to offer a contribution for an enactive (Varela, Thompson, Rosch 1991), creative, multimodal learning. The Embodied Simulation (a common underlying functional mechanism that mediates our capacity to share the meaning of actions, intentions, feelings, and emotions with others, thus grounding our identification with and connectedness to others (Gallese 2014)) tells us that at the basis of the understanding of the world, there are the representation of the aim and the sensory-motor involvement, motor and intentional basis of learning, that art and theatre express through pre-linguistic instruments: images and actions. In the last years, the educational sciences and the cognitive sciences have intensified their connections to the point of identifying (Fischer, Daniel, Immordino-Yang, Stern, Battro, Koizumi 2007): this common field concerns the classical themes of learning, memory, attention and language, but also the themes of consciousness and body. The theoretical and empirical research, arisen at the end of the XXth Century, and now developing in cognitive sciences, is causing the change of the research interests from the brain study itself to the study of an ecological mind, of an interdipendent mind between body and environment: the focus is the concatenation mind-body-environment, the extended mind. In the amplified reality and intelligence of 21st century we need an "interface between digital and living model" (Benassayag 2016): during the first phase, the pilot study hade the goal to identify the experiential learning to be tested in the experimental research. E.C.O. Electronic Cooperation Online mainly supplies visual tools in a learning environment embodied, using the web and network as a creative ground: from A.R. augmented reality to M.R. material reality. The action-oriented training is integrated in the kinesthetic channel with theatrical techniques (Alschitz method). The resulting experiential training E.M.I. Experiential Multimodal Interface integrates virtual and material learning environments as example of creative education practice.

Keywords: *Embodied education, art, theatre, multimodal interface.*

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1. Introduction

Since the dawn of civilisation, artistic and theatrical languages have been used to explore the world in a symbolic, synthetic and aesthetic way. In this respect someone has spoken of "neuroaesthetic" (Zeki 2001). Artists are aware of know very well what neuroscience has photographed in the brain, long before new technologies were invented. Artists have always been creating new perspectives (new ways of looking at reality of the world) using images and representations, in other words what they created was a "mimesis" through image and gesture. "The heart of the matter is not using art to study how the brain works. It is rather to study how the brain and the body work together to make us human and how that occurs. In my opinion we should talk about experimental aesthetic rather than about neuroaesthetic. The notion "aesthetic" has here its own ethimologic root: aisthesis, that is multimodal perception of the world through the body" (Gallese 2014). School, where knowledge is shared and transmitted, has for a long time preferred abstract (amodal) knowledge that reproduced a society of selection and control following a linear (historical) and hierarchical (political) pattern. The aim was to alphabetize society during the first,

as well as in the more recent industrial phase. The heritage is an idea of culture that limits action, body and imagination in order to preserve social order. The present time and the post industrial age require dynamic and creative (open, multimodal) strategies to cope with constant changes and sail the flow of information. The need of a productive learning and of a wide range of primary and reproductive alphabetization is replaced by productive learning in a wide range of competences – life skills – required by complexity. Productive learning is based on energies that reside mainly in an emotional sphere, a deep rather than superficial learning. This deepness resides in the body or rather in fields of learning which use an integrated model of "mind". According to this, school is the place where these models are experimented and put into practice, a place for "real experiences" (Dewey 1934). This change into active, participative embodied models is hindered when put into practice by organizing systems. This research tries to underline the contribution of a new way of conceiving art and theatre - aesthetic - as a "work on oneself", a reflective and expanding work, an embodied one. It also offers some instruments of self-assessment and it opens a set of a self-effective learning (Bandura 2000).

2. E.C.O. Electronic Cooperation Online

Text After the introductive phase of theoretical and epistemological research, in 2015 a pilot study is carried out, with high school as research field. The study identifies four groups of pupils (classes with the same teachers team), where an artistic and theatrical intervention will be tested (E.C.O. Electronic Cooperation Online).

"New digital technologies are removing language from its position of main mean of experiencing reality. They are putting a new visuality in the body rather than in language at the centre of our world perception" (Gallese 2014).

E.C.O. is an artistic and theatrical project, created by the theatrical director Pietro Babina that has been adapted and used in the didactical practice since 2012. It considers the new forms of communication - digital, web, social network, blog, smartphones, tablet - as enhanced realities where a passive assent is transformed into relational, narrative, dialogical competences (which happens when staging and shooting). There is in the E.C.O. project a reflection and a practice about new media where you can grasp both meanings of the word "enactive" (action connected with material environment and virtual), in a traditional or blended learning:

- "Cognition is not the representation of a pregiven world by a pregiven mind but is rather the enactment of a world and a mind on the basis of a history of the variety of actions that a being in the world performs" (Varela, Thompson, Rosch 1991).

- "Enactive Interaction between human and world (including humans and technologies) is seen as a process participating to: the co-construction of the

mind with the body and the co-construction of the humans and the world. Mediated Artificial systems, called "Enactive Interfaces", which preserve this type of interaction, would be favourable conditions to understand such complex processes to allow humans to produce and create in a really fruitful way" (Luciani 2007).

3. Alschitz Method

Esiaba Irobi, Nigerian dramatist and anthropologist, observed that native Americans, Asian, African as well as Aborigenal cultures all have at least ten forms of expression, other than language: iconographic, kinaesthetic, sonorous, calligraphic, proxemics, tailoring, linguistic, gustatory, olfactory, tactile and spiritual (Gallese 2014). There are two reasons why E.C.O. laboratories have been integrated and extended with some Jurij Alschitz exercises (Alschitz 2003). On the one hand because of my personal collaboration with Jurij Alschitz and on the other because of an internationally recognized pedagogic contribution, dealing with the "work on oneself" of the Russian school (there is more than a mere symbolic descendance: Alschitz is a student of one of Stanislawskij's students). This theatrical pedagogy - from which all theatrical experiences up to modern time derives - puts the vitality of the scene, the relation among actors, the actor's body in the centre. Everything that goes beyond the reductive use of the text as a mere instrument. In the middle there is the Energy where words find their reason more than in their meaning.

4. EMI Experiential Multimodal Interface

E.M.I. Experiential Multimodal Interface is the real experimental study in 2016 after the first pilot phase. It makes the experiential dimensions explicit - embodied, enactive - going thus beyond labels such as art and theatre. Phenomenologic concepts such as “Leib” and “Erlebnis” (Husserl, Heidegger) are thus put into practice. This part, also known as “experiential learning” (Kolb 1984) aims at finding operative as well as evaluational instruments which can be reproduced. The mixed learning environment, blended learning, can metaphorically be considered as a “platonic cave”, of which the school room can be the “atelier”, one of the different material environments. In this environment two mirrors are placed. The first one is a virtual mirror, where interconnective, reflexive and transformative experiments about augmented web, video and smartphone reality are experimented. The second mirror reflects the theatrical work on the self, the body, the relation, the visual contact, the breath. On a quantitative level the survey in the other two groups (control group and experimental group) conducted through pre-test and re-test, touches the relevant aspects of the pilot study in a selective way. Those aspects are agency, self-efficacy, self-awareness, self-consciousness with a particular focus on embodied scales as special forms of self-consciousness. If the pilot phase was more focused on defining contents and instruments, the experimental phase emphasizes the multimodal training as laboratory of creative education practices:

- using the web as virtual platform of sharing and open resources, tools and practices
- organizing the classroom not in vertical (amodal) but in horizontal (multimodal) team work, with the teacher in the role of facilitator
- using material and virtual environment for a integrated learning inside and outside the school and the classroom
- integration of different learning environments and disciplines (through mapping, framing) as exercise to increase a knowledge as free dissemination, connection and collaboration.

5. Measurements

Text Tests and questionnaires for the measurement of the life skills are administered at the beginning (Pre-test) and at the end of the intervention (Re-test). During the experimentation, questionnaires, interviews, focus group will be carried out. The pilot study, this is the first phase of empiric research, consists of E.C.O. in group, an experimental group (EG, “3D”), and parallel to this in a control group (CG, “2M”, “2D”, “3E”). The E.C.O. laboratory aims at acquiring the knowledge of artistic and theatrical languages which include transversal competences: organization, participation, communication and relation. The experimental study is thus used for testing variation in life skills, in the levels of agency, self-efficacy felt as self-awareness as well as self-consciousness. The pilot study focuses on those elements in art and theatre which make the perfect ground for embodied learning - syntonization between communicating people, relational background as extended mind, self reflection on the process as metacognition.

The interviews of participants (both pupils and teachers) complete the study and prepare the real experimental research. E.C.O. is a project which lasted 50 hours over a period of two weeks' time but in a second phase the experimentation will take place over a period of some months time. In this first phase of the year 2015 the empiric research is focussed on instruments of quantity and on experiencial tools that need to be applied. The tests about self-efficacy are taken from GSE General Self Efficacy Scale (Chen, Gully, Eden 2001), and from GSES General Self-Efficacy Scale (Sibilia, Schwarzer, Jerusalem 1995). Besides, tests are used dealing with adolescents’ positive and negative emotions, with their perception of school, the empathic self-efficacy (Caprara 2001). As far as self awareness is concerned, it refers to SSAS Situational Self Awareness Scale (Govern, Marsh 2001), SCS-R Self-Consciousness Scale (Scheier, Carver 1985), Private Self Consciousness Scale (Trapnell, Campbell 1999). These two scales are experimented too (ESAS Embodiment Self Assessment Scales: EmSAS, EnSAS). One is about self-assessment of embodied quantity of experience, in a traditional environment whereas the other scale refers to a mixed environment (blended learning).

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Table 1. Measurement.

Medie

Measure		Classe			
		2E	2M	3D	3E
GSE	1	30,273	27,900	33,684	30,500
	2	30,273	28,300	34,316	29,750
GSES	1	30,636	27,350	32,842	29,333
	2	30,818	27,600	34,211	28,750
APGEN	1	22,636	25,750	24,947	22,250
	2	22,636	25,750	27,263	23,750
APGEP	1	31,727	31,500	32,737	29,917
	2	31,545	31,350	31,474	29,083
SAEP	1	49,455	47,100	48,632	49,333
	2	49,364	46,600	49,421	48,667
SASP	1	69,000	65,350	71,737	63,250
	2	68,909	65,050	72,579	65,000
APSP	1	65,182	65,000	71,579	61,333
	2	65,182	64,250	71,421	61,833
APCIS	1	102,818	98,200	104,158	92,750
	2	102,273	98,600	104,737	91,000
ESAS	1	87,000	86,350	89,579	90,167
	2	88,636	86,800	91,947	84,500
SCSR	1	69,273	64,450	65,579	67,333
	2	69,273	64,850	69,316	64,417
SSAS	1	36,545	32,150	34,368	30,000
	2	36,273	32,400	36,421	31,333
EmSAS	1	32,545	27,600	30,316	31,667
	2	33,909	28,000	33,000	31,417
EnSAS	1	36,545	31,800	33,105	33,167
	2	37,273	31,800	36,684	32,833

standard errors

		classe			
		2E	2M	3D	3E
GSE	1	1,436	1,065	1,092	1,375
	2	1,344	,997	1,023	1,287
GSES	1	1,537	1,140	1,169	1,471
	2	1,467	1,088	1,117	1,405
APGEN	1	1,796	1,332	1,366	1,719
	2	1,732	1,285	1,318	1,658
APGEP	1	1,084	,804	,825	1,038
	2	1,092	,810	,831	1,046
SAEP	1	2,226	1,651	1,694	2,131
	2	2,187	1,622	1,664	2,094
SASP	1	3,362	2,493	2,558	3,219
	2	3,120	2,314	2,374	2,988
APSP	1	3,142	2,330	2,390	3,008
	2	3,018	2,238	2,296	2,890
APCIS	1	3,979	2,951	3,028	3,810
	2	3,923	2,909	2,985	3,756
ESAS	1	3,046	2,259	2,318	2,916
	2	3,605	2,674	2,743	3,452
SCSR	1	3,036	2,252	2,310	2,907
	2	2,710	2,010	2,062	2,595
SSAS	1	2,418	1,794	1,840	2,316
	2	2,166	1,606	1,648	2,073
EmSAS	1	1,982	1,470	1,508	1,898
	2	1,778	1,319	1,353	1,703
EnSAS	1	2,396	1,777	1,823	2,294
	2	2,337	1,733	1,778	2,237

6. Conclusions, expected outcomes

In the pilot study: definition of an enactive and embodied practice, in a mixed and traditional contest; test of quantitative and qualitative instruments. In the experimental research: efficacy of the experimental training (life skills, agency); evidence of the link between embodied practice and life skills and competences. The results in the first methodological phase are not only underlining the embodiment effects of art and theatre through visual and kinesthetic channel, but mainly the rising of a particular self-reflexive ability too. We define what is effective in the artistic and theatrical languages and what can be applied to an embodied didactic: 1) to defining the life skills, required by the complexity of the contemporary post-industrial society starting from art and theatre 2) to identifying in the embodiment, as a didactic practice, the access key to modify the perspective and for introducing a new paradigm of creative learning 3) to measuring the effects of this paradigm change, that makes significant, "living", the knowledge. The empiric study measures the efficacy of an experimental training - named E.M.I. Experiential Multimodal Interface - based on art and theatrical techniques. The techniques become this multimodal interface to build an environment for enactive learning that could be a model of creative education practices. The testing of EMI took place from January 2016 to April 2016 during a period of four months. The processing of the experiment's results, the quantitative and phenomenological analysis are ongoing.

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PIONEERING AUTHENTIC EDUCATION

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Abstract

Education comes from the word educare…which means to draw forth or lead out. Education is a calling…a vocation of passion for individuals who care about our next generation and our collective future. Educators today are so often bogged down by the subjects they are teaching that they often forget they are builders of this most important future. The young people are not only inheritors of our past but are also our initiators into the next phase of cultural evolution. They are the architects for the coming phases that include social, cultural and global development. They have the potential to no longer imitate what has come before them but rather imagining the scaffolding for structures that lead us into a better future.

If we are to change our behaviors then our education must change. Our systems need to reflect this deepest understanding of what it means to be human and to live at a time when the true essence of a global society is truly the interconnectedness of all intentions and deeds. There has been an on-going evolution for the need for moral education and the rising potential of the empowered voice of individuals. To take this deeper is to know that the next relevant educational model is to educate for tapping into higher consciousness and translating the experience into societal actions for external global harmony.

The Millennial Generation, the next generation, is able to foster the shift in humanity's consciousness. We are learning from science that we are interdependent and interconnected as one life. The human genome project has proven that we are genetically 99.9 percent alike, with only one tenth of one percent making us different. Only when we concentrate on what makes us the same, instead of what makes us different, can we deal with the challenges ahead. As students move inward to discover their true Authentic Self so they are able to become the motivators that build a better future. The model of Reflect-Connect –Act is a training process to empower and enrich students to realize their inner potential as well as building educational institutions that better serve the generations coming. Downloading information and structured learning is no longer that relevant in this technological era. It is time to use the information era as a means for individuals for fostering their personal growth and encouraging the understanding that we live mentally, physically and emotionally connected and to build a global arena that considers all peoples. It is imperative that we spend our time and resources on young people, supporting leadership and educational experiences that promote respectful communities, common ethics, sustainable practices, peace, and economic opportunities.

Altering our educational philosophy for "Authentic Learning" becomes the source of teaching rather than the present day practice of schooling for information. Educators are the forerunners of building culture.. As an educator, I define several modes or models for thinking about this potential. These modes or models are terms used to help categorize activities for use within the classroom setting and included in the model for Authentic Learning. An important conceptual model is "inquiry learning" and/or "reflective learning" that emphasizes the truth and acceptance that we each have an inherent wisdom. This wisdom needs to be explored and supported. Teaching needs to focus on asking the right questions and offering the resources. Thus the teacher becomes a facilitator rather than the instructor. As a result of the reflective process for "altruistic learning" occurs implying to serve another's needs is equivalent to serving one's own needs. Another aspect of Authentic Learning is "experiential learning" that allows the learner to experience learning on a deeper more intense manner using experiences as a source for reflection and acquiring information. Examining the world and reaching personal and social conclusions leads to the needs for each individual to know and understand their relationship within the whole. Included in this thinking mode is "systems learning" so that we educate for the understanding that all parts belong to a whole. Holistic thinking is a process that allows us to incorporate the self while learning that the whole is greater than all of its parts within a system. Another model for thinking and including in building true authentic learning style is "transpersonal learning". This includes personal and interpersonal relationships as a means for learning about the self in relationship to the others for the building a future culture. All these models working together educate the individual learner to invent ideas while serving the greater good. Examples of Authentic learning educate for processes of REFLECTION, how to CONNECT in relationships to others and then to translate these skills into behavioral ACTIONS that serve the self and the greater society for positive change.

The Reflection phase is a process of selecting guided visualizations, meditations, or prayers appropriate for use in the schools. Young people begin by hearing their own inner guidance and learn to sense their personal goodness. This in relationship to self-esteem is a more guaranteed manner to experience one's own self value. The process can be done on a daily basis.
The Connection phase is learning the skills necessary for building positive friendships. This section gives tools that are helpful for learning non-violence techniques of communicating as well as tools for working within a group.
The Action phase is for students to learn that they are truly relevant and can make a difference in the world. They learn how to develop plans of action that will make a difference in a larger context whether it be their school, community or the world at large.
Authentic Learning prepares students to take personal and collaborative leadership in this emerging changing global culture with all its difficulties and positive potentials.

Keywords: *Authentic, education, ethics, spiritual activism, youth, educational model.*

1. Introduction

Education comes from the word educare…which means to draw forth or lead out. Education is a calling…a vocation of passion for individuals who care about our next generation and our collective future. Educators today are so often bogged down by the subjects they are teaching that they often forget they are builders of this most important future. The young people are not only inheritors of our past but are also our initiators into the next phase of cultural evolution. They are the architects for the coming phases that include social, cultural and global development. They have the potential to no longer imitate what has come before them but rather imagining the scaffolding for structures that lead us into a better future.

If we are to change our behaviors then our education must change. Our systems need to reflect this deepest understanding of what it means to be human and to live at a time when the true essence of a global society is truly the interconnectedness of all intentions and deeds. There has been an on-going evolution for the need for moral education and the rising potential of the empowered voice of individuals. To take this deeper is to know that the next relevant educational model is to educate for tapping into higher consciousness and translating the experience into societal actions for external global harmony.

The Millennial Generation, the next generation, is able to foster the shift in humanity's consciousness. We are learning from science that we are interdependent and interconnected as one life. The human genome project has proven that we are genetically 99.9 percent alike, with only one tenth of one percent making us different. Only when we concentrate on what makes us the same, instead of what makes us different, can we deal with the challenges ahead.

As students move inward to discover their true Authentic Self so they are able to become the motivators that build a better future. The model of Reflect-Connect –Act is a training process to empower and enrich students to realize their inner potential as well as building educational institutions that better serve the generations coming. Downloading information and structured learning is no longer that relevant in this technological era. It is time to use the information era as a means for individuals for fostering their personal growth and encouraging the understanding that we live mentally, physically and emotionally connected and to build a global arena that considers all peoples. It is imperative that we spend our time and resources on young people, supporting leadership and educational experiences that promote respectful communities, common ethics, sustainable practices, peace, and economic opportunities.

2. Design

Examples of Authentic learning educate for processes of REFLECTION, how to CONNECT in relationships to others and then to translate these skills into behavioral ACTIONS that serve the self and the greater society for positive change.

The Reflection phase, an inquiry process, is a process of selecting guided visualizations, meditations, or prayers appropriate for use in the schools. Young people begin by hearing their own inner guidance and learn to sense their inherent wisdom. This in relationship to self-esteem is a more guaranteed manner to experience one's own self value. The process can be done through asking questions and identifying resources on a daily basis.

The Connection phase, a moral compass with Ethics, principles and standards, is a process of recognizing one's relationship to the outer world is significant in building a relevant life, and is learning of the skills necessary for building positive friendships. This section gives tools that are helpful for learning non-violence techniques of communicating as well as tools for working within a group.

The Action phase, building altruistic learning, is for students to learn that they are truly relevant and can make a difference in the world. They learn how to develop plans of action that will allow them to participate in a larger context whether it be their school, community or the world at large. Thus this final phase builds the sense of global community and a change in systems thinking that the whole is greater than its parts. Education means then also to unite segments that are seen as separate and non-integrated into a philosophy and mind map of a collaborative collective and experiential understanding of the science principles of our Earth and how we function as part of nature.

3. Objectives

We are learning from science that we are interdependent and interconnected as one life. How do we educate for this and more than that, how do we experience this? The impact of these concepts would be of great magnitude as it would alter our whole philosophical understanding of who we are and how we live and how necessary it is to care for others. Our whole system would alter as a reflection of realizing we are this one human family and all of life has samenesses and is connected. From a means of separation for finding one's identity, one would think holistically and start to understand the integration of all the parts in each decision., This would impact the educational system as it is doing our perception on climate change. Education would be connected to all systems and also be a model for experiencing the deeper understandings of life

We have learned that self–esteem is the manner of assessing someone. For this writer who did a full doctorate on this subject of self-esteem, it is a means of assessing the self from the outer version of life compared to another person's perception of themselves and success. A more relevant personal assessment is to know thyself. To do this one must delve into what can be called the inner "authentic self". It is stated that this is a place that is reached through inner investigations to unearth and discover both eternal truths and personal truths. This is rough uncharted seeking, yet many sages have advised us that we are bonded and connected with all of life. Historically the great sages describe this inner state of being as a place of total peace, a "cloud of unknowing" and a unified space of consciousness where everything is one. Once we understand this connectivity then our behaviors alter. Behaviors impact systems that are not holistic and need conversion.

How one lives, why one lives, and what one's purpose is are integral to inner peacefulness and knowledge of self and eventually to leading a more purposeful caring life filled with a sense of authenticity. To live a meaningful life, you make a conscious decision to be of service, manifesting actions and by linking to others who hold the same intention. Inner peace is for personal evolution. Inner peace is for world peace. Outer understanding and fulfillment of personal peace is achieved by serving others and all of life. A world system then is based on the sum of its parts and a caring emerges of what to do to help our evolution of conscious living for a better world.

4. Methods

Reflect-Connect and Act is a series of processes that help an individual step into a deeper more authentic understanding of who they are and what they can achieve and how they can use their personal knowledge for their own future. Two models developed by the writer include Conflict Transcendence and Lateral Leadership, both of which further group discussion and individual authentic learning. Conflict Transcendence is a model for seeing the issue from above and recognizing commonalities and points of integration. Lateral Leadership is a model of empowerment of all participants in the educational environment from sociocratic decision making to appreciative inquiry and active listening.

Refllection---Learning to Learn
Mindfulness, Mantra, Concentration, Guided Visualization
Models for Individual Reflection: Ho'oponopono, HeartMath, Free Writing
Tools for Reflection: Native American Traditions, Global Ethics

Connection- - Learning to Live
Learning to Listen, Communicate, and Transcend
Models for Connection; Active Listening, Compassionate Listening
Nonviolent Communication with Listening Skills

Communicating to Transcend: Conflict Transcendence

Action --Learning to Love
Lateral Leadership: Guiding Practices for Lateral Leadership
The Leader as a Group Member, Decision Making in Lateral Leadership
Models for Group Action: Circle Groups,, Open Space, Appreciative Inquiry, Sociocracy.

5. Discussion

The purpose of this paper is to support our next generation's role in integrating authenticity in our lives. Meetings held around the world are calling for inner reflection and seeking information for living a life filled with more meaning and joy. Self-help books support people in their inner discovery of who they are and how to build better relationships. But, alas, the future generation, the inheritors of all our actions, is rarely given the tools to prepare for this life journey.

If only we could only help these young people now rather than later. Imagine if you did not have to reconstruct you past and peel away your life experiences. Imagine if you had been told, "just be yourself" and be loyal to your inner voice. Imagine if you had been given the tools to learn how to make and keep positive relationships with your friends and fellow human beings.

This perspective of authentic education is similar to a rite of passage into mature clarity. If there is to be a model for building a better global society then it must have authenticity as its base. It is the understanding that holds us together as a species, the awareness that we are interconnected and need to care for one another. From one authentic individual to another, creates a system that works for all.

6. Conclusion

Authentic Education continues the trajectory from character education, global education, holistic education and conflict resolution education to a more modern perspective that the individual has a full set of genetics and DNA that helps define who the person is prior to interaction with her or his environment. It is a process of recognizing that an individual is more than their body or their emotions or their culture or religion. The individual has a deep sense of personal self and purpose that needs to be explored. This self exploration with purpose and guidance offers the educator the ability to educate the learner from a recognition of personal passion to fulfilling a potential future to immersing in learning information. All education…drawing out… and then offering information, becomes the tools for building the future culture.

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FOCUS ON FORMATIVE FEEDBACKCOMMUNICATION AND SELF-REGULATED LEARNING – A STUDY IN COMPULSORY SCHOOLS

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Abstract

This study addresses the conceptual challenge of providing students in compulsory schools with good quality formative feedback to enhance self-regulated learning in social interactions. Resent educational research indicates that social communicative interactions in the classroom, with a focus on formative feedback, hold the potential to enhance students learning. Self-regulated learning is highly pertinent and can be seen as one of the most import skills for the 21st century learner. We argue that formative feedbackcommunication in interactions is crucial for students to develop self-regulating skills and that feedback is not only something the teacher gives to the student. We refer to this as formative Feedbackcommunication. As a basis for exploring identifying and discussing relevant aspects of formative Feedbackcommunication to enhance student self-regulating learning skills we analyze qualitative data from video recorded teaching sessions and student group interviews. Methodologically we are inspired by the ethnographical classroom research method. The empirical basis for studying these aspects is data from two compulsory schools in Denmark. This study is a work in progress. Our findings suggest that students can develop self-regulation skill by focusing on three key aspects: 1) Maintain focus on meta-reflection, 2) maintain focus on the construction of meaning and 3) rubrics can support self-regulated learning in group work.

Keywords: *Feedback, self-regulated-learning, communication, compulsory school.*

1. Introduction

This study addresses the challenge of providing students with quality formative feedback to enhance self-regulated learning. Cognitive theories of self-regulated learning differ in many ways but share some common features (Zimmerman, 2001). One common feature is an emphasis on learners being proactive and exerting control on their learning processes and environments. Self-regulated learners do not passively take in information but rather proactively develop their skills and strategies. Cognitive theories also assume that self-regulated learning is a cyclical process in which learners set goals, implement strategies, monitor their learning progress, and modify their strategies when they believe they are not effective. A third common feature is an emphasis on motivation. Self-regulated learning does not occur automatically; rather, students approach learning with goals and the extent to which they self-regulate depends on motivational factors such as their commitment to their goals, their beliefs about the likely outcomes of their actions, and their self-efficacy, or personal beliefs about their capabilities to learn or perform actions at designated levels. The idea of formative assessment originates from the British Assessment Reform Group (ARG) (Hopfenbeck 2015). This reform movement is a group of researchers who are engaged in promoting the kind of assessment which will support teachers to focus on students learning in terms of assessing their skills. Assessment is viewed as the only way we as teachers can know whether what has been taught has been learned. Formative assessment can then be seen as *the bridge between teaching and learning* (Wiliams 2010). Feedback used in educational settings is in general considered as essential to increase knowledge and skill acquisition by any learners and feedback is also depicted as a significant factor to dramatically enhance student learning (Kluger & DeNisi 1996; Black & Williams 1998; Hattie & Timperley 2007; Hattie 2009; Ramaprasad 1983; Shute 2008).

Self-regulated learning is an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate and control their cognition, motivation and behavior,

guided and constrained by their goals and the contextual features in their environment" (Pintrich 2000, p. 174). Self-monitoring and perceptions of progress are key self-regulated learning processes. Researchers have found that students can be taught self-monitoring skills and that giving them feedback on their learning progress improves their use of self-regulatory skills. Self-evaluations of progress help students focus on self-regulation processes and can raise their motivation and self-efficacy for continuing to improve. Students should be taught how to evaluate their learning progress and given opportunities to do so. Typically in school students have their learning evaluated for them by teachers. But self-regulation is a cyclical process in which students self-regulate, check their progress, and adjust their approach as needed. Students need opportunities for self-evaluation because they may not do it automatically and it affects their motivation and self-regulated learning.

Formative feedback will be specifically used to enhance the learning outcome for students (e.g. deep conceptual learning) and processes (for example, reflect on one's own learning and learning strategies or make new connections between old and new learning) (Askew & Lodge 2000). In this way, formative feedback enhances student's belief to increase their level of learning and can master new challenging learning (Black & Williams 2006; Pintrich 2000; Ruiz-Primo & Li 2013). Several researchers (Hopfenbeck 2011; Nicol & Macfarlane-Dick 2006; Zimmerman 2003, 2009; Ruiz-Primo 2010) see self-regulation skills as the most important characteristic of mankind which enables us to solve shifting and complex problems. This quote states the challenge of developing self-regulating skills for the 21st century learner: "*Many who have tried to develop self-assessment skills have found that the first and most difficult task is to get pupils to think of their work in terms of a set of goals. Insofar as they do so they begin to develop an overview of that work so that it becomes possible for them to manage and control it for themselves: in other words, they are developing the capacity to work at a meta-cognitive level*" (Black et al 2002 p. 10).

2. Building a framework of formative feedback

Black & Wiliams (2006) argue that there are two core purposes of feedback; *directive* and *facilitative*. The directive feedback communicates to the pupil what needs to be fixed or revised and this sort of feedback tends to more specific compared to facilitative feedback. Facilitative feedback provides ideas, suggestions, proposals and comments to help guide pupils in their own revision and conceptualization on the pupils learning. Formative feedback can be seen as equally directive and facilitative and is defined as information communicated to the learner that is intended to modify his or her thinking or behavior to improve learning (Shute 2008). We build our definition of formative feedback on a framework developed by Lukassen (2016) and we are inspired by Wiliams (2010) and Ruiz-Primo (2010) which reflects an understanding that learning is primarily a social process and that learning cannot be separated from its social context. This framework puts focus on collecting assessment information and offering feedback on the complex teacher-student interactions. A complete assessment cycle must contain four activities: *1) Clarifying learning goals. 2) Eliciting information to check students' understanding. 3) Interpreting the information collected.4) Acting on the information collected.* The framework lays its focus on interaction and dialogue and emphasizes that educators can benefit from a closer contact to their students and a closer student - student contact in order to develop self-regulating skills. Black (2001) argues that with better interactions, educators will be in closer touch with their students' progress. Students will become more active, responsible and self-regulated as they become involved in expressing their thinking to their educators and their peers. Fig. 1 (inspired by Wiliam 2010 pp. 31) visualizes the concept of formative feedback in social interactions:

Figure 1. Classroom as the centre of social interactions

Classroom as the Centre of social interactions.	Where the pupil is going	Where the pupil is right now	How to get there
Teacher	Clarifying learning intentions and sharing criteria for success in the classroom	Engineering social discussions and reflections	Providing directive and facilitative online feedback that moves the pupils forward
Peer	Understanding learning intentions and criteria for success	Activating pupils as instructional socially resources for one another	
Student	Understanding learning intentions and criteria for success	Activating students as owners of their own learning, but their thoughts and actions is shared with the class or peers	

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3. Focus on Feedback communication

Our definition of formative feedback emphasizes two important characteristics. First, the students are central players in a formative feedback process. Students should not be reduced to recipients of feedback, but must be seen as partners in all activities within formative feedback, such as; clarification of learning goals and criteria, comparison of the student's current level of success criteria and to elicit and apply these information's in the student's ongoing learning process. Secondly our definition also put emphasis on that formative feedback is more than a verbal or written comment on the student's work. Formative feedback is not a discrete activity in the classroom, but a tool to identify how students construct meaning. The concept of feedback communication is adopted by the ideas from system theory as proposed by the German sociologist Niklas Luhman (2000) (1927-1998). Systems theory distinguishes itself by taking and maintaining a radical constructivist starting point for understanding learning and teaching. Everything that happens in a learning system is a product of the system itself. With systems theory both students and teacher (psychic systems) and education (communication) is described as self-referential, closed systems. These systems do not have access to each other but can interfere with each other through, for example, formative feedback communication[1]. Feedback can therefore create an 'irritation' or appropriate 'disturbance' to increase the possibility of learning. Within the system theory, feedback cannot be understood as something that is given by a teacher; but as something that is *constructed* by a learner, if the right conditions are present. We suggest that feedback is a construction in the psychological system and that feedback only is feedback when the pupil constructs a link between 1. order and 2. order observation and construct a 3. order observation. We understand from a radical constructionist point of view formative feedback communication as a third-order observation. And refer to this as *feedback communication*. Regarding this understanding, feedback cannot be seen as something that is being provided by teacher or fellow student, but on contrary as something that is being *constructed* by the student under appropriate conditions. Hereby is feedback only feedback if it is observed as feedback. It also means that disparate observers can observe the same information differently (Qvortrup & Keiding 2013).

4. Methodology – ethnographic classroom research

To construct data we are inspired of ethnographic classroom research which is a combination of methods (Klette 1998; Lindblad & Sahlström 2000; Atkinson & Hammersley 1994). The researcher approaches the studied phenomenon with the ideal of objectivity. There are three key aspects to our understandings of ethnographic classroom research. 1) A strong emphasis on exploring the nature of particular social phenomena, rather than setting out to test hypothesis about them and the researcher needs to participate in classroom activities to fully comprehend its complexity. 2) This complexity cannot be fully captured with instant quantitative surveys but must be studied over a period of time. 3) There is a discrepancy between the planned teaching and the actual performed teaching. Jackson (1968) referred to this as the '*Hidden Curriculum*'. We study three classrooms in two compulsory schools in Denmark and use twenty hours video-recorded teaching sessions and twelve student focus-group interviews to construct our data. We study this over six month. We use two cameras to capture classroom communications inspired by Zuengler et al (1998). The video-recorded sessions and focus-group interviews are transcribed and inserted to the qualitative analytic program Nvivo 11. We code our data by the use of nodes which are developed from our framework on formative feedback communication and definition on self-regulated learning. Since this study is a work in progress we cannot present conclusive findings but only report on selected preliminary findings. In the following section we present our preliminary findings and examples of how formative feedback communication can enhance students self-regulating skills.

5. Findings

Our results suggest three important key aspects to focus on:

1) Maintain focus on meta-reflection. When the teacher and peer maintain a focus on a meta-reflection level and provides both directive and facilitative formative feedback this focus dramatically increases student's opportunity to enhance their self-regulated skills. Our coding and data analysis in Nvivo displays that this focus is represented in 0,5% of the transcripted material. A representative example from our material will illustrate this: In a seventh grade classroom they focus on analyzing a Danish short story novella, "*the tunnel*". The teacher instructs the students to think about what they think might will happen in the novella before they read it. At the same time the teacher

[1]To further explore this method we refer to Rasmussen (2004).

informs the students that this kind of exercise is something that excellent students do when they are about to initiate a text analysis. The students reflect in groups of four in ten minutes of time and write down their reflections in an individual rubric document (handout created by the teacher). Afterward they one by one present their reflections in the group. Each student receives peer feedback and writes down relevant peer feedback comments in a separate line in the rubric. The focus group interview indicates that this exercise made the students aware of deliberate use of strategies to improve their analytic skills. Student quotes:

"*This exercise made me aware of the benefits of imagining the plot of a story. Usually when I read a story at home I find it difficult to initiate the analysis in class. This peer reflection exercise based on the rubric really helps me to remember and conduct better analyzes*".

"*Listening to the comments from my friends helped me to understand that there are several ways to imagine the plot of a novella only from the title 'The Tunnel'"*.

"*Expressing my own reflection of this novella to my friends is a very difficult task. When I overcome this difficulty it made me initiate the analysis in another way. More qualified I guess*".

2) Maintain focus on the construction of meaning. Social interactions and formative peer feedback communication assist the student to construct meaning. This construction of meaning is the very foundation of working at a self-regulated level. No student can be a self-regulated learner without a comprehensive understanding of basic key concept. An example will illustrate this: The teacher instructs the students to work in groups of four. The subject is again textual analysis of a novella and the teacher introduces two key analytic concepts: "Point of no return and In Medias res". In this simple example the teacher is helping a specific group of students:

Teacher: *Can you tell me the characteristics of 'In Medias res'?*

Student1: *In Medias Res is something you use to better understand novellas.*

Student2: *What do you mean with understanding?*

Student1: *To know what is going on.*

Teacher: *Can you be more specific?*

Student1: *Oh yes, I think it means that the novella starts in the middle. A lot of things is going on and we don't know what it is.*

Teacher: *Yes you are correct. That is the characteristics of In Medias res.*

This communication sequence illustrates how meaning is constructed for student1. During questions from the teacher and a peer the student recalls the understanding of the characteristics of In Medias res. This is an example of a feedback communication where student1 on basis of a social interaction constructs a 3. order observation. The feedback communication becomes formative when the teacher uses this elicited information from this communication to adjusting the following teaching. In this example it resulted in a *time out*. The teacher realized that the concept In Medias res was not an easy concept. Therefore she decided to use this communication sequence as an example for the entire class to learn from. These communication sequences is represented in 0,4% of our transcripted material

3) Rubrics can support self-regulated learning in group work. A simple rubric can form the very foundation for a formative feedback communication. We found in our data that a predesigned rubric is a learning strategy that can support students to maintain focus on meta-reflection and self-recording. The students recorded their own reflections in the rubric and afterward shared these reflections with the group. This rubric was the center of all interactions in the working groups. Our data displays that this method was used in all our classrooms and covers 0,4% our transcripts. Student quotes:

"*I could not have commented on the others reflections without this rubric. When my own reflections are on paper it is much easier to link my reflections with my peer's reflections*".

"*A rubric is boring, but I can see that I could not have commented on my friends answers without the rubrics*".

It is important to note that we do not imagine rubrics being used in every teaching session. It is not the rubric itself that are of importance but the fact that it can form the foundation for meta reflections. The meta reflections are important – not the rubrics. When coding and analyzing in Nvivo we can get an indication of "how much" each key aspect is represented in our transcripted data. These percentages cannot be considered as statistic significant but can only serve as indications on how much these aspects are present in our material.

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FREE-CHOICE LEARNING IN INTERDISCIPLINARY PROJECT LABORATORIES

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Abstract

In this paper we present a teaching method, which is consequently based on free-choice learning of the students. It is characterized by a very active participation of the students in the teaching process. Two consecutive courses are offered in the context of natural science and technology. However, the subject matter of these courses is not an expert knowledge of a special scientific discipline, but acquiring soft skills. Course participants get a methodological background and learn general fundamental methods to solve a problem.

Keywords: *Student-centered learning, free-choice learning, project work, soft skills, interdisciplinary.*

1. Introduction

The teaching method presented in this paper is practice-orientated project work in the context of natural science and technology. It is applied in two courses which are called *Project Laboratories* and *Research and Development Laboratory*. Both courses are part of our programme parts of elective general courses and the focus is not specialization or the growth of professional expertise but transfer of soft skills as for example project management, time management, presentation technique, management of conflicts. The teaching is consequently based on free-choice learning of the students instead of lectures or classical tutorials. It is characterized by very active participation by the students in the teaching process, which leads to very high motivation of the students.

2. Teaching method

The courses *Project Laboratories* and *Research and Development Laboratory* totaling two hours per week for each course are offered each semester. Students from various degree courses and from different departments (Engineering, Information Technology, Economics, Culture and Design) can enroll for these courses. Bachelor and master programmes and different terms are taught together. This leads to interdisciplinary and term-overlapping structures.

At the beginning of each semester, in a meeting with all participants in a plenary session, each student briefly presents him/herself and his/her ideas for a project. Subsequently a discussion takes place and the students have to build small project teams of two up to six participants. They have to reach an agreement and choose a concrete project. The *Project Laboratories* teaching staff, which consists of two or three full professors, one laboratory engineer and one student assistant, also contributes various ideas. But in general a lot of very different and interesting ideas for projects are created by the students themselves, and the difficulty for the students lies in convincing other students form their idea. Often the students look for solutions in context of technical applications or in context of their hobbies. In the most cases they are enthusiastically and very involved in their ideas.

The result of the projects can be very different: an electrical circuit can be developed, a device can be built up or an experimental analysis can be done. The theoretical preparation, the practical realization, the documentation, evaluation and recording of experiments lie in the responsibility of the students.

During this first unit the formalities concerning the conditions of examination and grading are clarified and the students get a short lecture on basics of project management, team work, efficient communication structures, and presentation skills. Over the course of the semester, only two more units with compulsory attendance for all participants of the courses take place, for oral presentations and

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discussions of interim and final results. Apart from that the students work in their teams. Classical lectures and tutorials are offered in these courses only as an additional support as free-choice learning. At the end of course the students must present the results of their projects. They can choose different representation forms for the final presentation: oral presentation, poster, web presence or written publication. As further possibility, the team of students can present their results for a large public as for example in a school or at the *Long Night of the Sciences*.

Because the teams mostly realize project ideas of their own, they are highly motivated during the whole courses. The learning process takes place nearly by the way in a kind of learning by doing. In these courses students exert influence on the contents in the projects and lectures during the course, whereas the teaching staff exerts influence of the scientific methods only.

If in the course *Project Laboratories* a project exceeds considerably the amount of one semester, the students have the opportunity to continue their work in the consecutive course *Research and Development Laboratory*. This offers the possibility to deal also with very extensive and demanding projects.

3. Examples

An overview of projects realized within the scope of courses *Project Laboratories* and *Research and Development Laboratory* during the last years are given on our website [1]. A few selected projects are shown in figure 1 to 4.

Many of our students are fascinated by projects with high electro technical aspects, as for example the realization of a luminous cube with a micro controller (see figure 1). Other examples (without figure) for electro technical projects are the realization of a Tesla coil (a high voltage electrical transformer) or the realization of a Theremin (an electronic musical instrument controlled by changes of electric capacity caused be the relative position of the hands).

Figure 1. Luminous cube realized with micro controller

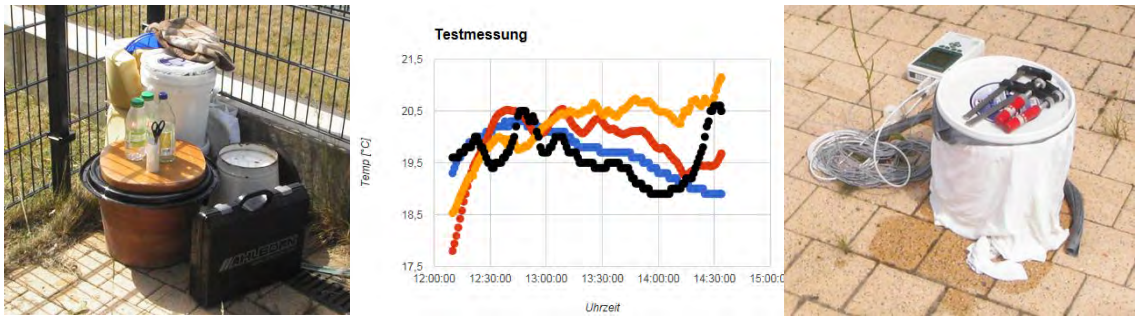
Other projects are motivated by very practical applications, as for example the development and implementation of an E-book-reader with Braille lettering output (without figure). As further example a controller for a cooling fan, which controls the air-condition turkey sheds is shown in figure 2. The results of this project, shown in the left part of figure 2, is actually is used in the turkey sheds shown on the right side.

Figure 2. Controller for a cooling fan in a turkey sheds

Figure 3. Project "fridge in a vessel": Comparing the cooling by means of evaporation of water in different vessel

Other teams are enthusiastic for solutions in context of biomedical applications, renewable energy or saving energy, as for example the investigation of different kinds cooling by means of evaporation of water (see figure 3) in the project "fridge in a vessel". This is also an example for a project which generates almost no costs. Only a few vessels are needed. A temperature logger (see figure 4) was available at our department and could be borrowed for the duration of the measurements.

Figure 4. Temperature logger and resulting measurements for the project "fridge in a vessel"



Many ideas for projects are created by the students completely unassisted. Other projects are proposed by the teaching staff. And still others were found (mostly by the students themselves) on websites or books, as for example how to build a Stirling engine from an ordinary food can and a simply recreating wooden part [2] to the idea for the project "fridge in a vessel", which is suggested in a very nice booklet with the (translated) Name "inspirations instead of wastes" [3, 4].

An example for a project, which was presented to the public, is shown in figure 5. Non-Newtonian fluids and their flow behavior amused the visitors of a district festival.

More examples of project results will be given in the oral presentation.

Figure 5. Investigation of Non-Newtonian fluid, which are presented at a district festival

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4. Evaluation and discussion

Heretofore we don't have properly based scientific results of evaluations. Nevertheless we can state that the students in our courses are highly motivated. This high motivation contributes to success of most projects.

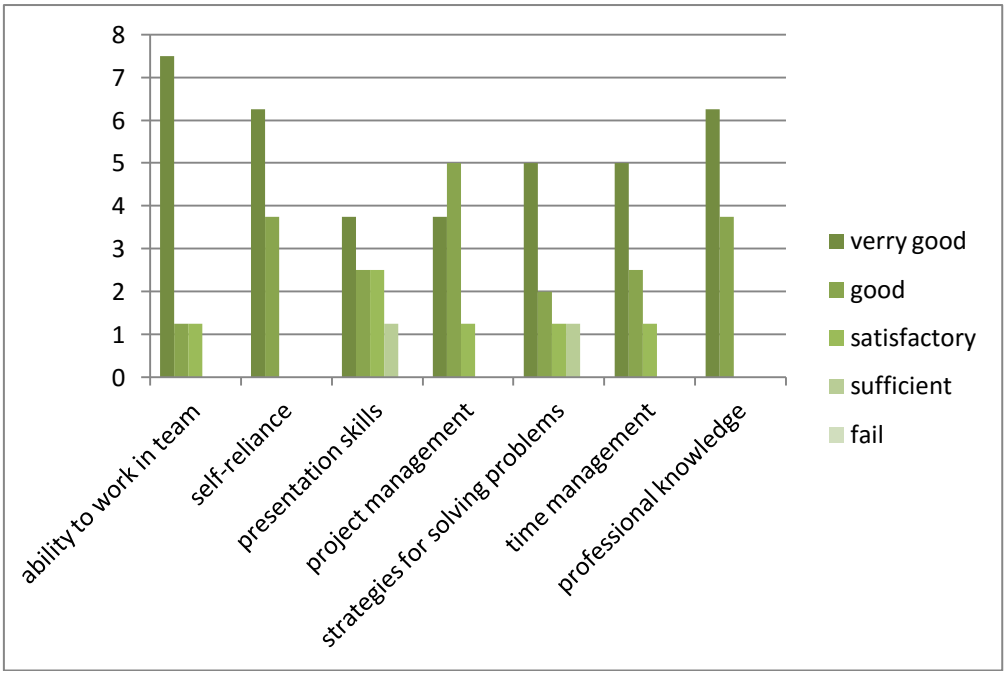
In figure 6 the evaluation of a short questionnaire is shown, which asks for the increase of soft skills at the end of the course. It can clearly be seen that the overall rating is positive. Particularly high results were obtained for the points team work and self-reliance. Also the high increase of professional knowledge has been attested, even though this was not the focus of this course. This fact would suggest applying the same teaching method to other curses, the main focus of which lies in the knowledge sharing. But it has to be mentioned that the success of this course can't be adopted in the same way and with same success for all compulsory subjects, because we get a positive selection form active and interested students, which would not be the same in a compulsory course.

Many students underestimate the effort, which is needed to complete their project successfully and to fulfill the often very sophisticated and mostly self-defined requirements. Therefore it is very useful to offer the second course Research and Development Laboratory, which gives the students the opportunity to continue their sophisticated projects.

Due to the project-based teaching these courses are suitable also for international exchange student

Most of the outstanding project results are achieve by teams of only two peoples. This finding first was surprising for us. We expected that larger groups would have in proportion more success than small groups, because bigger groups bring together more different competence and skills. But perhaps in bigger groups the chance is higher to have follower or even freeloaders. And if there are more people, probably not all of them have same passion for the project topic.

Figure 6. Evaluation of a short questionnaire, answered by our students



5. Conclusions

The method applies an interdisciplinary project-based approach which promotes learners autonomy. Our students are highly motivated during the courses because of the direct feedback and practical success. The students, who choose our *Project Laboratories* course like to do practical work during their studies. In the most cases they are very involved in their own projects and the learning process takes place nearly by the way. Point by point the students reach an advanced knowledge in a special scientific field but also in general fundamental approaches to solving a problem. Even though the main focus lies on the mediation of soft skills, the students attest a growth of professional expertise. The free-choice learning high motivates them to engage themselves in new topics.

We recommend this teaching method, because it is an interesting and a demanding kind of education, for the students and also for the teachers.

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EARLY CHILDHOOD EDUCATOR TRAINING: AN IMPLEMENTATION EVALUATION OF A PRACTICUM MODEL USING REFLEXIVE PRACTICE

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Abstract

Research in early childhood education (ECE) highlights initial training as a key predictor of quality (Mashburn & Pianta, 2010). This training is more effective in active learning contexts that integrate collaboration in a real world setting and reflexive practice as this type of training seems to enhance transfer of learning, as well as educational quality (Birman, Desimone, Porter, & Garet, 2000; Pianta & Hamre, 2009). Nevertheless, little is known about how to implement a reflexive model in ECE. In order to address this gap, an implementation evaluation single case study was conducted. According to program evaluation theory, implementation evaluation aims to describe what is really happening on the ground and to compare it to a logic model (Chen, 2005) in order to support the interpretation of the outcome evaluation (Tourigny & Dagenais, 2005). More specifically, implementation evaluation is interested in the relations between the program, its components, and the context with regard to the production of the effects (Contandriopoulos, Champagne, Denis, & Avargues, 2000). Since 2005, the Department of ECE at Saint-Hyacinthe College (Quebec, Canada) has implemented an innovative practicum model. This model is unique in Quebec, as it was developed to address knowledge transfer difficulties by mobilizing teacher guidance and reflexive practice. This *In Situ* practicum takes place in a drop-in daycare centre on the college campus that is completely dedicated to the program. The centre serves children and families from at-risk backgrounds who were signalled to the Director of Youth Protection for neglect, as well as refugee families who attend a community integration program. This communication will present preliminary results of the implementation evaluation process that aimed to verify if the college instructors effectively and uniformly employ the activities and learning strategies that they developed. Data include observations of six instructors in the program and questionnaires about cohesion and engagement to their work completed by the same instructors. Eleven students completed the same questionnaires and also evaluated the quality of their instructors' teaching strategies. Results indicate that instructors used learning strategies uniformly and in conformity with the logic model theory, and that the quality levels of those strategies were excellent. We also found superior levels of cohesion and engagement in the instructor and student groups. Moreover, the student's evaluations of the quality of their instructors' strategies also revealed high scores. This paper discusses the detailed outcomes of this program implementation evaluation.

Keywords: *Implementation evaluation, higher education, transfer of learning, early childhood education, quality.*

1. Introduction

In Québec (Canada), the most common training for early childhood education (ECE) is a technical college diploma degree (post-secondary). Students have to acquire 22 competencies essential to the profession. This program involves compulsory subject-specific and general training courses as well as three fieldwork internships (one per year) in ECE context (childcare centre or family provider settings) under the supervision of an instructor who visits the student three times during the (15 weeks) semester to observe and evaluate the student's acquisition of the required competencies.

Since 2005, the Department of ECE at Saint-Hyacinthe College (Quebec, Canada) has implemented an innovative practicum model. This model is unique in Quebec, as was developed to address knowledge transfer difficulties by mobilizing teacher guidance and reflexive practice. This *In Situ* practicum takes place in a drop-in childcare centre on the college campus that is completely dedicated to

the program. The centre serves children and families from at-risk backgrounds who were signalled to the Director of Youth Protection for neglect, as well as refugee families who attend a community integration program. This internship takes place in the context of the drop-in childcare centre (DCC) that accommodates vulnerable children and their families two days a week. This DCC, whose mission includes contributing to ECE student training, was implemented by the College with the collaboration of the Monteregie Child Protection Services and the Family House of Saint-Hyacinthe. These organizations contribute to the financing and are in charge of recruiting and transporting the children and their parents to the DCC. Since 2014, this training program has been the object of a program evaluation financed by the Children's Future Fund (Avenir d'enfants).

2. Review of the literature and conceptual framework

Research in early childhood education (ECE) highlights initial training as a key predictor of quality (Mashburn & Pianta, 2010). This training is more effective in active learning contexts that integrate collaboration in a real world setting and reflexive practice, as this type of training seems to enhance learning transfer, as well as educational quality (Birman et al., 2000; Pianta & Hamre, 2009). Nevertheless, little is known about how to implement a reflexive model in ECE. In order to address this gap, an implementation evaluation single case study was conducted. According to program evaluation theory, implementation evaluation aims to describe what is really happening on the ground and to compare it to a logic model (Chen, 2005) in order to support the interpretation of the outcome evaluation (Tourigny & Dagenais, 2005). More specifically, implementation evaluation is interested in the relations between the program, its components, and the context with regards to the production of the effects (Contandriopoulos et al., 2000).

3. Method

Research Questions and Design

The main question addressed in this study was: Do college instructors effectively and uniformly employ the activities and learning strategies that they developed in the logical model? In order to answer this question; a longitudinal multi-case analysis of each instructor using a mixed methodology was used.

Participants

The sample is composed of seventeen participants (n=17) including six instructors (teacher n = 2, guide-educator n = 2, coordinator n=1, technician n=1) and eleven students involved in this training. The students were in their third and last year of training in ECE at this college. Data were gathered in the Fall of 2015 and the winter of 2016. University ethics approval was granted. All standard ethical considerations were respected, such as anonymity, informed consent, and the right to desist at any time.

Procedure

The instructors were observed with a measure created for this study that aimed to evaluate the efficacy level of the learning strategies. Each instructor was observed on eight different days throughout the semester. The procedure involved four cycles of 15 minutes observations at different and crucial moments of the training that had been identified in the logical model of the program evaluation (group tutorial in the morning and the afternoon and during the student training time with children). Instructors also completed questionnaires about cohesion and engagement related to their work twice during the semester. The students completed the same questionnaire as well as an adaptation of the efficacy observation scale to triangulate the observations about the efficacy level of their instructors' strategies.

Measures

The efficacy observation scale, created for this study, included four dimensions and eighteen sub dimensions: (1) Animation of analytical exchanges (interactivity, quality of questioning, focus of analysis, quality of added information) (2) feedback (frequency, quality, interactivity, variety, based on observations), (3) modelling (expected behaviour, type of model) and (4) relational strategies (positive, respectful, sensitive and flexible, non-judgmental, empowerment, and leadership). The scale used descriptive statements from 1 to 5 (1 = ineffective to 5 = totally effective) for each sub-dimension, with a high score corresponding to a high level of efficacy.

The efficacy level of instructors' strategy questionnaire contains 50 questions divided into four dimensions, also developed for this study: (a) Animation of analytical exchanges (15 questions) (b) feedback (12) (c) modelling (4) (d) welcoming and accepting climate (20). Each statement was ranked from 1 to 4 (1 = strongly agree to 4 = strongly disagree, with higher scores indicating lower perceived efficacy.

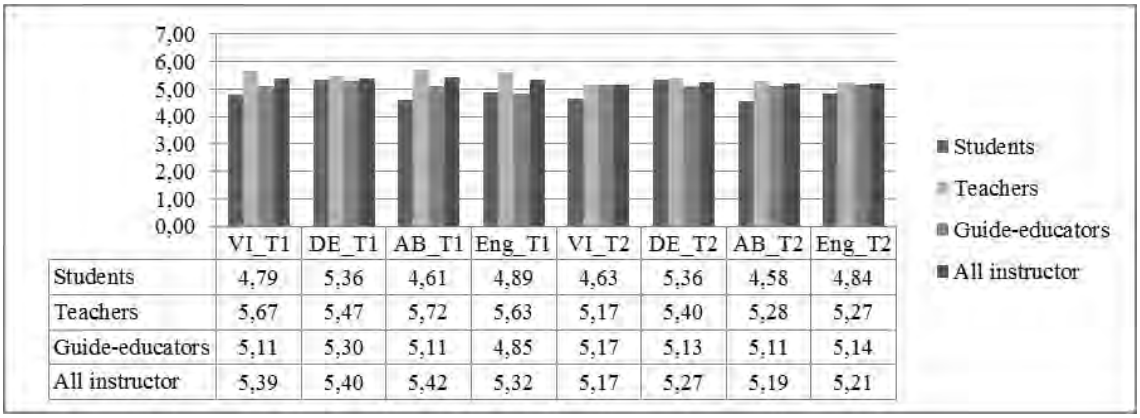
The cohesion questionnaire assesses team performance and effectiveness. The version used was adapted and based on Bruyère's (Patrick, 2008) French translation of Temkin-Green, Gross, Kunitz and Mukamel, (2004) original English version. The questionnaire includes 19 items divided into three dimensions: (1) collaboration (2) acceptance climate and trust (3) communication and problem solving. The English version (Temkin-Greener et al., 2004) shows good reliability (Cronbach α=.76 to .89) and construct validity is assured by the predictive relationship between communication, leadership, coordination, and conflict management with team cohesion and effectiveness.

The *Utrecht Work Engagement Scale* (*UWES*), 17-item version, assesses work-related state of mind based on a global score and three subscales characterized by (1) levels of energy (vigour), (2) sense of significance (dedication), and (3) levels of concentration (absorption) related to work (Schaufeli & Bakker, 2003). The scale demonstrates good psychometric properties (Schaufeli, Bakker, & Salanova, 2006) and the three-subscale internal consistencies are .82 for absorption (AB), .83 for vigour (VI), and .92 for dedication (DE) (Schaufeli & Bakker, 2003).

4. Results

As illustrated in Figure 1, descriptive results suggested high levels of engagement for students, guide-educators and teachers at both the beginning and the end of the practicum. Although not statistically significant, global engagement reflects a tendency to decrease across time for students and teachers, and a tendency to increase among guide-educators. All groups show high levels of energy (vigour-VI), sense of significance (dedication-DE), and levels of concentration (absorption-AB) related to work.

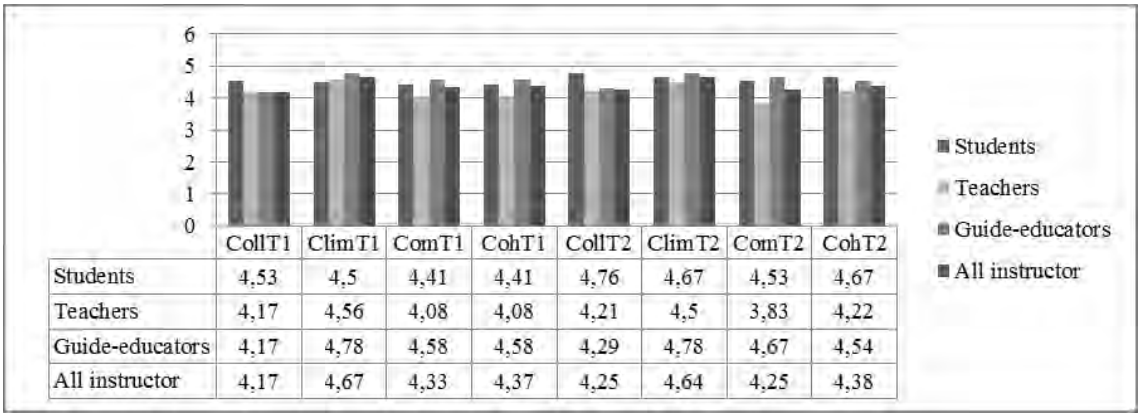
Figure 1. Evolution of work engagement among students, teachers and guide-educators



	VI_T1	DE_T1	AB_T1	Eng_T1	VI_T2	DE_T2	AB_T2	Eng_T2
Students	4,79	5,36	4,61	4,89	4,63	5,36	4,58	4,84
Teachers	5,67	5,47	5,72	5,63	5,17	5,40	5,28	5,27
Guide-educators	5,11	5,30	5,11	4,85	5,17	5,13	5,11	5,14
All instructor	5,39	5,40	5,42	5,32	5,17	5,27	5,19	5,21

A high level of cohesion (COH) is also observed at both time periods for all groups, and suggests a tendency to increase at the end of the practicum for students and teachers, and a tendency to decrease for guide-educators. Thus, all groups show high scores for communication, relational climate and collaboration at time 1 and time 2. Communication and relational climate seem to show a tendency to decrease over time among teachers. When considering subscales of the cohesion scale, a tendency to increase was observed over time for communication (com), relational climate (Clim) and collaboration (Coll) for students, while it seemed to remain stable for guide-educators (see Figure 2).

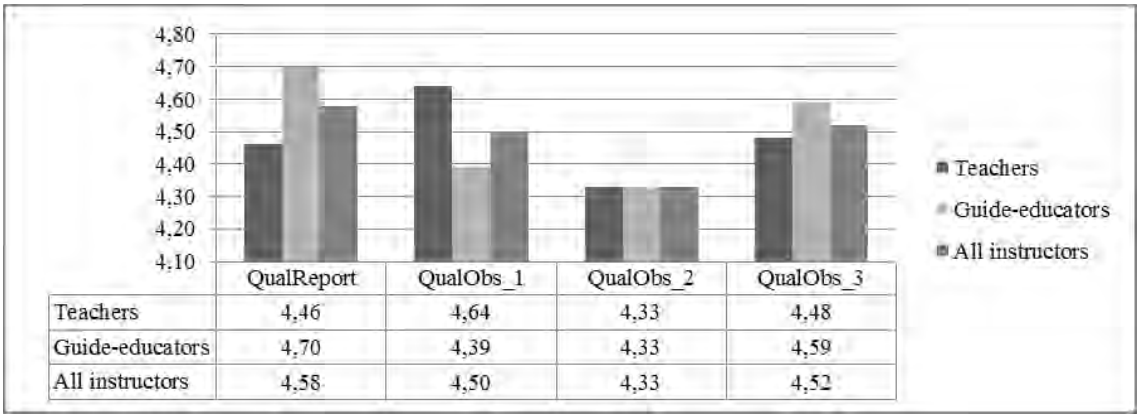
Figure 2. Evolution of cohesion among students, teachers and guide-instructors



	CollT1	ClimT1	ComT1	CohT1	CollT2	ClimT2	ComT2	CohT2
Students	4,53	4,5	4,41	4,41	4,76	4,67	4,53	4,67
Teachers	4,17	4,56	4,08	4,08	4,21	4,5	3,83	4,22
Guide-educators	4,17	4,78	4,58	4,58	4,29	4,78	4,67	4,54
All instructor	4,17	4,67	4,33	4,37	4,25	4,64	4,25	4,38

As for the quality of teaching, both observed and perceived scores were high. In other words, students' perception of the quality (QualReport) of teaching seemed to be consistent with the quality of teaching provided by the instructors (QualObs). Similar score were obtained for guide-educators and teachers when comparing the observed and reported measure. When considering observed quality only, a tendency to decrease was observed at the second time point for both groups, however, this was not significantly different (see Figure 3).

Figure 3. Teaching quality reported and observed



	QualReport	QualObs_1	QualObs_2	QualObs_3
Teachers	4,46	4,64	4,33	4,48
Guide-educators	4,70	4,39	4,33	4,59
All instructors	4,58	4,50	4,33	4,52

Overall results indicated high levels of engagement, cohesion and teaching quality at the beginning and end of the practicum.

5. Discussion and conclusion

Results suggest that instructors used learning strategies uniformly and in high conformity with the logic model theory, and that the quality levels of those strategies were excellent. We also found superior levels of cohesion and engagement in the instructor and student groups. Moreover, the student's evaluations of the quality of their instructors' strategies also revealed high scores. This uniformity between instructors supports the logical model of the processes identified (Bigras et al., 2016) and suggests that this training model could be transferable to other instructors, within or outside of this college. Moreover, the fact that the students also evaluate their instructors' strategies positively provides support for the validity of the *efficacy observation scale.*

Furthermore, work engagement is an important psychological construct for both teachers and students when one is interested in the field of academic performance, learning, and burnout. High levels of engagement predict academic performance (Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002) and are associated with lower levels of procrastination and elevated levels of self-directed learning and academic adjustment (Cazan & Stan, 2015) as a protective factor for burnout (Li, Early, Mahrer, Klaristenfeld, & Gold, 2014). On the other end, collective efficacy in students is associated with team cohesion and self-efficacy and team cohesion is associated with team performance and self-efficacy (Lent, Schmidt, & Schmidt, 2006). .These findings suggest that high levels of work engagement and cohesion within the team, in both students and teachers, would be desirable factors in the achievement of this program, for the success of the future dissemination of this ECE training program as well as increasing work performance and self-efficacy among students.

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AGILE HIGHER EDUCATION: AN IMPLEMENTATION STUDY AT SHAOXING UNIVERSITY, CHINA

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Abstract

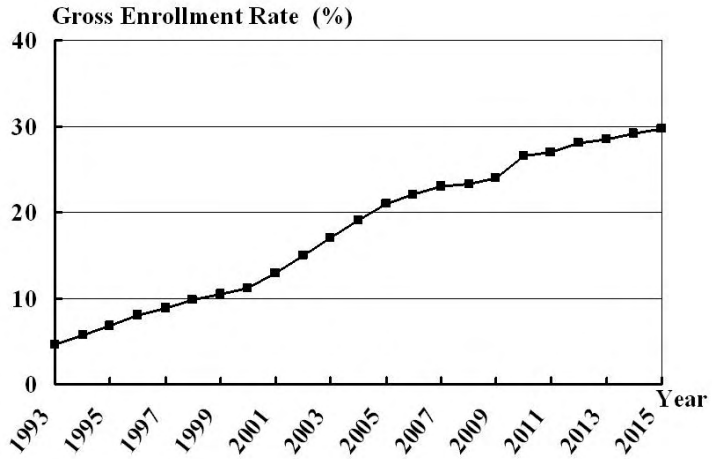
The expansion of higher education provides more opportunities for young people, and meanwhile, brings many problems to itself as well as to society. One of the problems is the disconnection between the supply and demand of graduates of higher institutions. Due to the fact that agile manufacturing has been proved successful in manufacturing industries, the idea and methodology of agile manufacturing is transplanted into higher education to improve the agility of higher institutions in this paper. Implementation work of agile higher education has been done in the past five years at Shaoxing University, China. Virtual organization is applied to reorganize academic resources at the university to improve the agility of program construction. Mass customization is used to reform the curricula of all programs to provide a solution to efficiency-diversity dilemma and let students postpone finalizing their learning in a program to meet the needs of labor market as much as possible. The implementation study shows that the proposed way of agility improvement is significant and effective to a kind of applied higher institutions in mass higher education time.

Keywords: *Agile higher education, program reconstruction, curriculum reform, China.*

1. Introduction

In the past decades, expansion of higher education took place in many countries. In China, for example, higher education grew rapidly since the end of last century. The student population of higher education increased from 2.54 million in 1993 to 25.4 million in 2012. Figure 1 shows the growth of gross enrollment rate in higher education in China from 1993 to 2015.

Figure 1. Gross enrollment rate of higher education in China



The expansion of higher education brings more opportunities for young people and, meanwhile, higher education faces many problems. One of the important problems is the disconnection between the supply of university graduates and the demands of human resource in labor market. The difficulties both in job hunting for university graduates and professional labors hunting for employers occur in many private or public sectors in China. The reason leading to this problem is that higher institutions are not able to adjust themselves quickly enough in an ever changing world.

Based on the viewpoint of Trow M (1973), approaching to mass higher education does not only means the increase of gross enrollment rate in higher education, but also means the changing of higher education itself in all aspects. In mass higher education time, most of higher institutions should be real-world oriented and their graduates are expected to work in real-world circumstance. The links between higher education and real world are much stronger than before. As the innovation of technology and the progress of globalization of economy, jobs in real world are becoming more complicated and changeable. University graduates have to be equipped with more cross disciplinary knowledge and skills to work in more internationalized and complicated environment. Therefore, the programs operated at universities should be more cross-disciplinary and have more diversity than before. And it is more important that a university has to change itself in real world oriented talents education to meet changing needs in labor market.

The solution to this problem is to improve the agility of higher education system. Agility means the ability of a university or a higher education system to response the changes of human resource needs quickly at low cost. Because the academic resources of university are limited, the adjustment of programs or its curricula should be based on the utilization of current resources rather than on the recruitment of new academic staff and the other relevant resources.

In this paper, based on the similarities between manufacturing systems and higher education systems, the idea and methodology of agile manufacturing are employed to higher education in order to improve the agility of the higher education systems. Two enablers of agile manufacturing, virtual organization and mass customization, are introduced into higher education systems to optimize the way of resource allocation for programs at undergraduate level. Implementation work of agile higher education in the past five years at Shaoxing University, China, is reported.

2. Similarities between manufacturing and education systems

Similar problems in agility improvement are also seen in manufacturing industry. The needs of new products with high quality, low cost and good service occur continuously and manufacturing companies find it is very difficult to adjust them to cope with these changes. Some years ago, a new philosophy, agile manufacturing, was proposed and implemented successfully in manufacturing industries to solve the problem. The purpose of agile manufacturing is for manufacturing companies to response the new needs of products quickly at low cost. There are two enablers of agile manufacturing: virtual organization and mass customization.

Virtual organization is implemented in manufacturing industries in such a background that the ability of self-adjustment of a company is hardly match the changes of the market because the life cycle of products is getting shorter, market needs change more rapidly, and all those changes are getting more unpredictable. In this situation, one of the effective ways is to integrate manufacturing resources from different companies to create a new cross-company manufacturing system. This manufacturing system is not a real company but a virtual organization that is just a combination of different core competences from involved companies. Chen, et al. (1998) pointed out that the essence of virtual enterprising is to integrate the processes, activities, and resources from different enterprises through enterprise alliance and thereby quickly respond to customer expectations. In this case, virtual organization is just a temporary alliance for a raising market opportunity. It comes as market needs created and goes out as the needs diminished.

Mass customization, including two techniques, modularization and postponement, is another enabler of agile manufacturing. Modularization was initially introduced by Starr (1965) in the literature. It implies a product design approach whereby the product is assembled from a set of standardized constituent units. Different assembly combinations from a given set of standardized units give rise to different end-product models and variations (Ernst R and Kamrad B, 2000). Postponement is an organizational concept whereby some of the activities in the supply chain are not performed until customer orders are received. Companies can then finalize the output in accordance with customer preferences and even customize their products (Hoek R, 2001).

A precondition of the application of agile manufacturing to higher education system is the similarities between manufacturing system and higher education system. In fact, the process of applied talents education at universities in mass higher education time is quite similar to that in industry production. Table 1 shows these similarities between these two systems.

Table 1. Similarities between manufacturing systems and education systems

Manufacturing System	*Higher Education System*
■ *More complicated and multi functional industry products.* ■ *More variety and customized product needs.* ■ *Rapidly changing market needs and more difficult to predict.* ■ *Quick response to the new product needs at low cost.* ■ *Products made by multi-technology.* ■ *Manufacturing resource constrains.*	■ *More university graduates with cross disciplinary background.* ■ *More special needs to a wide variety of graduates.* ■ *Rapidly changing needs for university graduates and not easy to predict.* ■ *Quick response to human resource market needs at low cost.* ■ *Program operated based on multi-disciplinary supporting.* ■ *Limitation of academic resource.*

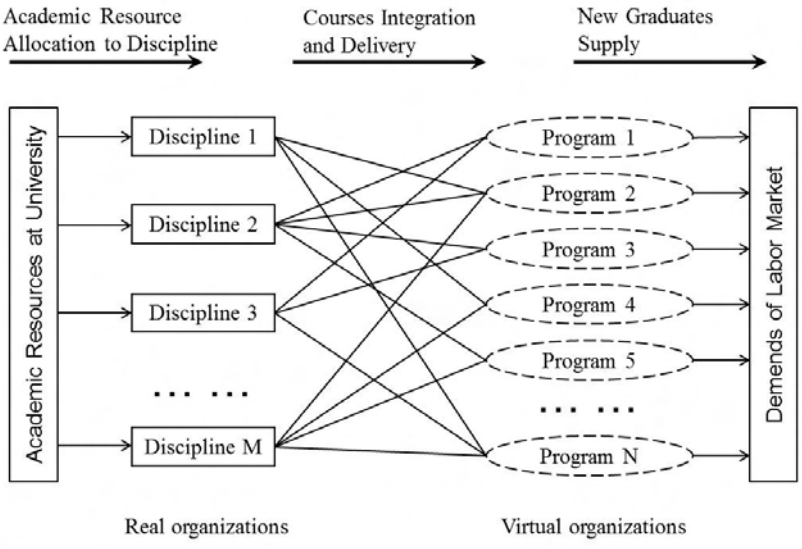
3. Implementation of agile higher education at Shaoxing University

Shaoxing University is a regional university set up in 1996 and is financially supported by local government of Shaoxing City. It is a comprehensive university with about 1 thousand academic staff and 1.6 thousands full time students. The university locates in the east part of China, a region with high development level of economy, in which, there are many needs in different kinds of new graduates. The main challenge to the university is how to meet the demands of applied talents from local industries and follow the change of the demands. In the past five years, the application of agile higher education has been conducted in two steps. The first step is the reconstruction of all its undergraduate programs by means of virtual organization. And the second step of the application is curriculum reform for all the programs by mass customization.

The application of virtual organization means the reorganization of fundamental academic units. At the university, all its academic resources, including faculty, laboratory facilities, and so on, are allocated to these units. In China, a fundamental academic unit is normally set up by an undergraduate program. That is to say, a program unit means an academic entity at a university. This way of resource allocation makes it very difficult to launch a new program or close an existing one.

The reconstruction of fundamental academic units was first done by breaking all the program units that are used to be real academic entities or real organizations. All academic staff were re-groped by their academic fields into a number of discipline based units. In the new framework of fundamental academic units, all the academic staff and other resources are organized by disciplines, rather than by programs. At the moment, there are 46 discipline based academic units at Shaoxing University. Figure 2 shows the framework of all programs as virtual organizations supporting by related discipline based units. These discipline units are obviously are real organizations.

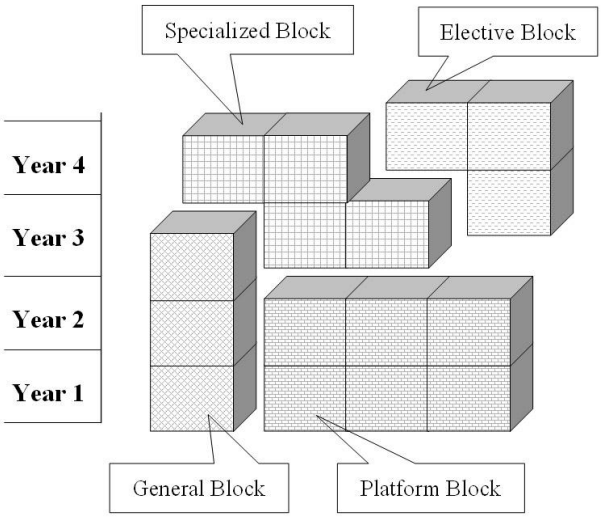
Figure 2. Programs as virtual organizations



In Figure 2, all the courses delivered at the university are assigned to these units respectively by the discipline characteristic of these courses. A program, as a virtual organization, there is nothing but a combination of courses needed by the program. Therefore, a multi-discipline to multi-program network has been built there is a mechanism for courses integration and delivering between discipline based units and programs. Any change of labor market demands can be followed up by a new integration of courses between disciplines and programs quickly at low cost. If there is a demand of a new program, the university can integrate necessary courses easily from these discipline based units involved in the program. Closing a program will also be quite easy because no real academic unit should be closed.

The second step of the implementation at Shaoxing University is the curricula reform of programs by means of mass customization. Most of the programs at Shaoxing University are four-year undergraduate ones and each has 160 credits including final projects. In order to build a modular curriculum for a program, all the courses in the program are divided into 4 modular blocks, which are respectively named general block, platform block, specialized block and elective block. Figure 3 illustrates the structure of modularized curriculum.

Figure 3. Modularized curriculum



A general block has 32 credits and is a compulsory modular block for the students in all programs. A lot of general courses, such as foreign language, physical education, moral education, career planning, etc., are in this block.

A platform block approximately has 48 credits and is shared by a number of similar programs. In the initial stage of learning, students of these programs take the same platform block. This block is normally arranged in the first two years.

A specialized block is built on a platform block to make a program different from the other programs developed on the same platform block. The credits of specialized block and platform block are 104. The core courses of a major program are included in these two blocks.

An elective block has 24 credits and can be operated in two ways. One way is to use the whole block as a minor block to produce a major/minor program for cross-disciplinary education because normally the major program and the minor block are in different academic fields. On the other way, an elective block can be divided into two extending sub-blocks with same credits, i.e. vertical extending sub-block and horizontal extending sub-block. Vertical extending sub-block is designed for in-depth extending in some special areas in a major program to enhance the diversity of learning. Horizontal extending sub-block provides knowledge from another discipline to enhance both cross-disciplinary and diversity in some extent.

By means of modularized curriculum, different blocks can be combined to produce more programs at low cost because of the economy of scale and the economy of scope. It also makes cross-disciplinary education much easier by the combination of blocks from different disciplines. In this curriculum system, students can customize their own curricula based on their personal career interests and job hunting needs. The idea of postponement can also be applied in this modularized curriculum system. After finishing their studying in a platform block, students can enter different major programs by selecting their specialized blocks. And furthermore, students can customize their study by selecting different elective blocks in their subsequent learning. The later the students customize their learning, the better their learning fits their future career development.

4. Conclusions

The implementation study in this paper shows that it is a reasonable and effective way to improve the agility of higher institutions by introducing the principle of agile manufacturing into education system. Virtual organization is used to specify the roles of programs and discipline based units respectively at a university, and the former should be taken as virtual organizations and the later as real ones. The operation of programs supported by a number of discipline based academic units makes program adjustment easier. Moreover, mass customization helps the curriculum of a program meet the needs of cross disciplinary talents education and find a solution to diversity-efficiency dilemma.

It has to say that the implementation work proposed in this paper is mainly suitable for a kind of higher institutions developed in the time of mass higher education. In China, most of the regional universities are of this kind and have similar problems in applied talents education. These universities have much more links to the real world than the other ones originated in the time of elite higher education.

Acknowledgement

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TRILINGUAL EDUCATION IN HONG KONG PRIMARY SCHOOLS: CASE STUDIES OF CODE-MIXING/CODE-SWITCHING

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Abstract

As an international city, Hong Kong has three official languages: Cantonese, English and Putonghua. Since the handover in 1997, the Hong Kong government has adopted a "biliterate and trilingual' language policy, aiming at enabling Hong Kong residents to become biliterate in written Chinese and English, and trilingual in Cantonese, Putonghua and spoken English. In Hong Kong schools, students are expected to achieve good proficiency in all three languages, but in the classroom, most schools would adopt the so called 'One-language-at-a-time' policy, emphasizing that for a particular subject, only one language should be used as the medium of instruction (MoI), and mixed code should be discouraged, or even banned. However, many students and even some teachers do not seem to follow this guideline, and code-mixing/code-switching occur regularly in the classroom. Based on a survey of 155 Hong Kong primary schools we carried out, it is found that the Chinese subject teachers in 23 schools (14.84%) claimed that they would switch between Cantonese and Putonghua in teaching Chinese. For the English subject, teachers in 53 schools (34.19%) claimed that they might switch between Cantonese and English in teaching the English subject. For the Putonghua subject, teachers in 7 schools (4.52%) claimed that they would use both Putonghua and Cantonese, but only in junior grades. For senior grades, they would use Putonghua only. We are aware that the survey data may not fully reflect the reality about the use of mixed code in primary schools, given that the official policy is to avoid the use of mixed code. To find out the real situation in the primary schools, follow-up case studies were carried out in three of the previously surveyed 155 schools. A questionnaire survey on students' perceptions of code-mixing/ code-switching in trilingual education settings was administered in the three schools, and follow-up student focus group interviews were conducted. We also employed ethnographic field research data analysis, classroom discourse data analysis, and teachers' reflection data analysis to find out how code-mixing/code-switching had affected students' language development in the three schools. The research findings suggest that the degree of students' acceptance of code-mixing/code-switching varied across the three schools, but overall they seem to find code-mixing/code-switching beneficial to their language development. Also, there seems to be contradictions between schools' language policies and the teachers' and students' actual pratices in the classroom. It is hoped that this study will contribute to the literature on the study of code-mixing/code-switching in multilingual education context.

Keywords: *Code-mixing, code-switching, Medium of Instruction (MoI), trilingual education, Hong Kong.*

1. Introduction

Hong Kong is a multilingual society with an approximately 95% of ethnic Chinese, whose principal languages are Cantonese, English and Putonghua, with Cantonese being the dominant language. Prior to 1997, most secondary schools claimed to be EMI (English as a Medium of Instruction) schools under the laissez-faire medium of instruction (MoI) policy; however, in reality many of these schools used mixed code of English and Chinese (Pan, 2000; Poon, Lau, & Chu 2013). Chen (2005) even claimed that "the practice of Cantonese-English code-mixing has developed into a societal norm, despite the fact that mixed code is overtly and negatively criticized in society" (p. 529). The Education Department of Hong Kong viewed code-mixing as "the culprit for the perceived decline in English and Chinese standards of Hong Kong students in the past decade" (Li, 1998, p. 161).

Realizing the increasing use of mixed code in secondary schools, the Government has adopted some measures to deal with this issue. The Education Commission (EC) Report No. 4 in November 1990 stipulated that "the use of mixed-code in schools should be reduced in favour of the clear and consistent

use in each class of Chinese or English in respect of teaching, textbooks and examinations" (Education Commission, 1990, p. 99, 6.4.1 (iii)). Moreover, the EC believed students can learn better in their mother-tongue. However, no special attention has been paid to the use of mixed code in primary schools.

2. Code-mixing and code-switching

The term code-switching can be defined as the alternation between two or more languages, language varieties, or language registers in discourse between people who have more than one language in common (Moradi, 2014). Code mixing is "the change of one language to another within the same utterance or in the same oral/written text" (Ho, 2007). According to Li (2008), 'code-switching' (CS) refers to "the alternate use of two or more languages in an extended stretch of discourse, where the switch takes place at sentence or clause boundaries. When the switch takes place within a sentence or clause, the term 'code-mixing' (CM) is preferred" (p. 76).

Since the late 1970s, the linguists in Hong Kong have been paying increasing attention to code-mixing and code-switching (Li, 2000; Regan, 2003). They have studied code-mixing and code-switching in various Hong Kong school contexts, such as tertiary institutions and secondary schools. The first major study on Cantonese-English code-switching in tertiary institutions was initiated by John Gibbons (1979, 1983). He studied `U-gay-wa' (`university talk'), which was a genre of mixed code commonly used and heard among students in Hong Kong Universities (Li, 2000). More code-mixing related studies were conducted in the City University of Hong Kong by Pennington, Balla, Detaramani, Poon, and Tam (1992), Walters and Balla (1998), and Li and Tse (2002).

Apart from the above research on mixed code in tertiary institutions, there are also studies of code-switching in secondary school classrooms. Johnson (1983; 1985) studied and analyzed actual instances of classroom code switching, which focused on teaching and learning in different areas of the curriculum. Lin (1990) investigated what really happened in English language classrooms, and how and why teachers alternated between English (the TL) and Cantonese (the L1), so as to get a clearer picture of the English language classroom in four Anglo-Chinese secondary schools. Researchers generally agree that code-mixing/code-switching benefits student learning. Li (2008) believes that "code-switching has great potential for helping the bilingual teacher to achieve context-specific teaching and learning goals like clarifying difficult concepts and reinforcing students' bilingual lexicon..." (p. 75). Hirvela and Law (1991, p. 37) claim that "in certain forms and in the teaching of certain subjects, mixed code teaching might be the most effective means of instruction…"

However, it seems that research on the use of mixed code in Hong Kong primary schools is missing. It is hoped that the current case studies of code-mixing/code-switching in three primary schools can fill the gap, and the findings can contribute to the literature on the study of code-mixing/code-switching in multilingual education contexts.

3. Methodology

Three case studies were carried out in Hong Kong primary schools in 2014-2015 academic year. The first school (School A) is located on Hong Kong Island, the second one (School B) in the New Territories, and the third one (School C) in Kowloon (Table 1). A multi-modal approach for case study was adopted so as to obtain as complete a picture of the participants as possible. Our sources included interviews with students and teaching staff, classroom discourse data analysis, student questionnaire survey, teachers' reflection, and ethnographic field research data analysis.

Table 1. Information of the surveyed schools

	Location	Origins of students				MoI policies		
		Local Hongkongers	Come from Mainland	Come from a South Asian country	Come from other countries	English Language subject	Chinese Language subject	Other subjects
School A	HK Island	51%	2%	10%	37%	English	Putonghua	English & Cantonese
School B	New Territories	67.4%	6.8%	21.8%	4%	English	Cantonese	mainly in Cantonese supplemented by English
School C	Kowloon	100%				English	Putonghua	Cantonese

4. Results and discussions

4.1. Students' perceptions of code-mixing/code-switching in learning

Primary 4 (P4) – Primary 6 (P6) students of the three schools were asked to fill in a questionnaire on the implementation of trilingual education in the school, in which Q4-Q7 asked the students about their perceptions of code-mixing/code-switching between Cantonese and English and between Cantonese and Putonghua. Students from School A were more positive towards switching from one language to another when studying different subjects than students in the other two schools as they gave the highest mean score of 3.829 to Q4 (the average mean score is 3.686). Students from this school also gave the most positive responses when asked if code-switching/code-mixing in different subjects was useful for their language development in general, as they gave a mean score of 4 to this question (Q7) which is above the average mean score of 3.678, while the mean scores of the other two schools are below average. The P5 Non-Chinese student (NCS) interviewees in School A would like their teachers to code-switch between Cantonese/Putonghua and English in Chinese subject lessons, and between Cantonese and English in Mathematics lessons. A P5 Filipino said, "I prefer my teacher code-switching between English and Cantonese/Putonghua in Chinese lessons so that I can remember the content better and learn more Chinese words." Two P4 Filipinos pointed out that they sometimes used code-mixing when communicating with local students because they thought this would be easier and could easily be understood, e.g.:

〝你有冇 finish your homework?〞meaning "Have you finished your homework?'

〝我爸爸 (in PTH) is good.〞meaning "My father is good."

The mean scores of Q4-Q6 from School B are above the average mean scores while the mean score of Q7 is a bit below average. In this school, about half of P4-P6 students found code-switching/

code-mixing in different subjects useful for their language development in general, while 15% of them did not agree and 27% of them were neutral (Q7). In the Focus Group Interview, five out of eight interviewees did not find code-switching in different subjects useful for their language development in general. One of them said, "We can't learn a language if we are too dependent on teachers' translation." More students from B School found themselves code-switching between English and Cantonese during the study of the English subject as they gave the highest mean score (3.532) to Q5 (the average mean score is 3.411). In the interview, one student said, "We can easily understand what the teachers say if Cantonese is used to explain the English vocabularies."

Fewer students from School C found code-switching/code-mixing acceptable as the mean scores of Q4-Q7 of this school are below average. There are reasons to explain this phenomenon. First, all the students in School C are local Hongkongers. Second, apart from the three language subjects, Cantonese is the major MoI in most subjects in the school. Third, teachers insist on using almost 100% of English in English lessons while teachers insist on using almost 100% of Putonghua in Chinese lessons (P1-P4) and in Putonghua lessons (P1-P6). Fourth, P6 students were anxious about their promotion to secondary education. For example, a P6 interviewee said, "I appreciate my teacher using 100% English in English lesson. It is because we need to well prepare ourselves now and adapt to such a learning environment; otherwise, it will be more difficult for us to adapt to an EMI secondary school."

On the whole, students of the case-study schools find code-mixing/code-switching, to a certain extent, beneficial to their language development.

4.2. Teachers' perceptions of the role of code-mixing/code-switching in teaching

From class observation, teachers' reflection and teacher interviews in the three schools, two significant aspects are identified concerning their perceptions of the role of code-mixing/code-switching in teaching different subjects.

First, regarding the language subject teaching, the English teachers in the three schools (two from each school) were consistent regarding their beliefs and classroom practices. To provide students with a rich English language environment so as to facilitate their English learning is their belief. In practice, they all used 100% English in their teaching, and insisted their students to raise and answer questions in English so that they could practise the language as much as possible. Only one of them who was teaching P1 English in School C stated in the 'reflection form' that she would use Cantonese only if her students could not understand her instructions. This conforms to the findings of Hirvela and Law (1991) which indicated a noticeable shift of attitude towards mixed-code instruction among teachers. On one hand, teachers accepted and enjoyed code-mixing in some conceptually-dominated subjects; on the other hand, they refused to transfer the same teaching mode and its advantage to the English subject. As for the Chinese teachers who used Putonghua as the MoI (Schools A & C), they varied in their perceptions. Those who taught the Chinese subject in senior grades insisted on using 100% Putonghua,

while those teaching the junior grades would be more flexible and tolerant, explaining the content with a bit Cantonese and allowing their students to raise and answer questions in Cantonese. In regard to teaching the Putonghua subject (School B & School C), the teachers shared the same views with the English teachers, they used 100% Putonghua in class and believed students could enhance their Putonghua proficiency in return. The students also agreed to the fact that the language teachers strictly followed the MoI policies in language teaching. In general, the practice of code-mixing or code-switching is rare in language teaching classrooms in the case-study schools.

Second, teachers teaching subjects other than language subjects were more flexible and tolerant towards code-mixing/code-switching, especially when the MoI of the subjects is English. Their rationale is that: first, teaching Mathematics, General Studies, Music, Visual Arts, Physical Education and Computer Science is unlike teaching languages as the focus is teaching students the subject knowledge but not the language itself. Second, teachers believed students could learn and understand better in their mother tongue if the MoI of the subjects is of L2. McClure (1977, p. 1) claimed that code-switching takes place to mark "emphasis, focus, elaboration, clarification, attention attraction or retention, mode shift, topic shift, and addressee shift". In 1983, Guthrie (p. 45) identified five communicative functions of mixed-code teaching in a bilingual classroom among a group of Chinese learners of English in the United States: (1) for translation; (2) as means for building and maintaining solidarity and group membership; (3) for giving instructions and directions; (4) for clarification and explanation of new vocabulary and (5) as a checking device for understanding.

The evidence of code-mixing/code-switching is found only in Schools A and B as Cantonese is the only MoI in teaching other subjects in School C. Teachers using code-mixing/code-switching were mainly for emphasis, clarification, mode shift and translation etc. In School A, the MoI in teaching P6 General Studies is half in English and half in Cantonese as there were nine NCS in the class. The teachers prepared PowerPoint presentation and learning materials in both languages. Mixed code was used for instruction before she started teaching. For instance, she said, "仲未有書的，自己起身。Those who have no books, stand up". In this case, the teacher just translated her instruction from Cantonese to English. The theme of the lesson was to introduce the signing of Closer Economic Partnership Arrangement (CEPA) between Mainland China and Hong Kong. Instead of using the standard Chinese translation of 更緊密經貿關係安排, the English term 'CEPA' was used throughout the lesson even when the teacher was explaining in Cantonese. It is because the Chinese translation requires an additional five characters or syllables and there is no workable Chinese abbreviation (Li, 2008, p. 83). Moreover, the 'principle of economy' is at work in bilingual conversation (Li, 2000; 2008). The teacher switched between English and Cantonese for elaboration, clarification and checking for understanding. Students answered questions in the same language as used by the teacher. The other teacher who taught P1 General Studies in the same school used 100% English in her class as the MoI is English. However, she wrote down in her 'reflection form' that she would switch to Cantonese if her students failed to follow her instructions given in English.

In School B, English textbook is used for P3 Mathematics and the teacher used mainly Cantonese, supplemented by English as the MoI. Therefore, there was the occurrence of code-mixing and code-switching during the lesson. For example, when the teacher wanted to express "three times two equals six", she would say, "三 times 二就係六" in mixed code. In another case, the teacher said, "There are eight hats. 個度有八只帽!". She switched just for translation and focus. This teacher expressed in the interview and in the 'reflection form' that using the mother tongue to explain the abstract mathematical concepts would be easier for student understanding, and the student interviewees agreed to this view as well. Therefore, code-mixing and code-switching was evident in her Mathematics class.

The above shows that the functions of code-mixing/code-switching in teaching other subjects in our study are similar to what have been identified by McClure (1977) and Guthrie (1983).

5. Conclusion

Through three case studies carried out in Hong Kong primary schools, it is found that, code-mixing/code-switching may not necessarily contribute to effective learning and teaching; however, given the appropriate use for particular learning and teaching goals, code-mixing/code-switching could be turned into a pedagogically sound learning and teaching resource. Language policy makers should take these into consideration when enforcing language policies in Hong Kong primary schools.

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FRENCH CANDIDATE TEACHERS' PERCEPTION OF AUTONOMOUS LEARNING AND THEIR STRATEGY USE

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Abstract

The purpose of this study is to explore the relationship between the perceptions of future French teachers regarding autonomous learning and their strategy use. Autonomous learning has been one of the most prominent areas of interest in language learning and teaching for a few decades. In 2001, the Common European Framework of Europe (CEF) defines autonomy as an ability to plan and monitor learning progress and evaluate learning outcomes. Additionally, an autonomous learning involves the effective use of language learning strategies, particularly metacognitive strategies. Quantitative data was gathered from 60 Turkish university students of French Teacher Training Department of Anadolu University (Turkey). In order to identify students' perception of autonomy, a questionnaire (Üstünlüoğlu, 2009) consisting of three parts; responsibility, ability and activities was employed. Language Learning Strategy Inventory developed by Oxford was also administered to find out to what extend students use learning strategies. The results reveal that the perception of students concerning autonomous learning does not differ significantly according to their strategy use.

Keywords: *Learner autonomy, learning strategies, language learning, teaching French, cognitive approach.*

1. Introduction

The idea of autonomy emerged in 1960s in western societies, as a result of social and ideological changes that emphasized the value of personal experience, personal freedom, and minority rights. The rise of the concept of autonomy in language teaching theory and methodology corresponded to major innovations and inquiries in some fields such as discourse analysis, pragmatics and sociolinguistics. At the root of these changes, lies a shift from behaviourist approach to communicative approach aiming at teaching how to communicate rather than the acquisition of decontextualized rules about the target language (Littlewood, 1981 cited in Benson, 2001: 17). Communicative approach involves a focus on learner needs and learning process. In a learner centred classroom, Nunan (1999: 11) states that "key decisions about what will be taught, how it will be taught, when it will be taught, and how it will be assessed will be made with reference to the learner". Therefore, the role of learner and autonomous learning in learning process seem to be part of the mainstream of research in the field of language teaching and learning.

In a traditional language classroom, the role of the learner is usually reduced to consume passively the instruction offered by teacher. But the studies in cognitive approaches have demonstrated that there is not a direct relation between instruction and learning. Internalization of knowledge by the learner occurs after a cognitive reconstruction process of linguistic data (Holec, 1992:50). In other words, to teach some contents does not always ensure its acquisition by all learners. Thus, the learners need to be aware of their own learning process and able to decide what, when, how and why to learn.

According to Holec (1981:3), autonomy is "the ability to take charge of one's own learning". Benson (2003) describes autonomy "as the capacity to take control of one's learning as one that establishes a space in which differences of emphasis can co-exist". He also argues that it is important to consider three levels of control exercised by the learner; learning management, cognitive process and learning content. In order to be more autonomous, learners are to develop their capacity to plan learning, monitor learning progress, and evaluate learning outcomes.

CEF (2001, 141-142) claims that "autonomous learning can be promoted if 'learning to learn' is regarded as an integral part of language learning, so that learners become increasingly aware of the way they learn, the options open to them and the options that best suit them. Even within the given

institutional system they can then be brought increasingly to make choices in respect of objectives, materials and working methods in the light of their own needs, motivations, characteristics and resources". In CEF, the "ability to learn" (savoir-apprendre) is described as "the ability to observe and participate in new experiences and to incorporate new knowledge into existing knowledge, modifying the latter where necessary".

Little (2003) puts forward the most important characteristics of autonomy as the practice of insight, a positive attitude, a capacity for reflection, and a readiness to be proactive in self-management and in interaction with others. He maintains that "this working definition captures the challenge of learner autonomy: a holistic view of the learner that requires us to engage with the cognitive, metacognitive, affective and social dimensions of language learning and to worry about how they interact with one another" (Ibid.). As the effective use of language learning strategies allows learners to consider all aspects of the learning process, it might contribute to the development of autonomous learning.

2. Learning strategies

Nunan (1999: 193) states that "the effective language learner is the one who can make effective choices in terms of learning tasks and strategies". Thus, current approaches in language teaching field focus on the ways of learning language better and more effectively. For this reason, one of basic roles of the teacher is to teach learners explicitly the underlying strategies behind the tasks. "Many learners are content to leave the teacher to decide how activities are to be completed, but will still need to develop the ability to use a wide range of strategies and to choose strategies appropriate to the task, if they are to take full responsibility for their learning" (Reinders, 2010).

Although the relationship between strategy use and autonomy is complex and not direct, they both aim to help learners become better learners. Cohen (1998, cited in Benson 2001: 144) explains well the role of strategy training in development of autonomy; "explicitly teaching students how to apply language learning and language use strategies, can enhance student's efforts to reach language program goals because it encourages students to find their own pathways to success, and thus it promotes learner autonomy and self-direction". Consequently, it can be considered that the learners who use a wide range of learning strategies for appropriate tasks have high tendency to autonomous learning. As points out Balçıkanlı (2010: 99), "the student teachers should be equipped with strategy training, which, hopefully, will enable them to understand better the nature of learning".

3. Methods

This study aims to reveal students' perception regarding autonomous learning and investigates whether there is a relationship between their perceived responsibility, ability, undertaken activities and their use of language learning strategies.

The following questions are addressed in order to achieve this aim:

1) What are students' perception of their responsibilities?
2) What are student's perception of their abilities?
3) How often the students engaged in autonomous learning activities both inside and outside the classroom?
4) Do responsibility, ability and activities significantly differ according to the strategy use level?

3.1. Limitation of the study

The study is limited in 60 students of French Teacher Training Department of Anadolu University located in Eskişehir, Turkey. The results could be generalized only to the total number of students (184) of aforementioned department.

3.2. Participants

The study involved 60 Turkish university students with 39 females and 21 males. The participants are selected by random sampling. All students have studied French in preparatory school for one year and passed the proficiency examination. Their first and second years in the department, they study language learning lessons such as grammar, reading, writing and speaking skills. The last two years they mostly study area courses such as foreign language teaching methods, linguistics, literature and translation. Students' proficiency level is supposed to be from B1 to B2+.

3.3. Data collection

A questionnaire adapted by Üstünlüoğlu (2009) from that used by Chan, Spratt and Humpreys (2002) was administered to 60 students at the end of spring term of 2015-2016 academic year. Except personal information section, it contains 3 main sections with 42 items; students' perception of their responsibilities, students' perception of their abilities and the activities they engage in the classroom and outside the classroom. The questionnaire was translated into Turkish in order to avoid eventual misunderstandings due to the language. For item clarity purposes, the pilot study was conducted with 15 students. After revision and adjustments of some ambiguous items, the questionnaire was administered to 60 participants. The Language Learning Strategies Inventory (LLSI) developed by Oxford (1990) is also administered to the same participants in order to reveal their level of learning strategy use. In this well-known inventory, strategies are divided into two major classes of direct and indirect strategies. These two classes are subdivided into six groups; 1- Direct strategies (memory, cognitive and compensation), 2- indirect strategies (metacognitive, affective and social).

3.4. Analysis of the data

The total scores for responsibility, ability and activity and that for LLSI were computed. In order to investigate whether there is a relationship between two variables, correlation analyses was used. Descriptive statistics are also used to detect the frequencies and percentages of choices concerning responsibility, ability and activity.

4. Results

4.1. Responsibility

The first section of the questionnaire regarding student's perceived responsibility consists of 10 items. The results were calculated as percentages (See the table below).

Table 1. Frequencies and Percentages Concerning Students' Choices in Responsibility

Item number		**Choice of Participants**		
Whose responsibility should it be to		**Student's**	**Teacher's**	**Both**
1. progress during lessons	frequency	11	2	47
	percentage	18,3%	3,3%	**78,3%**
2. progress outside the class	frequency	54	1	5
	percentage	**90%**	1,7	8,3%
3.to stimulate your interest in learning French	frequency	6	30	24
	percentage	10,0%	**50,0%**	**40,0%**
4.identify your weaknesses in French	frequency	12	8	40
	percentage	20,0%	3,3%	**66,7%**
5.decide the objectives of the course	frequency	4	31	25
	percentage	6,7%	**51,7%**	**41,7**
6.decide what you should learn next in your lessons	frequency	5	33	22
	percentage	8,3%	**55,0%**	**37,7%**
7.choose what activities to use to learn French in your lessons	frequency	4	42	14
	percentage	6,7%	**70,0%**	23,3%
8.decide how long to spend on each activity	frequency	1	47	12
	percentage	1,7%	**78,3%**	20,0%
9.choose what materials to use to learn French in your lessons	frequency	3	46	11
	percentage	5,0%	**76,7%**	18,3%
10.evaluate your learning	frequency	4	10	46
	percentage	6,7%	16,7%	**76,7%**

According to the results, 78,3 % of students consider that to make progress in class is both of the teacher and student's responsibility, but to make progress outside the classroom is perceived by 90% of participants as the responsibility of students. The third item that concerns to stimulate the interest in learning French is perceived by 50% of the students as the responsibility of the teacher and by 40% of them as that of both. 66% of the participants consider that in French courses it is the teacher and the students' responsibility to identify weaknesses of in French. To decide the objectives of the course is the responsibility of teacher for 51,7% of participants and for 41,7% it is the responsibility of both. To decide what students will learn next is the responsibility of the teacher for 55% of participants and for 37,7% of them it is the responsibility of both partners. Concerning the choice of the activities to use to learn French, 70% of participants think that it is teacher's responsibility. As for how long to spend on each activity is considered by 78,3% of participants as teacher' responsibility, the choice of materials to use to

learn French is also teacher's responsibility for 76,7% of participants. Finally, to evaluate students' learning is considered as the responsibility of both student and teacher for 76,7% of the participants. As the results indicate, the participants perceive all items as the responsibility of both the teacher and the student, while some think that it is only the responsibility of the teacher. Item 2 is only one exception imposing that it is only students' responsibility to ensure to make progress outside the classroom.

4.2. Ability

Table 2. Means of Students' Choices in Ability

	Item.1	Item.2	Item.3	Item4	Item.5	Item.6	Item.7	Item.8	Item.9	Item.10
N Valid	60	60	60	60	60	60	60	60	60	60
Mean	**3,84**	3,71	3,71	3,63	3,73	3,78	**3,48**	3,50	3,66	3,65

The second section of the questionnaire is about students' ability in choosing activities in and outside the class, choosing learning objectives and materials, deciding what to learn next in French lessons and how long to spend on each activity, identifying the weaknesses in French and evaluating learning. The Likert type scale from 'very poor=1' to 'very good=5' was used. As it is indicated in the table above, the minimum value is 3,48 and the maximum value is 3,84.

The choices vary between 3 and 4 which correspond to 'OK' and 'Good'.

It can be concluded that students think they would be OK or good at choosing activities and materials, deciding objectives of the course, identifying their weaknesses in French and evaluating what they learn.

4.3. Activities

The third research question of this study is: how often students engaged in autonomous learning activities both inside and outside the classroom? The following table shows the means of choices concerning the frequency of autonomous activities. The means vary between minimum 2,43 and maximum 4,08. The results indicate that students engage in autonomous activities sometimes or rarely.

Table 3. Means of Students' Choices in Activity

Activity number	Mean	Activity number	Mean
1	2,65	12	2,91
2	4	13	3,68
3	2,68	14	**2,43**
4	2,91	15	2,91
5	2,86	16	**4,08**
6	2,95	17	3,06
7	3,85	18	3,10
8	2,85	19	3,18
9	3,05	29	3,86
10	3,10	21	3,81
11	3,55	22	3,71

4.4. The relationship between students' perception regarding autonomous learning and their strategy use

According to the results, Pearson's correlation coefficient is negative: r= -,263, p= ,042 < ,05. That means, more autonomous learners use less strategies. In other words, the more the students' strategy use is, the less their perception of autonomous learning will be.

5. Conclusions

The findings of this study, in contrast to what is expected, did not reveal a positive relationship between students' perceptions regarding autonomous learning and their strategy use. Because of the limitations of the research, the results do not constitute conclusive evidence and this issue needs definitely to be investigated in future studies with larger samples of participants. According to another finding of this study, students agreed with the idea that they should be involved in taking many decisions concerning learning process and they should share some responsibilities with their teachers. The participants consider also they would be OK or Good at choosing activities in and outside the class, choosing learning objectives and materials, identifying their weaknesses and evaluating learning outcomes. Finally, the

findings concerning autonomous activities revealed that students engage this kind of activities sometimes or rarely.

Consequently, French candidate teachers need to be encouraged to engage in outside class activities and to take part in decision-making process. As it is mainly the duty of teachers to develop students' skills of autonomous learning, teacher educators should, first of all, raise awareness of autonomous learning, than they should review their teaching strategies and methods in order to include some tasks and objectives enhancing autonomous learning.

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LEARNING GERMAN AND ENGLISH IN THE AMAZON JUNGLE: A CREATIVE WORKSHOP IN BRAZIL

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Abstract

Our proposal describes an innovative education project based on the teaching stream Education for Sustainable Development, as well as the improvement of the Communicative Competence in English and German as a Second Language and both Literary and Intercultural Competences by means of a workshop designed with this purpose. Therefore, the purpose of our communication is twofold: on one hand, to demonstrate the possibilities that a Creative Writing and Illustration Workshop offers for the development of Literary, Intercultural and Communicative Competences in Foreign/Second Language acquisition. Additionally, we describe the theoretical framework that the mentioned workshop follows. While our second objective, is to narrate how we organized, coordinated and held the Creative Writing and Illustration Workshop at the Faculdade Martha Falcao in Manaus at DeVry Brazil, based in the Task-based methodology. Finally, our results include how we have achieved (1) to promote the creation of connections for the consolidation of bilateral agreements between universities; (2) motivate the scientific collaboration with Brazilian institutions that have English and German Language Departments, and (3) use and create tools that may include the Education for Sustainable Development methodology.

Keywords: *Education for sustainable development, task-based learning, creative writing, workshop, literary competence.*

1. Introduction

The purpose of this article is to show the possibilities offered by the Creative Writing and Illustration Workshop for the development of Literary, Intercultural Communicative Competence in L2 that is taking place in different parts of the world and with different groups in order to obtain teaching materials for the classroom of English and German as a second language. The justification for intercultural choice as a basic part arises because the Education for Sustainable Development attaches great importance both to the deepening of knowledge of diversity and basic strategies: gender studies, conflict resolution, inclusion of minorities in educational content and processes, etc. (Banks 1997, Aguado 2003, Díaz-Aguado, 2002, Haba, Alcantud and Peredo, 2015). It also shows how the workshops meet the guidelines set by the Education for Sustainable Development.

Our second objective is to describe how our Creative Writing and Illustration Workshop is organized, coordinated and implemented at the Faculdade Martha Falcao in Manaus at DeVry Brazil, based on the methodology of task-based learning, and how this workshop has managed to: (i) to promote the creation of bridges that strengthen relationships between international universities; (ii) to encourage scientific collaboration with Brazilian language and cultural centers, and lastly (iii) to use and create tools to include Education for Sustainable Development.

2. Theoretical framework

2.1. Education for sustainable development

Education for Sustainable Development is a concept that includes education on values: solidarity, cooperation, non-discrimination, respect and globalization and has more than forty years of history. In this sense, it is related to peace education, human rights movements, multiculturalism, gender and environmental studies. From the language and literature teaching perspective, it is essential to apply readers' mechanisms and experience the plurality of diverse texts. For students to learn how to understand and apply critical thinking, it is necessary that the school systematizes the necessary assistance for obtaining and developing their own reading skills. Hence, this educational approach is based on two main solid pillars being the first one, the cognitive or intellectual aspect. We need to learn while reading,

connect the dots, study thoroughly and then analyze facts. These facts must be related to local situations, which must fit within its global context, to ensure an understanding of these situations.

Albeit knowledge in itself is not good enough. We must also understand Education as a field of discussion and cultural criticism. According to Marhuenda (1994), criticism is configured as a critique of the dominant culture, as well as creating spaces for the expression of other cultures and the intercommunication between them. Therefore, the second pillar has an ethical aspect and it is a much more demanding task for the Education for the Sustainable Development methodology. It actually consists in the acquisition of an attitude of solidarity well understood. This is, to maintain a constant attention to the justified and human dignity. In this sense, the Education for the Sustainable Development has the challenge of being an invitation to change individual and collective behaviors reminding us, on one hand that our decisions affect our lives and those of others. While on the other hand, citizens due have the power and ability to influence the common development of this world and us, as teachers, must use this responsibly in our classrooms. Based on Ballester and Ibarra (2009) intercultural educators and foreign language teachers, should use literature more often in foreign language acquisition classes since it is the tool that it energizes us internally, it allows us to be a key component in society and gives us strength and legitimacy to develop our work as, more than teachers, human educators.

2.2. Literary competence

To define the Literary Competence, we will first refer to Hymes (1971) and his definition of competence as the union of knowledge and use. By introducing the adjective Communicative, he broke Chomsky's abstract concept (1988). This new notion considered socio-communicative and historical cultural aspects as determinants in the acquisition of textual rules of Communicative Competence.

Ballester and Ibarra (2013a and 2013b) remind us that since several years ago, both in early childhood years as in primary education, many proposals regarding literary and linguistic communicative competences take place. Among them we should outstand for instance: governmental plans to promote reading in public libraries, cooperative learning to improve oral and written skills, production of a wide variety of types of texts in different knowledge areas, the massive and early use of new technologies or even the use of the European portfolio of diversity of cultures, languages and literatures.

Our final goal is to help higher education students develop their Literary Competence in foreign languages classrooms, whether if it is English and/or German. This an aspect of knowledge hardly worked in their classes, contributing thus to the acquisition of Intercultural and Communicative Competences. Which will both improve the students' ability of intercultural communication and oral skills while it can help greatly to develop their reading and writing skills in foreign languages through creative and motivating proposals, such as our Creative Writing and Illustration Workshop.

3. Creative writing and illustration workshop methodology

This project has focused on activities whose purpose is to preserve and disseminate local cultural and linguistic identity. For this reason, the goal was to develop a compilation of multilingual stories (English, German, Portuguese and Spanish) to rescue a collection of oral tradition Amazonian folktales. The methodology used in this activity was based on the development of Communicative Competence, more specifically on task-based learning (TBL). According to Willis (1996) and Richards and Rodgers (2014), Task-Based Learning refers to the use of mainframe tasks such as planning and training in language teaching. For the implementation of this activity, we followed three-stage process, as indicated by scholars such as Prahbu (1987), Skehan (1996) or Lee (2000).

The application of these three phases in the Creative Writing and Illustration Workshop held in the Faculdade Martha Falcao in Manaus at DeVry Brazil was as following:

- The first phase involves a series of activities that both teachers and students must carry out. According to Ellis (2005) the purpose of this pre-task ice-breaker activity is to prepare students to perform the task that encourages their foreign language acquisition. In this phase the requirements of the activity are outlined, the schedule is set, the task simulations and training take place and the theoretical framework is provided.
- The second phase is mandatory and focuses on the task in itself, providing specific instructions, including the requirements to perform the task as well as additional guidance.
- The final phase includes monitoring and feedback on the development of the activity and providing awareness (Ellis, 2006).

3.1. Creative writing and illustration workshop - first phase

During this stage, the teachers, both Spanish and Brazilians, carried out the preparations before shifting to the field. The bottom line was the development of specific materials for the proper

development of the workshop. Previous work included data collection, team configuration and travel itinerary. Once reunited all in Brazil, the whole team located the spaces and staff to teach the workshop. Classroom material was prepared and proceeded to the location of interested students through a call for this activity from a precise student profile definition. Once the participants were selected, they were distributed in groups of 4 or 5 members in order to promote cooperative work. Then, the registration and the preparation of the materials took place. The project pretended that each team rescued from the collective memory a local folktale and did at least two illustrations per story. The whole workshop lasted a total of 3 weeks and it involved a total of 40 undergraduate students and 7 teachers.

3.2. Creative writing and illustration workshop - second phase

The workshop was led by means of a PowerPoint prepared in several languages and containing all the necessary information and guidelines. The task was carried out under time pressure, as this is one of the characteristics of TBL (Ellis, 2006). Following Lee (2000), we decided to establish a strict control of time because there were only 21 days in total to carry out the workshop. The students followed the workshop by learning and doing simultaneously. Students first had a brainstorming session to obtain material and create their own version of oral tradition stories. Then came the time to make decisions: what kind of story do they wanted to create, how to illustrate it and what values do they wanted to transmit. In addition, students were advised to encourage research-related skills, such as to use dictionaries or online resources to answer questions or to increase the number of vocabulary words or expressions from very specific semantic fields.

Additionally, daily photographic and documentary registration took place. The material collected includes the stories produced by students (containing text, illustrations and specific student data) and small video-diaries showing the story of the whole creation process. Plus, a group account on Facebook was created and it served as an educational virtual platform and permanently linked both students and teachers participating and encourage them to hang diverse news, videos, photos, to gather opinions, etc.

3.3. Creative writing and illustration workshop - third phase

According to Ellis (2005), this phase pursues the fulfillment of three main educational objectives: 1) to give an opportunity to revise or repeat the implementation of the task; 2) to invite to think about how the task was carried out; and, 3) to draw attention on the especially difficult part of the task. Students reviewed the tasks in groups: both the designs and the written tales created. They were all exposed and different views and techniques were exchanged. They were also invited to reflect on how the workshop had been carried out and about the products obtained.

The teachers' post-workshop task involved the edition and production of all of the material collected in Brazil. Besides, after the following months to this exchange, the result of this project were spread by means of news in a local press in Spain and by organizing a specific conference at our Universitat de València. Recently, we have manage to publish a compilation of 10 Amazon folktales.

4. Results

In the Creative Writing and Illustration Workshop, 10 stories and 20 illustrations were created and published later in a book. In Table 1, it is possible to see the title of the story and the specific themes based on the definition provided by UNICEF (1993) of Education for Sustainable Development that appear in these stories: "an educational process to develop attitudes and values (solidarity, equality, respect to the environment) and enables them to promote change (institutional, local...)".

Table 1. Classification based on ESD content

Amazon Oral Folktale	Sustainability	Peace Education	Gender	Intercultural Education	Poverty	North and South Differences
As Amazonas	X		X	X	X	
Boitatá	X	X		X	X	
Guaraná	X	X			X	
Iara	X	X	X		X	
Mapinguari	X				X	
Matinta Pereira		X	X	X	X	X
Pirarucu	X	X				
Tucumao	X	X		X	X	
Uirapuru	X	X		X		
Vitória Régia	X	X	X	X		

As seen in the table, the educational category of Sustainability, Peace Education and Poverty appear in more than 70% of the stories. Some examples are:

"Some say that for unforgivable crimes, Boitatá was equally merciless, stealing the souls of criminals and transforming them into flames for its body".

(Boitatá – Peace Education)

"They had their own rules and each had their duties: older women had straws to produce baskets and hammocks, while the younger girls took care of agriculture and hunting".

(As Amazonas – Sustainability)

"Proud of themselves for having achieved what they had being asked; they went back to the tribe. But on the way home the smallest of the three complained: I am very hungry and we have nothing to eat!"

(Tucumao – Poverty)

Intercultural Education is also very present by being treated in 60% of the total stories. As for the categories of Gender or North and South Differences, these appear less frequently in stories of Amazonian oral tradition because they are not categories that have been considered particularly relevant with the passage of time according to the participants comments during the third stage (feed-back) of the task. Interestingly, in the case of the Gender category, the figure of the Amazon women always appears as very strong, independent and courageous females, as in the following example:

"They prepared meals and tasty drinks. Delicious smells emanated from many meters away. The warriors were embellished with some colorful and long feathers while others were short and voluminous".

(As Amazonas – Gender)

The relevance of these results lies not only in the content of these stories, but rather in the fact that this methodology makes part of a shared cultural background in each workshop taught by the team around the world. Creating a cyclical transmission of knowledge, culture and values.

5. Conclusions

Creative writing workshops are an innovative educational proposal with great projection that has gained prominence in recent decades (Haba-Osca, 2014), standing today as one of the most fruitful activities. This article describes an initiative of teaching innovation based on Education for Sustainable Development and improvement of L2 Literary Competition in both English and German as foreign languages. Besides the Communicative and Intercultural Competences improved too through a Creative Writing and Illustration Workshop held in the Faculdade Martha Falcao in Manaus at DeVry Brazil. All of the work done throughout this project was possible thanks to a collaboration between teachers and volunteers from two countries (Brazil and Spain) working altogether on specific research at RED (Research on Education Development – Universitat de València).

The results of this project come to confirm that the writing workshops are an educational activity, which serve to promote the strengthening of relations between universities and encourage scientific collaboration between schools. On the other hand, they allow using and creating tools to promote the teaching and learning of languages and culture to which these languages belong to, based primarily on intercultural multilingual stories although not excluding other possibilities, especially in the creative field. In addition, the apparently informal dialogue that is developed between students and teachers throughout the training workshop shows that this exchange of teaching foreign language process serves not only to establish collaborations in various fields but also to demonstrate to the youngest people the magic within literature.

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AN ALTERNATIVE APPROACH TO ELT METHODOLOGY COURSE: COLLABORATIVE LEARNING PRACTICES IN A PRE-SERVICE TEACHER EDUCATION COURSE

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Abstract

ELT methodology courses have an important role in candidate teachers' professional and academic development as future teachers. In this study, the implementation of peer feedback in a 3rd year ELT Methodology Course is discussed with reference to candidate teacher's perceptions of peer feedback and how they developed in providing feedback as the course evolved. The depth and comprehensive analysis of candidate teachers' reports revealed the positive development in their peer feedback. In the first half of the course, when students were asked to give oral feedback on demo lessons, they focused on very general aspects of lesson conduct like the tone of voice, positioning and clarity of instructions. Towards the end of the class, the candidate teachers managed to catch more details related to different aspects of lesson conduct, such as setting and monitoring the tasks, choosing appropriate interaction patterns to foster interaction, classroom management problems. In this paper, the course design and examples of peer feedback will be presented to illustrate the changes and development in feedback quality and suggest ways of implementing a similar peer feedback scheme in different ELT Methodology courses.

Keywords: *Collaborative learning, peer feedback, class observation, demo teaching.*

1. Introduction

Second/foreign language teacher training (S/FLTT) has gained importance all around the world with the globalization and advances in technology. The world is getting smaller, where the boundaries are disappearing and people are becoming what is now called “a world citizen”. Consequently, more and more students learn one or more foreign languages in order to get better jobs, to communicate with people and to develop themselves as world citizens. Therefore, there is a growing demand for second or foreign language teachers. This also requires quality S/FLTT programs in order to meet the demand for competent teachers. What makes a teacher competent is a question that is difficult to answer. According to Freeman (1989, p. 28), “how we define language teaching will influence, to a large extent, how we educate people as language teachers.” Zeichner (1983) and Feiman-Nemser (1990) as cited in Calderhead and Shorrock (1997, p. 1) proposed a conceptual framework to explain different orientations one can take to teaching. These orientations refer to a body of values and beliefs about teaching and teacher education and have been highly influential in the design of teacher training program and courses throughout the history of teacher education. In their model, there are five orientations, namely academic, technical, practical, personal and critical orientations. The academic orientation focuses on candidate teachers’ subject expertise. The practical orientation emphasizes the artistry of teaching and focuses more on the classroom techniques of the prospective teacher. The technical orientation takes into account the knowledge and behavioral skills that teachers require. The personal orientation emphasized the importance of interpersonal relations in the classroom and views learning to teach as personal development within a safe environment that encourages exploration and discovery of personal strengths. The critical orientation focused on the extent to which the teachers were able to blend theory into practice and become more critical and reflective (Calderhead and Shorrock, 1997). Although none of these five orientations is superior to another and should be regarded complementary, depending on what the teacher training programs emphasize in their program, different orientations may lead to differences in pre-service teachers’ beliefs and practices (Rajuan, Beijaard, and Verloop, 2007). If teacher education programs take a heavy technical or academic orientation, in which candidate teachers are expected and guided to acquire and master the technical skills of teaching/the subject matter only, leaving aside the practical, personal or critical orientations, these programs are often doomed to fail, because the

pre-service teachers cannot properly see the connection between what they have learned in university and what is expected from them in their profession (Korthagen, 2001). Hence, it is important to understand why we train these teachers and what competencies they should have.

Freeman (1989) seeks to improve language teacher education, which he perceives as "fragmented and unfocused", by proposing an approach in which language teaching may be viewed "as a process of decision making based on the constituents of knowledge, skills, attitude, and awareness".

Building on from Freeman's new understanding and conceptualization of teacher education, as a teacher trainer, one of my personal goals is to train students who are reflective, critical, confident and independent. As also emphasized by Zeichner and Liston (1996, 11), a reflective teacher is one who "examines, frames, and attempts to solve the dilemmas of classroom practice, and is aware of and questions the assumptions and values he or she brings to class." Therefore, simply transmitting the knowledge to candidate teachers is not adequate to prepare them for the challenges of teaching after completing the S/FLLT program. Courses, especially those devoted to methodology and teaching practices, in the teacher training programs should address what Kennedy (1999) defines as the "problem of enactment". According to Kennedy, teachers should not only have a superficial knowledge, but they should know how to put that knowledge into practice accordingly. In other words, the candidate teachers should not only be equipped with knowledge about teaching, but also possess the skills and competencies to be a real teacher in the classroom. This necessitates candidate teachers to accomplish different tasks simultaneously by using their pedagogical reasoning skills, which can be gained through experience and practice over time. Therefore, pre-service teacher training courses should seek ways to incorporate those pedagogical skills along with theoretical knowledge.

1.1. Collaborative reflective practice

In the framework of pre-service teacher education, research has shown that teaching practice is important in the shaping of the student teachers' experience of training to be a teacher (Tang, 2003). During the teaching practices, the candidate teachers discover who they are as teachers and develop their own techniques and classroom practices. If this process is guided with reflective and collaborative practices, the candidate teachers may benefit more from the process. The importance of integrating experience with reflection was introduced by Dewey (1933), who explained the complexities of learning from practical experiences and the need for teachers to develop a capacity for reflective action. Shulman (1987) was among the first advocates who called for teacher education programs to assist prospective teachers in connecting theory and practice through reflective opportunities. More recently, there is a mutual understanding among researchers and practitioners that reflection is essential in reducing the gap between knowledge and practice (McLeskey and Waldron, 2004). Bridging the knowledge and practice gap with reflection may be the solution; however, whether the best approach is a discovery model that allows candidate teachers to examine teaching through reflection and inquiry (Freese, 2006) or an explicit model with deliberate scaffolding to integrate professional dispositions into teacher education programs (Beverly, Santos, and Kyger, 2006) is still a question to consider. In this study, a combination of discovery model with deliberate scaffolding is chosen, where candidate teachers first get practice in giving feedback on teaching practice, taking the instructors` feedback as a model and then developing their own feedback scheme.

Collaboration is an important part of reflective thinking. It is important that candidate teachers develop a sense of trust and social belonging in order to make the most use of collaborative reflective practice. One common means of promoting collaboration among candidate teachers is to encourage them to work in trust groups and engage in constructive peer feedback. When candidate teachers engage with others, they express their opinions, share their own understandings, emotions and beliefs. Through this collaborative discussion, new understandings are also generated, where candidate teachers arrive at new understandings when they confront challenges to their beliefs, encounter different perspectives and receive affirmation and support (Francis, 1995; Hatton & Smith, 1995; Mewborn, 1999). The collaborative reflection is also emphasized by the pioneers of reflection, namely Dewey (1960) and Schön (1983, 1987) who regarded an interactive community as integral to the production of reflective thinking. As also explained by Rodgers (2002), 'having to express oneself to others, so that others truly understand one's ideas, reveals both the strengths and the holes in one's thinking' (p. 856). Therefore, the teacher training courses should include collaboration among candidate teachers and integrate collaborative reflective practice into the courses. One way of integrating collaborative reflective practice into teacher training courses is to use peer feedback, especially in ELT methodology courses.

2. The Study

In this study, the implementation of a peer feedback scheme in a 3rd year ELT Methodology Course is discussed with reference to candidate teacher's perceptions of peer feedback and how they developed in providing feedback as the course evolved. Peer feedback is used as a means to promote collaborative reflective feedback. A total of 40 candidate teachers participated the study. The data for the study came from peer feedback forms (on lesson plans and lesson conduct) and open-ended survey form.

2.1. Course

The methodology course focused on teaching receptive skills and after two weeks of introductory tutorials on lesson planning and teaching of receptive skills, the students started their demo teachings in dyads. The candidate teachers had two demo lessons, one focusing on reading skills and one focusing on listening skills. For their first lesson plans, the candidate teachers received teacher and peer feedback before and after lesson conduct. The pre-lesson feedback focused on their lesson planning and after lesson feedback focused on their actual lesson conduct. The dyads sent out their lesson plans to three peers for peer feedback. A total of 7 people {3+3 (peers)+1 (instructor)} provided feedback on the lesson plan. The instructor shared his feedback with the peers so the peers also realized what the instructor focused on in lesson plans; hence rose the candidate teachers' awareness about lesson planning and lesson plan writing. During the feedback sessions, the instructor first invited peers to evaluate the lessons and give oral feedback to the presenters and then provided his own feedback commenting on and building upon peers' feedback.

For their second lesson plan, the instructor removed himself from the process and invited the presenters to set up their own collaborative peer feedback team. Each presenter sent out their lesson plans to three peers before their demo teaching and got feedback. They were kindly invited to make the necessary changes on the lesson plan based on the feedback they got and submit the final version of the lesson plan to the course instructor. Since the demo teaching were carried out in dyads, each pair of candidate teachers received peer feedback from six different people. During the actual demo teaching, the instructor assigned five students for each presenter to give written feedback. The feedback form was simple and straightforward, it basically asked the observer to identify three strengths and three weaknesses (areas for improvement) for each presenter.

For each area for improvement, the feedback provider was asked to suggest an action plan for the presenter. At the end of the course, the effectiveness of peer feedback was evaluated through open ended questions which focused on the perceptions towards peer feedback and personal gains as future teachers of English.

3. Results

The evaluation of the responses showed that the candidate teachers, who had preconceived negative connotations of peer feedback, found the feedback very effective. There were three major themes that emerged from the analysis of their responses.

1. Learning from peers: Candidate teachers realized that their peers can see some of the flaws in lesson planning or lesson conduct that they fail to see themselves. They understood that collaborating with peers and sharing ideas help them grow as teachers. They also stated that when the criticism comes from their peers, it is less face-threatening and humiliating; therefore, it can sometimes be more favorable than teacher feedback.

2. Understanding their strengths and weaknesses: Receiving feedback from peers obviously help the candidate teachers to realize their own strengths and weaknesses. They received feedback from five different peers, which means five different point of views. However, the candidate teachers also stated that when they were observing their peers during the teaching practice or when they were reading the lesson plan, they have also started to realize their own strengths and weaknesses, because they question what they would do if they were in their peers' shoes and start to think critically about teaching and learning. This questioning helps them in their self-journey to discovering who they are as teachers and lead to a better understanding of themselves and others.

3. Positive development in candidate teachers' mind sets: They have reported that the peer feedback sessions helped them to look at lessons more critically and focus on different aspects of lesson planning and conduct. Integrating what they have also learned in the first half of the course, the candidate teachers started to incorporate details that were missing in the first half of the course. They started to focus more on how to teach and making better choices about the activities, interaction patterns, managing tasks and teacher talk.

The analysis of peer feedback reports also revealed the positive development in the exhaustiveness and depth of analysis and reflection in candidate teachers' peer feedback. In the first half of the course, when students were asked to give oral feedback on demo lessons, they focused on very general aspects of lesson conduct like the tone of voice, positioning and clarity of instructions. Towards the end of the class, the candidate teachers managed to catch more details related to different aspects of lesson conduct, such as setting tasks for students, employing different interaction patterns and different aspects of classroom management.

4. Conclusion

One of the reasons why such a feedback scheme is used in this study is that reflection benefits when multiple perspectives and diverse voices are brought to bear on issues of teaching and learning. Pre-service teachers learn to articulate their ideas and understandings when they engage with others (LaBoskey, 1994). It is important to create environments and opportunities for candidate teachers to engage in social exchange, because the candidate teachers produce new understandings and critique accepted knowledge in these formal or informal social exchanges (Danielewicz, 2001). These communal interactions need not be highly formalized; and as it is executed in this course, pre-service teachers can also learn and benefit from less structured exchanges that provide an 'opportunity to talk about their actions, their thinking, their beliefs, and their feelings' (Richert, 1992, p. 191).

In this study, the candidate teachers learned from each other and benefited from the peer-feedback sessions. They have realized their own strengths, as well as weaknesses. They have also started to look at teaching practices more critically and internalized the importance of collaboration. The study showed that candidate teachers do not always need an expert mentor to tell them what is right and wrong. At the end of the course, they became more confident and realized that their feedback is as valuable as the teachers. This is an important gain for them and their future career as teachers, because once they graduate from teacher training programs they are alone.

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EXPLORING POSTGRADUATE STUDENTS' CHALLENGES IN DOING MASTER RESEARCH

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Abstract

Research activity involves investigation which gives impact to intelectuality, creativity and discipline among postgraduate students. The purpose of this study is to explore postgraduate students' challenges while completing their Master Research in one of the public universities in Malaysia. The subjects of this study were 25 postgraduate students undergoing their dissertation which is a requirement to graduate. This study used open ended interview approach to explore the challenges on doing master research. For the analysis of the data, thematic approach was used to get information from the students. The study found that there are four main challenges that the postgraduate students face in doing dissertation which are different field, time management, lack of research knowledge and supervision. Most of the students reported that the field of research that they are doing is different from their previous knowledge. Students also found that it was difficult for them to balance their time between their job and studies. Another challenge is they have never explored the research when they are doing their degree. Students also said that they have to wait for a long time for the appointment of their supervisor. These four challenges are contributing factors for postgraduate students in completing their dissertation and therefore universities need to come up with a more effective strategy to help these students overcome the challenges in order to produce intellectual and skilled researchers.

Keyword: *Master students, challenges in doing research, time management, knowledge, supervision.*

1. Introduction

Research is a problem-solving tool which comes with empirical facts that strengthen the answers for every question asked. It is known to expand knowledge, theories and concepts. It is also an effort to look for formulas to solve arising problems, to look at a phenomenon from a different point of view or to look at human activities to objectively come up with solutions for problems. Challenges refer to obstacles that test a researcher's ability to obtain accurate research finding and they are basically opportunities for researchers to identify their full potential in carrying out research. Hence, research activities do not benefit only individuals who carry out research but, in a long run, will contribute to the development of a nation.

There are several problems faced by postgraduate students in completing their Ph.D or Master's thesis. A few factors seemed to be central in students' failure to complete the theses in the given time (Arcaro, 1995) and for some, even if they manage to complete their thesis, they do not produce a thesis with a good quality. These factors include supervision and supervisors, student's lack of self-discipline and low motivation, and inadequate knowledge and skills in carrying out a research (Wisker 2005). Anderson, Day and McLaughlin (2006) and Hockey (1994) have found that supervisors plays important roles to influence their students to complete their theses. Furthermore, according to McCallin and Nayor (2012), supervisors who do not have enough experiences in the field of research will impede students' progress. This is because they are unable to provide enough information for their students to carry out their research.

Students' attitude has also been identified as a deciding factor in producing a high quality research. Studies done by Hockey (1994) and Buckley et al. (2008), the findings suggested that many students are having time management issue when carrying out their research. Many students thought that if they were given more time to complete their theses, they would have been able to produce high quality research (Samson and Comer, 2010). In general, students' negative attitudes have adverse effects on the completion of their theses as the whole process requires focus and discipline on the candidates.

In terms of research knowledge and skills, there are still many postgraduate students who do not have the basic skills in carrying out research. Another factor that slows down theses completion is the fact that these postgraduate students are doing a research in a different field than their degree. For those who

try to venture into a new field for their research, the scarcity of past studies sources proves to be a problem. This is because they need to widen the scopes of their research. All the problems mentioned above impede the process of theses completion among postgraduate students. Hence, this study is carried out to examine the problems they have in competing their theses and identify ways to solve them.

2. Literature review

There have been much research done about problems faced by postgraduate students in carrying out their research such as studies by Yarwood-Ross, 2004; Mutula, 2011; McCallin and Nayor, 2012; and Mohammad, 2014. These studies examined in detail the problems faced by postgraduate students in completing their theses. These past studies identified three major challenges in research completion namely time management, supervision and students' attitude.

Many students think that if they have certain research experience at the degree level, they will be able to overcome the obstacles of doing research at master's level (Lopatto, 2004). In addition, students with research experience have the tendency to pursue postgraduate studies as the good relationship with their lecturers or supervisors would pave an easier way for them to carry out research (Hathaway, Nagda and Gregerman, 2002). According to Bauer and Bennet (2008), 92% of the postgraduate alumni who undertook research agreed that their experience in carrying out research was important and influenced their future careers and life. As critical thinking is central in doing research, candidates with experience and have an early exposure at the degree level would be able to use their critical thinking skill effectively to expand their research skills at the master's and Phd's level (Lopatto, 2004).

According to Buckley (2008), many students are having time management issue in completing their research projects. For instance, many part-time students put their focus more on the commitment to their family and career. Hence, they need more time to complete their theses (Evans, 2010). Mohammad (2014) suggested that supervisors should provide more space and time for their supervisees to master the knowledge and confidence of managing time for research so students will feel motivated to not just complete their theses within the prescibed time but also produce high quality research.

A high quality research is dependent on a lecturer-student relationship which is based on trust (Jordan and Gray, 2012). This is because a key factor in student's achievement is the effectiveness of his relationship with his supervisor as previous studies reported that inexperienced supervisors would negatively affect the process of completing research (McCallin and Nayor, 2012; Mutula, 2011). According to Bierman and Jordaan (2008), having inexperienced lecturers as supervisors may cause students to produce theses of substandard quality and may reduce students' motivation in completing their research. Other than that, weaknesses in the supervison which are impeding theses completion are busy supervisors, supervisors' failure to schedule meeting time with supervisees and supervisors' failure to record discussions that take place between them (Mutula, 2009). In another study by Yarwood-Ross and Haigh (2004), it was found that communication issues, academic repressions, lack of trust and supervisors' negligence are the main problems faced by students in the process of completing their theses.

Findings from pevious studies indicated that students are worried about having lack of research knowledge and skills when they are undertaking research projects. Some of them face confidence crises which cause them to lose interest and motivation to complete their research (Tareq Tawfik Amin et al 2010). If students only possess average knowledge on how to carry out research, it will cause them to have negative attitude towards research and could influence their future research activities.

3. Methodology

The participants in this study were 25 fulltime female postgraduates students undertaking their master's study in various courses at Universiti Utara Malaysia. The age range of the participant was 21 – 29 years old. All these participants were interviewed by lecturers of the School of Education and Modern Languages, UUM. The interview was carried out to identify the challenges faced by these students in the course of carrying out their master's research. This study involved the collection of qualitative data where structured interviews were done on the respondents. The interview questions revolved around the problems these students faced when carrying out their master's research which include questions about attitude, knowledge, research skills and supervision.

To illicit clear responses from the participants, the researchers gave a briefing on the study before conducting the interview sessions with the participants. This was done so that the participants would be clear on what the researcher wanted from them and they would answer the questions sincerely. All the data from the interviews were then analysed using N-Vivo and grouped into different themes and categories.

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4. Findings

The qualitative data collected based on the interview of this study were analysed to look for patterns and finally the researcher identified four challenges faced by students in completing their theses: different field, time management, lack of research knowledge and supervision.

4.1. Different field (respondents' feedback)

Different field of study at the degree and master level is identified as one of the problems faced by postgraduate students in completing their research. The respondents were reported as saying,

"Before this, my reseach field was Chemistry. Now my research is on the field of psychology and this has been very challenging for me because I don't really have adequate experience in this field" – Respondent 1

Based on this statement from the respondent, the issues of different field of study is a big challenge for students in carrying out their research because students may not have enough knowledge in the area of research they are doing.

4.2. Time management (respondents' feedback)

Many of the respondents reported that they were having problem in managing their time while doing their research project. Responses from respondents are as follows:

" I failed to balance my time between my academic assignments and research activity"- Respondent 2

" As I'm already married, I'm little bit busy with my own family- Respondent 8

"For me, this is about self-discipline. I do not manage my time well" – Respondent 17

This finding concurred with the finding of a study done by Buckley (2008) who found that many postgraduate students faced the problems of time management when completing their research projects.

4.3. Lack of research knowledge (respondents' feedback)

The issues of inadequate skills and knowledge were reported by the respondents in the interview. In particular, four aspects of research were indentified to be very challenging in completing their research projects namely the stage of data collection, the writing of literature review, the lack of statistical knowledge and the lack of skills for academic writing. In the interview, the respondents mentioned:

"I'm still not clear what academic writing is all about"- Respondent 3

"I find it a real challenge to get access to journals on the latest research done in Malaysia"- Respondent 4

" I'm not well versed in statistics" – Respondent 7

"I don't have the right skills in qualitative interview, therefore I don't have the confidence to start my research" – Respondent 20

The above statements show that students are facing the problem of information crisis as they have not mastered the basic skill of research. The inability or lack of basic skills such as how to get access to academic journals or how to collect data would impede students progress in their research projects.

4.4. Supervision (respondents' feedback)

Issues related to supervision are another challenge faced by students in completing their master's thesis. Among the issues identified from the interview were the inability to be on the same page with the supervisor, the issue of getting a supervisor who is an expert in the field of research and the issue of respondents had to wait for a long time before a supervisor is assigned to them. The respondents commented:

"My supervisor and I always disagree on many things we discussed"- Respondent 5

"The supervisor always thought that I was clear about everything, when the reality is I was not" – Respondent 9

" In my opinion, my supervisor does not show her concern because she seldom gives motivation or asks me about my research progress' – Respondent 12

Communication skills are key in student-supervisor relationship. If both parties, especially students, fail to address the issue, it would bring adverse effect on the completion of the thesis as any disagreement between students and supervisors would put the students in a difficult situation and this in turn would affect the continuity of their research projects (Mutula, 2009).

Another issue mentioned by respondents during the interview was the problem of getting a supervisor who is an expert in the field of students' thesis and the long time they had to wait before being assigned a supervisor by the university. The respondents said:

"I just don't get it why I still have not been assigned to any supervisors. This proves to be a difficult stage in the completion of my thesis" - Respondent 6
"I found that my supervisor is not the right person for the area of my research" – Respondent 7

Without a supervisor, a student will not be able to start the research project. Similarly, if students get a supervisor who is not an expert in the area of research, the students will have difficulties in their research.

5. Results and discussions

A factor that slows down the process of theses completion faced by these master's candidates is the fact that they are doing a research in a different field than their degree. There are students who were moving from pure science major in their degree level to psychology field for their master's research. Therefore, they lack the knowledge in the research which will impede the progress of their research.

Based on a study done by Lopatto (2004), it was concluded that students with research experience at degree level are able to overcome the obstacles of carrying out research compared to those who do not have any experience in doing research. Students need to be fully prepared to learn new knowledge if they know that they lack the experience in carrying out research activities because completing research requires patience and mental strengths. Data collected in this study indicated that many students are still having problems in writing paperwork. It could be suggested that universities should take more practical steps by organizing more writing workshops for postgraduate students. Apart from that, students reported that they were having trouble trying to access recent academic journals. To overcome this, students need to be more creative by not focusing on sources from academic journals but also sources in the forms of books or encyclopedias to have a more extensive literature review.

Data from the present study indicated that students did not possess good time management in doing their theses. This finding is similar to the finding of a study done by Buckley (2008) where he reported that many postgraduate students were facing time management issues when doing their research. For instance, many part-time students would give more commitment to their families and careers which caused them to take more time to complete their theses (Evans, 2010). This concurred with the findings of a research done by Green and Usher (2003) that the most critical situation faced by students is the time given to complete their theses.It could be said that proper and adequate training regarding research activities could increase postgraduate students' mental strengths in the whole process of completing their theses. If research is carried out only to fulfil graduation requirements, the objective to produce quality graduates would never be achieved (Mutula, 2009**).** University authorities must work to promote positive attitudes towards research among students.

According to McCallin and Nayor (2012), supervision is pivotal in the process of completing a thesis for students. This is because students reported that when they had disagreement with their supervisors, it affects the whole process of carrying out research. According to Mutula (2008), having a disagreement with supervisors would put students at an awkward juncture and eventually would impede their researcah progress. Some participants in the study also reported that they were left without any supervisors for a long time. This is a problem which should be looked into by the university as it is their responsibility to assign supervisors to students once these students register for the research course. Mutula (2009), argued that this problem is rooted in lack of commitment from lecturers who are burdened with many academic-related tasks such as grading exam papers and research activities.

6. Conclusion

Major challenges in carrying out research faced by postgraduate students in Universiti Utara Malaysia are caused by students' attitudes, lack of research knowledge and skills, and supervision. Previous studies have also shown that there are other factors that affect the development of research including financial problems, lack of motivation and ineffective research courses. Future studies should put the focus on how financial issues affect students in completing their theses. If the root of the problem can be identified, the university authority can design a more effective strategy in helping students to produce research with standard quality and complete their theses within the stipulated time.

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AFFECTING L2 LEARNING MOTIVATION

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Abstract

When explaining success or failure in second language learning, "motivation" tends to be the focal point not only for the teachers but also for students alike. This paper is based on the author's experience teaching the same material (TOEFL ITP) to two cohorts of university English language learners. Interestingly, one group retained and as a matter of fact, some of them even increased their motivation as time went by, whereas the other group lost interest by the end of the semester. By the same token, the author's feelings and attitudes towards the learners were also gradually affected.
The author conducted an in-depth investigation regarding the reasons surrounding the motivational factors of the students as they relate to their academic performance. More specifically, what kind of factors can be regarded as positive and negative factors both for the learners and for the teacher was further analyzed.

Keywords: *Motivation, feelings, attitudes.*

1. Introduction

In the college that the author works, all the first-year students who want to take English must take a placement test on April 2 every year in order to match the students to classes at their appropriate level. Among all of these students, those whose score is high (top 5% of all the test-takers) and those who want to study in English seriously are allowed to be in a Special English Class. Simply put, those who are in Special English Class are the elite students.

As compulsory English classes, they study English I (TOEFL intro) and English II (integrative skills) twice a week respectively in the spring semester; English III (TOEFL) and English IV (integrative skills) twice a week respectively in the fall semester. In addition, they take other core classes such as Modern World History, Modern Japanese History, Introduction to International Relations and Introduction to International Culture all in English, whereas those who are not in Special English Classes study those subjects in Japanese.

Therefore, as a basis of this study, the fact that the students who are in Special English Class are quite motivated to study English and other subjects through English should be kept in mind.

2. Background

In the academic year 2015, there were two Special English classes (E1 and E2): 14 and 19 students respectively. Based on the three TOEFL ITP[1] tests they took, Table 1 below shows the details of their English level.

Table 1. Students' TOEFL ITP score

	Apr top	Apr mean	June top	June mean	Dec top	Dec mean
E1	470	458.8	510	464.1	520	463.1
E2	503	469.8	540	474.5	547	478.6

As the Table 1 shows, when they were divided into two groups in April, the average score of E2 was higher than the other group. Also it indicates the gap between the two groups narrowed by June;

[1] TOEFL ITP stands for Institutional Testing Program. It is composed of previously administered TOEFL® PBT (Paper-based Test) questions. It evaluates the test-takers' academic English skill levels in three areas: Listening Comprehension, Structure and Written Expression, and Reading Comprehension

whereas the gap between the two widened by December. Proportionally, it can be seen that the students' average TOEFL score dropped in the E1 and increased in the E2.

About the correlation between their English test score and the motivation level, Al-Bustan & Al-Bustan (2009) stated that acquiring high test scores is a prevailing motivation for most learners. In addition, in their study of the influence of affective factors on the performance of Arab EFL Learners, Midraj, et al. (2008) demonstrated that motivation significantly determines scores in the language proficiency test. Therefore, in this paper, reflecting their TOEFL scores, motivational factors are covered in the next sections.

3. Analysis

Before delving into the details of their motivation, there is one important point that needs to be touched upon. The TOEFL-making company, Educational Testing Service (ETS) (2012), asserted that its testing instrument has the following advantages: (1) being a highly reliable measure of English-language proficiency, (2) being based on more than 40 years of world-class, scholarly research, (3) having the most objective scoring methods, and (4) being built to the highest psychometric standards. However, except ETS's claims, few objective research-based evidences have been found to affirm the reliability of this instrument.

On the other hand, scholars such as Al-Musawi (2001) found out that the TOEFL scores were not a reliable predictor of students' academic success; Ng (2008) reported that no significant relationships were found for the TOEFL scores and number of ESL courses in relation to GPA, course completion and retention rates.

Therefore, in this paper, the author would like to point out that their TOEFL ITP score should be considered as an indicator to the learner's ability, not a measure of their English proficiency.

3.1. Self-determination theory

In order to observe the motivational differences between the two groups, several sets of questionnaire were utilized. First is the one based on the Self-Determination Theory (SDT; Deci & Ryan, 1985). According to the theory, there are two different types of motivation: intrinsic motivation, which refers to doing something because it is inherently interesting or enjoyable; extrinsic motivation, which refers to doing something because it leads to a separable outcome.

In the first lesson of each class, to measure how much they are interested in learning English, the questionnaire on the constructs proposed in SDT and second language acquisition (SLA) motivation (Mori & Gobel, 2006) was distributed to all the students. The questionnaire consists of 10 five-point Likert scaled items. The constructs are (a) intrinsic motivation and (b) extrinsic motivation. Students were asked to read the statements and choose the number that best matches their opinion of each statement: 1. strongly disagree; 2. slightly disagree; 3. neither agree nor disagree; 4. slightly agree; or 5. strongly agree. Table 2 below shows the detailed result.

Table 2. SDT result

	E1 av.	E2 av.
1. I like learning English	4.44	4.53
2. I like listening to English speech / songs.	3.33	3.50
3. I like reading English articles / books.	3.21	3.25
4. I like speaking to people in English.	3.89	4.21
5. I like keeping an English diary.	2.55	3.01
6. I like challenging to difficult tasks such as expressing myself entirely in English.	3.23	3.64
7. I like English movies.	3.82	3.86
8. I am excited when I have accomplished a difficult task in English learning.	3.69	3.78
9. It is very challenging to communicate with native speakers of English.	2.89	2.62
10. In order to study abroad, the English achievement (high TOEFL score) is crucial.	3.76	3.27

The result clearly indicates that those who are in English Special classes like learning English and in particular, students in E2 are more interested in and keen on learning English. Compared to the manner in which these students are exposed to English, their reactions vary. In all four skills (listening, reading, speaking and writing), students in E2 use their skills more often. Also, in reviewing the answers to Q9 (It is very challenging to communicate with native speakers of English), more than half of the students in both groups feel that way. Based on the answers to Q10, students in E2 were more likely to study English for the sake of simply studying English, not for the purpose of getting a high(er) score in the TOEFL exam.

3.2. Motivation

Considering the classroom dynamics, student motivation is one of the crucial elements that leads students' attitude towards learning (English). A number of studies have been conducted to probe the role of student motivation toward academic performance. For instance, Lumsden (1994) analyzed students' involvement towards education and sources of their motivation. Marshal (1987) viewed students' motivation as a force beneficial to the learner. In addition, Bomia et al., (1997) suggested student motivation as a student's willingness, need, desire and obligation to participate in the learning of the language.

At the end of the academic year, the questionnaire which consisted of several yes/no and open-ended questions was distributed in order to identify what factors affected their motivation level.

4. Discussion

One of the key questions which show some interesting aspects was "compared to the time you started to join this class in April, does your motivation level go up or go down and why?" 6 out of 14 students in E1 responded that their motivational level dropped by the time went by; whereas all of the students in E2 said their motivation level either did not change or went up.

4.1. Feedback from E1

Here are some of the negative reasons they confessed:

1) "This English class was totally fine, but studying other core classes all in English was really tough for me and those subjects badly affected my GPA."

2) "I expected this class to be more communicative, so I was a bit disappointed to be in this class."

3) "This class starts at 9:00. After I started my part-time job, it became very tiring to come to class on time."

4) "Students are very quiet and I hesitated to ask questions. Then, it became difficult for me to keep up with the class."

5) "Summer vacation negatively affected my attitude. I became more lazy and uninterested in classes."

Here are some of the positive comments they stated:

1) "After the summer vacation, my motivation level went up. I couldn't make myself fully understood in English in America, so I decided to focus more on English and try to communicate with the teacher more positively and often in English."

2) "I was very shy and didn't have any friends at the beginning, but thanks to the teacher, I became active and my English score went up and it became very interesting to use English."

About the comments of some students who showed disappointment with the class because they did not have enough opportunities to use English, Zeng & Murphy stated that most teachers spend more time teaching grammar and language points, ignoring the communication between teachers and students, so students have little chance to practice English in the class (2007). However, a focal point of this class was to teach them test-taking strategies such as how to find answer questions effectively within a limited time. In fact, in order not for them to feel that they do not use English enough, the English class was held four times a week: 2 TOEFL (prep) classes and 2 classes which cover 4 integrated skills, but seemingly some of them expected the TOEFL classes to be more communication-based.

Regarding the comments about English study after the summer vacation, a couple of students displayed significant lack of interest. This lack of interest in studying was displayed by the following behaviour: 1) coming to class frequently late; 2) sitting in the back of class; 3) frequently missing classes; and 4) seeming distracted with such behaviour as taking an extra time to answer a question, not doing homework, taking a while to take notes, and communicating with friend using their cellular devices rather than participating in classroom activities.

One study discovered a direct relationship between test scores and seating distance from the front of class: students in the front, middle, and back rows of class scored 80%, 71.6%, and 68.1% respectively on course exams (Giles, 1982). As Giles' study discovered, students who changed their seats towards back rows became inactive and inattentive, and their English score went down.

4.2. Feedback from E2

As mentioned at the beginning of this section, none of the students in the E2 cohort wrote negative opinions about their motivation.

Instead, here are some of the comments they revealed:

1) “The teacher created a very positive and comfortable classroom experience. I looked forward to every single class and I did learn a lot.”

2) “The teacher smiled a lot and was very friendly. Thanks to that, we felt comfortable asking (simple or sometimes even silly) questions and making mistakes.”

5. Conclusion

At the end of the class in January 2016, all the students in the Special English were asked whether they wanted to stay or drop out of the Special English Class for next year, all of the students who wrote that their motivation level dropped in E1 cohort (6 out of 14) decided to leave the class. On the other hand, in the E2 cohort, although none of them wrote anything negative about the class per se, no one decided to leave the class. Their reasons for leaving the class were: 1) taking other core classes all in English badly affected my GPA score and I would rather study these classes in Japanese; 2) I simply want to study English, so being in this class is a bit too much for me.

Within the educational field, the general consensus is that motivation functions in a cyclical relationship with learning and is theorized in terms of positive cycles or negative cycles which involve positive cycles linearly shown as: high motivation → high achievement → high motivation; while the negative cycles shown as: low motivation → low achievement → low motivation (Dörnyei & Ushioda 2011). Apparently, at the beginning of the semester, all the students’ motivation level was high enough; however, especially after the summer vacation, low achievement scores were driven by some observed characteristics such as their low GPA score in their other core classes, other reasons that the E1 students indicated and some unobserved reasons such as doing part-time job until late at night and poor health.

In retrospect, the author’s attitude was also affected by the students’ attitude. Therefore, future research should examine the relationship between motivational strategy use and ways of teaching.

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ACADEMIC EDUCATION 4.0

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Abstract

4.0, this code had initially been used to mark the disruptive change, which takes place in the manufacturing industry through the pervasive application of Information and Communication Technology (ICT), coining the term Industry 4.0. Since then 4.0 has been applied to many other fields, which are equally affected by the rapid changes we are facing in the world of today in general, such as Work 4.0 or Healthcare 4.0, you name it.
As academic educators we have to confront the same changes and we are bound to undergo the necessary adaptations (although it often seems, as if many of us were not willing to accept this fact to its full extent). When rethinking academic education to meet these future challenges, we developed a set of propositions, to describe the fundamental principles we should follow, if we want to prepare our students for the future. Incidentially, some of these principles parallel those from industry 4.0.

Keywords: *Academic education, complexity, transdisciplinarity, self-organization, meta-knowledge.*

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1. Introduction

We live in a VUCA World. A world which is characterized by volatility, uncertainty, complexity and ambiguity, Bennett and Lemoine (2014).

There are numerous studies describing the pervasive impact of Information and Communication Technology (ICT) in virtually any aspect of our lives, and corresponding studies predicting the related change of work. (Arbeit 4.0, 2015).

And there has a whole new field of research been emerging based on the new possibilities we have now in neuroscience. Owing to neuroeduction we do know much better now, how learning really happens. Spitzer (2007). We want to summarize some of these findings and describe how our field of academic education is affected by them:

Our students will have to succeed in a working environment which is increasingly globalized, automatized, virtualized, networked and flexible. Many jobs, such as Social Media Manager, Blogger, App Designer, App Developer, Big Data Analyst seem quite conventional to us today. However, they did not exist 10 years ago ("10 Jobs", 2016) – and these are not purely "digital" jobs either: they require a sound knowledge in the field of application as well.

Our students will work in peer-to-peer networks or organizations which are open and structurally liquid. They will be hired (and layed off) on demand or work as free agents. They will have to compete for employment on a global market. New skills and competencies will become more important such as non linear thinking, social and intercultural skills, self-management and self-competence (Arbeit 4.0, 2015)

Academic education is now more than ever torn between the conflicting requirements of pursuing the Humboldtian model on one hand and providing vocational training resulting in "employability" on the other. E.g. the vocational orientation is a legal obligation for Universities of Applied Sciences in Austria (according to FHStG, 1993, § 3).

How can we fulfill this obligation, when new professions pop up at an ever faster rate and relatively stable professional profiles are increasingly replaced by generalized skill sets?

The requirement for life-long learning has become a given. It is our obligation, to prepare our student for this future.

When looking at our everyday life in academic institutions, we can easily detect important drivers of complexity in our research and teaching activities. Let us list a few

• Increasing diversity among the students, (multiethnic /-cultural, full time vs. vocational, multilingual)

• The omnipresence of mobile devices and social media

• Modular study programs

• A variety of available settings, formats and technologies (e-learning, blended learning, inverted classroom, peer teaching… etc..)

• Growing demands in terms of studiability (Studierbarkeit), employability, high scores in all kinds of rankings.

• A rapid progress in virtually any discipline, constantly producing new knowledge

• The emergence of cross- and transdisciplinary problems and related fields of research

• The pervasive real-time-availability of any conceivable information, (often in edited formats, such as tutorials, presentations, complete courses)

Finally let us take a brief look at recent research in neuro-education. (Spitzer, 2007):

According to these findings, learning is first of all an activity. Teaching is not successful without active involvement on the side of our students. (And: Successful learning processes are a source of happiness.) Teaching can be seen as the enabling of these learning processes.

However, the following principles have to be considered: Learning is construction, and as such it requires structure and application. Learning is also a social activity. Emotions and motivation play an important role in successful learning processes. The same is true for the space, where learning takes place.

Now let us put the pieces together and reconstruct academic education.

2. Academic education 4.0

In order to be successful in the endeavor to prepare our students for the future, we suggest to consider the following propositions:

1) The complexity we find in the 'outside' world is reflected in each and every aspect of our academic work. When it comes to cope with complexity, standardization is always tempting. But, standardization always means simplification, and thus standardized programs cannot deliver what we need. Wallner (2012).

2) We can only effectively respond to complexity with complexity. Remember Ashby's law of requisite variety! Ashby (1956). However, we cannot create this complexity as lecturers or provide it in our programs by creating individualized study offerings. This is simply not possible due to capacity reasons. Still, there are individual learning processes we can build on.

3) To create the requisite variety of the learning processes in our universities we can build on self-organization, both on the individual and on the collective (team and class) level. Hence this is our first task: to enable and support this self-organizing capacity of our students.

(Employing the self-organizing capabilities of the people involved is a basic principle in many conceptual approaches when it comes to dealing with growing complexity. (E.g. Laloux (2015), Pfläging (2009), Wallner, Laskowski and Menrad (2013)).

4) It is a prerequisite for the fruitful development of self-organization, that students define their own study goals. We have to guide and support this process too. By doing so, we should encourage our students to focus on two key criteria: Their talents and their individual purpose in life. This will by the same token enhance their self-competence. Focusing on their talents will enable fast, committed and satisfying learning. It allows for the realization of the full potential of our students and for the achievement of mastery in their specific field of expertise.

Focusing on their individual purpose ensures meaning in their studying endeavor. As human beings and as societies, we are open, multidimensional and purposeful systems" Gharajedaghi (2006). "All human behavior and social interaction can be seen as a system of purposeful events" Ackoff (2005). Findings in motivational research as well as in research about the performance of teams and companies emphasize the importance of purpose. (Vaill 1982; Braga 2010; Pink 2009).

Autonomy (self-organization), purpose and mastery are the fundamental elements of intrinsic motivation. (Pink, 2009).

5) Our future challenges are increasingly interdisciplinary and transdisciplinary. We see robotics in health care and car insurance offers including hardware devices for automated emergency calls; our students will design smart cities and create social businesses. We can assume that a stable and well defined range of subjects is becoming more and more obsolete. What our students need is a structural overview in their field of study to be able to integrate the knowledge they are constantly acquiring. We have to provide this frame of reference.

6) Individual learning processes require individual assessments. Standardized tests or general exams are useless, except for those courses where structural knowledge and methodological skills are acquired. Beyond that an examination of the student's performance can only be based on

a. a substantial individual reflection of their own learning progress

b. their contributions to the collective learning process (e.g. based on the feedback of their fellow students and our observations as lecturers.)

7) The information our students need are abundant and available everywhere (books, articles, search engines, blogs, MOOCS etc…). We are no subject matter experts anymore. We cannot compete with the WWW. (Everyone, who is in academic teaching and has ever faced in the class room this wall composed of flipped open laptops will support this statement.) But we can integrate the WWW. The challenge is to make use of these new possibilities.

8) To transform available information into individually useful knowledge requires reliable meta-knowledge and methodological skills. In this regard we do have an enduring expertise and the requisite experience and to make these resources available to our students is one of our prime tasks.

9) E-learning is dead. Long live WE-learning. Not least, learning is a social activity. We have to open our campuses and invite students in to use this space as a place for meetings and encounters, for discussion and cross-pollination. We have to create the appropriate social settings, where students can discuss and work on real life problems, which are preferably directly related to the world they live in. This ensures excitement, meaning, diversity, intense interaction, all of which are crucial for sustainable learning. On the contrary alone for reasons of studiability we should reduce mandatory attendance time and keep it tight and effective. The necessity to gather all students of a course at the same time at the same place must be reserved for joint activities, which create a true added value. This can be found for instance in an intense and topic-centered interactions of all students.

10) The transfer of knowledge in traditional one-to-many lectures does not generate this added value. Research shows, that traditional lecturing is less effective than active learning in terms of average examination and failing rates. (Freeman et.al., 2014). However, lectures are still the predominant mode of instruction. This is also reflected in the way our teaching buildings are designed, consisting mainly of lecture halls and class rooms. Research shows, that ambience is important to cognitive processes, that the possibility to design and arrange your own work space opens up new room for thought. Peschl and Fundneider (2012). We need "enabling spaces", which can be arranged according to these social settings we mentioned.

3. Closing remark

Let us briefly refer back to our starting point Industry 4.0. The apologists of Industry 4.0 promise to make economical lot-size-one production happen, meaning mass-customization at no increased costs. Weinländer (2015). They are excited about the vision of intelligent parts and products making their way through the system of interconnected production lines and logistics facilities. Of course there is also a "hype" which is pushed by industry lobbyists and political stakeholders (Schumacher, 2016). But there is also a pioneering spirit and recognition of the immense opportunities, arousing a new dynamic in an entire industry – even though it is evident that there are accompanying risks and unsolved problems as well, especially when it comes to the question of how to organize work under these new conditions. Of course it is difficult to do research on something, which is not yet there and consequently there is an abundance of conceptual studies on Industry 4.0 but not so many empirical results (Igelsböck et.al.). So the real challenge is, how to design the future? And in order to meet this challenge, a vision is in need (Schumacher, 2016) .

Whenever we bring up those ideas, we've just sketched out in our presuppositions, in discussions with fellow colleagues from our institution or other universities, the responses are divided: enthusiastic approval but also doubt and rejection. It is our personal observation, that those, who are rejecting our suggestions, are particularly concerned about the capability of the students, to find "their" path through the "system".

Let us take on the lot-size-one ideal as a metaphor and opt for the lot-size-one student; a student going through a truly individualized education, guided by talent and purpose and our – as academic educators – sencere concern for their best personal development. Why aren't we confident, that our intelligent students will make their way, just as "intelligent" parts and products do?

When doing some research, what future concepts other universities were considering, we came across the project Stanford2025 at Stanford University. Starting in 2013 Stanfords d.school developed

various futures (Stanford2025, 2016) and these scenarios are built in many ways on the same principles as our presuppositions are: Selforganization, meaning, personal mastery, cross- and transdisciplinary problem solving and skillfulness. The same is true for the conceptual ideas of many other thought leading institutions, such as Singularity University (http://singularityu.org) or Zeppelin University (https://www.zu.de/).

Yes, academic education of the future is a design challenge (instead of design, we prefer to use the German word "Gestaltung", in the sense in which it is used e.g. by Blachfellner and Werner (2016)).

Let us take on this challenge. The best way, to predict the future is to create it! Drucker (n.d.)

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POSTGRADUATE STUDENTS' ATTITUDES TOWARDS RESEARCH IN PUBLIC UNIVERSITY

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Abstract

Many postgraduate students find it difficult to master the knowledge of carrying out research especially when they have to write their thesis. This attitude causes adverse effects in the completion of their research. The purpose of this study is to identify the level of students' attitudes in doing research. This study also identifies the relationship between research usefulness for profession, research anxiety, positive attitudes towards research, and research difficulty. This study involves 150 postgraduate students from five public universities in Malaysia. The questionnaire consists of research usefulness for profession (9 items), research anxiety (8 items), positive attitudes towards research (8 items), and research difficulty (8 items). This instrument uses a 7-point scale which ranges from strongly disagree to strongly agree. Overall, this study shows that postgraduate students' attitudes towards research are at moderate level where majority of the students still feel that it is difficult to complete their research. Findings show that there is a positive significant relationship between research anxiety and difficulty of doing research, and between usefulness and attitudes towards research. There is a negative significant relationship between anxiety and attitude. Even though this study shows that there is a relationship between all those variables, the relationship is low. This study shows that there is no relationship between research usefulness towards anxiety and difficulty of doing research and between attitudes towards research and difficulty of doing research. Overall, this study demonstrates how these four variables (research usefulness for profession, research anxiety, positive attitudes towards research, and research difficulty) in public university can permit postgraduate students to develop and enhance their research attitudes. It is possible that those who do move into postgraduate programmes where learning and research mode is more dominant than in undergraduate study, are more likely to succeed, having already gained an insight into the everyday reality of research.

Keywords*: Research usefulness for profession, research anxiety, positive attitudes towards research, research difficulty.*

1. Introduction

In human life, the role of research towards materialistic and non-materialist advancement cannot be undermined because of its significance role towards humanistic improvement. Therefore, in every countries of the world, the university system has been acknowledge as the main source of research as well as intellectual of societal issues. The mission of postgraduate education according to Posselt and Black (2012) is the training of next generation of researchers. As such, there is much expectation from postgraduate students with respect to their scholarly productivity (Wei, Sadikova, Barnard-Brak, Wang & Sodikov, 2015). In order for the universities to protect their academic integrity, post graduate students are expected to conduct and publish quality research (Kachelmeier, 2002).

According to Rezaei and Zamani-Miandasht (2013), Students' attitude influences how they rationally approach research including all the work related to that research. However, study has shown that many factors affect post graduate students attitude towards research. Some common reason why student have academic problems have been traced to students not having a clear vision regarding their reason for being in school (University of Cincinnati, 2001) and doing research one must have interest of doing it (Bocar, 2013).

Moreover, it was stressed by the University of Cincinnati (2001) that untreated and undiagnosed emotional issues such as depression, loss as well as anxiety are affecting student attitude towards research as they feel inadequate in their work. Other problems according to Horowitz, Rosenberg & Bartholomew (1993), include interpersonal problems like relating to others which is a reoccurring difficulties.

Therefore, in order to enhance research productivity in the university system, this study was carried out to identify postgraduate students' attitude towards research in public universities and to determine the relationship between perceived research usefulness, anxiety, difficulty and positive attitudes towards research.

Attitude has been defined by Bandele and Adebule (2013) as "the readiness to act in a certain way to certain issues" (p.98). Attitude is a set of feelings or thinking which usually reflect in an individuals' predisposition or actions or a tendency to respond either positively or negatively towards a certain objects, idea, a situation or person (Singh & Choudhary, 2015). According to Bandura (1986), "what people think, believe and feel affects how they behave" (p.25).

In this fast moving world, research has been perceived as an important intellectual equipment for individuals to change their lifestyle agreeing to the desires of the society (Sridevi, 2008). As such, student thinking about the usefulness of research, the anxiety they developed towards research as well as the difficulty they encountered affect their attitudes or behavior towards research productivity (Wei et al., 2015). One's attitude according to Sridevi (2008) influences intellectually how an individual mentally approaches research together with all the effort and human collaborations associated with that research.

Sureshkumar (2015) studied the attitude of M.Ed. students towards research in Vallore district of Tamil Nadu. The result shows that M.Ed. students have favourable attitude towards research. This was also in line with the study carried out by AlGhamadi, Moussa, AiAssa, AlOthimeen and AlSaud (2013) to examined Perceptions, attitudes and practices toward research among senior medical students in King Saud University, Riyadh, Saudi Arabia. 272 students participated in the study. Majority of the students agreed that research is important in the medical field. This was also consistent with the study conducted by Siemens, Punnen, Wong & Kanji (2010) among medical students, where majority of the students believes that research would be beneficial in their career.

Vodopivec, Vujaklija, Hrabak, Lukiæ, Marušiæ, Marušiæ (2002) and Amin, Kaliyadan, Abdulatheem, Majed, Khanjaf, Mirza (2012) reported a positive attitude to research among medical students in Croatia and the Arab Universities. Khan, Khan, Iqbal (2009) also reported moderate attitude to research among Pakistani medical students. Sabzwari, Kauserand Khuwaja (2009) found that majority of medical students in Pakistan even though they have positive attitude towards research but perceived research to be difficult. Oguan, Bernal and Pinca (2014) revealed that students have high level of difficulty in doing research. However, Rezaei and Zamani-miandashti (2013) revealed a moderate level of anxiety towards research among students but positive attitude towards research.

However, in a study conducted by Butt and Shams (2013) on master of education students' attitude towards research in two public universities in Punjab, it was revealed that students have negative attitude towards research. These differences may be related to differences between students and countries as well as the impact of other factors such as barriers may have a heavy influence on levels of interest in research.

Oguan et al (2014) studied students perceptions among postgraduate students, the findings of the study revealed that usefulness of research to future career is significantly related to anxiety developed by the students. This was in support of the findings of the study carried out by Papanastasious (2005) who also revealed significant relationship between research usefulness and anxiety towards research. Moreover, according to Papanastasious (2005), research usefulness is significantly related to student developing positive attitude towards research but this was contrary to Oguan et al (2014) whose study revealed that usefulness of research for future career does not significantly related to their attitude towards research. However, Oguan et al (2014) and Papanastasious (2005) revealed that research usefulness is significantly related to the difficulty encountered by post graduate students in doing research.

It is also evident according to Oguan et al (2014) and Papanastasious (2005) that anxiety developed by students because of research is significantly related to research difficulty and positive attitude towards research. Also there is significant relationship between research difficulty and positive attitudes towards research (Oguan et al 2014; Papanastasious, 2005).

2. Research questions

In order to achieve the objectives of this study, the following questions were raised:

(i) What is the attitude of the postgraduate students toward research

(ii) What is the relationship between research usefulness, anxiety, difficulty and attitude towards research among post graduate students?

3. Methodology

This study adopted a cross-sectional design through a survey to gather data from post graduate students in Universiti Utara Malaysia. A total of 150 postgraduate students were randomly selected.

An instrument titled "student attitude towards research questionnaire" was used to collect data. The questionnaire consisted of 39 items. The first six items assessed the demographic information of the respondents. The remaining 33 items were in 7 likert scale format which address students' perceptions about the usefulness of research, anxiety involved in doing research, the difficulty faced and their attitude towards research. Usefulness has 10 items, anxiety has 9 items, difficulty has 7 items and attitude towards research has 6 items. The result of validity test shows that loadings are above the threshold value of 0.4 and the Cronbach alpha value are above 0.7 for all the variables. Therefore, the instrument are said to be valid and reliable.

The data collected for this study was analyzed using SPSS version 20. Descriptive statistics was used to describe students' demographic factors as well as their attitude towards research. An inferential statistics was used to determine the relationship between variables as well as how usefulness of doing research, anxiety posed by research and the difficulty confronted by students affect their attitude toward research.

4. Analysis and results

4.1. Attitude of the postgraduate students toward research?

As this study uses 7 Likert scale, the responses are regrouped into three level where the mean value between1 and 3 are said to be low, 3.1-5.0 are adjudge to be moderate and 5.1-7 are said to be high. As shown in Table 1, the overall mean value of items measuring usefulness of research is 5.83.Therefore, the sampled post graduate students perceive research to be highly useful for their future endeavour. Also, the attitude of postgraduate students towards research are said to be high as the mean value is 5.07. However, students' anxiety towards research and the difficulty they face in doing research are said to be moderate as they are having a mean value of 4.13 and 3.41 respectively. Although, difficulty faced by postgraduate students are minima when compared with the anxiety they have over doing research.

Table 1. Descriptive statistics for all the variable for the study

Constructs	N	Minimum	Maximum	Mean	Std. Deviation
Usefulness	141	4.00	7.00	5.83	0.69
Anxiety	141	1.00	6.63	4.13	1.25
Positive Attitude	141	1.00	7.00	5.07	0.96
Difficulty	141	1.00	6.75	3.41	1.22

Note: 1-3=Small, 3.1-5.0=moderate, 5.1-7=high

4.2. Relationship between research usefulness, anxiety, difficulty and attitude towards research among post graduate students?

Six direct relationship were tested between the construct of this study. Three of the relationship between constructs are said to be significant while the remaining three are not significant. As shown in Table 2, significant positive relationship existed between usefulness and attitude ($r = 0.616$, $p < 0.01$), significant relationship between anxiety and difficulty ($r = 0.45$, $p < 0.01$) and; significant negative relationship between anxiety and attitude ($r = -0.228$, $p < 0.01$).

Table 2. Relationship between variables

Attitude	(1)	(2)	(3)	(4)
Usefulness (1)	1			
Anxiety (2)	-.073	1		
Positive Attitude (3)	.616**	-.228**	1	
Difficulty (4)	-.074	.450**	-.111	1

**Correlation is significant at the 0.01 level (2-tailed).

5. Discussion

The overall aim of this study was to identify students' attitude towards research and how their perceptions towards usefulness of research, research anxiety and difficulty affect their attitude to research. The findings from this study shows that usefulness and positive attitude towards research were high while research anxiety and difficulty were perceived to be moderate. The findings of this present study was in line with Sureshkumar (2015) who found a positive attitude towards research among M.Ed students in

Vallore district of Tamil Nadu. This study was also consistent with other previous research (AiGhamadi et al, 2014; Amin et al, 2012, Vodopivec et al, 2002).

Secondly, out of six direct relationship that was tested, three were found to be significant while the remaining three were not significant. The students' perceived usefulness of research have a positive relationship on their positive attitude towards research. This means that the more the student perceived research to be useful towards their profession, the higher they develop enthusiasm towards research. The findings of this work is in line with Papanastasiou (2005) and Wei et al (2015). Also, research anxiety has a negative significant relationship on students' attitude towards research. This means that the more anxiety students develop towards research, the lower their positive attitudes towards research becomes and vice-visa. The findings of this study is consistent with Oguan et al (2014), Papanastasiou (2005), Wei et al (2015) who said the anxiety students developed towards research affect their attitudes or behaviour towards research productivity. From the result, anxiety were found to be highly significant to research difficulty. Which suggested that, the more the research difficulty, the higher the student anxiety towards research. The findings of this study was also in line with .Oguan et al (2014).

However, this study revealed a negative but not significant relationship between research usefulness and research anxiety, research usefulness and difficulty as well as research difficulty and positive attitude towards research. This findings of this study is contrary to the findings of Papanastasiou (2005) and Oguan et al (2014).

6. Conclusion

It is no doubt that attitude of post graduate student towards research is high in this study. However, it is evident that they have some difficulty and anxiety towards research. It therefore become pertinent that the usefulness of research should be promoted among the post graduate students through grants and the research to be undergone by the students should be tailored towards his/her professional career. This will help them to have good reason for conducting such research and it will also raise their enthusiasm to research work.

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SUPPORTING STUDENTS' NEED FOR RELATEDNESS IN A BASIC ENGINEERING COURSE

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Abstract

Due to the small amount of interest electrical engineering students find in the basic electric circuits course, the Department of Electrical Engineering at the Technion – Israel Institute of Technology has decided to incorporate into the course, for the first time, examples reflecting the various fields of study in the Department and the diverse occupational areas of electrical engineers. According to the self-determination theory, these examples may enhance students' sense of relatedness to the Department and increase their intrinsic motivation and interest in the course. The method of teaching used in the course is the traditional lecture-based one, thus the course is substantially different from similar courses developed recently that employ non-traditional ways to teach the topic of electric circuits, such as project-based learning or collaborative learning. The aim of the study described here was to identify the ways (if any) by of which the teacher was able to raise students' interest in the course. Seventy-two sophomore electrical engineering students took part in the study. Data were collected by open-ended, anonymous questionnaires and semi-structured interviews. The qualitative findings were categorized by content analysis. According to the findings, students found the improved course interesting thanks to the examples that were integrated into it. Their interest was derived from several sources: an acquaintance with the areas of teaching and research taking place in the Department, an initial exposure to an electrical engineer's field of practice, and tying in the studied material to electronic systems familiar to the students from their everyday life. In light of the self-determination theory, the interest the course in its new format managed to raise among the students can be attributed to meeting the students' need for relatedness during the course. The contribution of the research is in the characterization of simple and low-cost methods by of which the teacher is able to raise the interest among students attending a basic course on electric circuits. This contribution is likely to be expressed in developing new basic courses on engineering and improving the existing ones.

Keywords: *Engineering education, motivation, need for relatedness, basic course.*

1. Introduction

In view of the small amount of interest students at many universities, including the Technion – Israel Institute of Technology, find in the basic electric circuits course (Palma et al., 2005), the Department of Electrical Engineering has decided to incorporate into the course examples reflecting the various fields of study in the Department and the diverse occupational areas of electrical engineers. According to the self-determination theory (Deci & Ryan, 2000) reviewed below, these examples may enhance students' sense of relatedness to the Department and increase their interest in the course.

It is important to note that the method of teaching used in the course is the traditional lecture-based one, thus the course is substantially different from similar courses developed recently that employ non-traditional ways to teach the topic of electric circuits, such as project-based learning or collaborative learning (O'Connell, 2011; Becker et al., 2014).

The goal of the study described here was to identify the ways (if any) by of which the teacher was able to raise students' interest in the course.

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2. Self-determination theory

The self-determination theory is one of the leading theories in the field of educational motivation (Deci et al., 1991). The theory argues that the individual has three needs:

- Autonomy – the need to feel that the person's behavior has not been forced on him/her.
- Competence – the need to feel that the person is capable of meeting challenging goals.
- Relatedness – the need to be accepted and be part of a group.

The supporters of the self-determination theory claim that fulfilling these needs promotes high-quality motivation, namely intrinsic motivation emanating from interest and pleasure entailed in the behavior (Deci & Ryan, 1985).

3. The course

The mandatory course "Electric Circuit Theory" is intended for sophomore electrical engineering students and focuses mainly on lumped circuits, small-signal linearization, frequency domain analysis, capacitive and inductive coupling, and time domain transients.

As stated above, examples reflecting the various fields of study in the Department and the diverse occupational areas of electrical engineers were incorporated into the course. Below are given some examples:

- A spectral analysis of an ECG signal followed by a review of the Department's teaching and research activity in the field of processing biological signals concluded the lesson dealing with frequency domain analysis.
- The Fabry-Pérot optical resonator and the Department's teaching and research activity in the field of electro-optics were discussed in the lesson dedicated to resonance in electric circuits.
- The structure and principle of operation of touchscreens and mobile phone wireless chargers were discussed in the session dealing with capacitive and inductive coupling.

4. Research goal and methodology

The aim of the study described here was to identify the ways (if any) by of which the teacher was able to raise students' interest in the course.

Seventy-two sophomore electrical engineering students took part in the study. Data were collected by open-ended, anonymous questionnaires and semi-structured interviews held at the end of the course. The questionnaires and interviews focused on students' attitudes toward the course. The findings were categorized by content analysis.

5. Findings

According to the findings, students found the improved course interesting thanks to the examples that were integrated into it. Their interest was derived from several sources:

- Acquaintance with the areas of teaching and research taking place in the Department:

"The course is interesting, gives a feeling of what we are to be learning in the program [electrical engineering]." (Questionnaire)

- Initial exposure to an electrical engineer's field of practice:

"Interesting course; the first to show us a bit of what an 'electrical engineer' is and let us taste the field." (Questionnaire)

- Tying in the studied material to electronic systems familiar to the students from their everyday life:

"In one of the lessons an example of how circuits are used in the operation of touchscreens was presented. The connection to the real world was interesting." (Questionnaire)

On a deeper level, the interest the course managed to raise among the students may be assign to satisfying their need for relatedness:

> "Up until now I felt as if I didn't belong [to the Department] and now I understand how it [what I'm studying] is related to the program [in electrical engineering] and why I've been studying it… now everything makes sense." (Interview)

6. Conclusions

By incorporating examples reflecting the various fields of study in the Department and the diverse occupational areas of electrical engineers, the teacher was able to raise students' interest in the course. In light of the self-determination theory, this interest can be attributed to meeting the students' need for relatedness. These findings are consistent with those presented by Gero (2012) and Gero (2014) showing that the fulfillment of students' basic needs as part of an educational activity resulted in an improvement in their intrinsic motivation.

The contribution of the study is in the characterization of simple and low-cost methods by of which the teacher is able to raise the interest among students attending a basic course on electric circuits. This contribution is likely to be expressed in developing new basic courses on engineering and improving the existing ones.

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EXPLORING ACTIVE LEARNING METHODOLOGIES FOR LANGUAGE LEARNERS IN THE SCIENTIFIC CURRICULUM

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Abstract

How do we effectively communicate and emphasize collaborative learning in the sciences and revitalize the classroom experience in the technology enhanced active learning environment of the 21st century? There is a shortage of highly qualified graduates from universities in the United States in science, technology, engineering and math (STEM) fields. These highly qualified graduates are crucial for national success, for making global contributions, and are essential to economic growth. A collaborative, engaged pedagogy perspective at the forefront of best practices focusing on shared learning experiences allows students to acquire knowledge and foster content and language success.

This pilot study will focus on hands-on science pedagogy at the university level. It will investigate cross-disciplinary teaching strategies that create a culture of innovation and include communication coupled with collaboration to strongly impact outcomes and inform practice as traditional learning is redefined. The research employs qualitative methods of primary and secondary data in a side-by-side case study analysis of three universities in the United States. A set of questions has been developed to undertake an open-ended investigation focusing on active, collaborative learning in science classrooms and the extent to which hands on activities are utilized to strengthen science content as well as communication and English language skills. Professors and students will be interviewed and specific hands on activities will be shared. For a number of capable students enrolled in science courses in USA universities, English is not the native language and adaptation of the curriculum for diverse abilities and learning levels is essential as employers expect a broad range of transferable competencies to prepare students for the global workforce.

The emphasis of this study is to investigate the instructional methods in the 21st century science classroom where curriculum design and teaching context relate to the utilization of hands-on activities and emphasize collaborative, active learning focused on exploring best practices and building a culture of innovation. In this investigation, these three university science programs will be compared and contrasted to analyze the extent to which hands on active learning methods are utilized emphasizing the evidentiary support for positive outcomes in both content and communication in the learning environment. The results and findings will be shared, as well as suggestions for this study to evolve and expand in further research as we continue to investigate and leverage ideas for innovative success utilizing hands-on learning to strengthen content and communication skills.

Keywords: *Science education, pedagogy, collaboration, communication, engagement.*

1. Introduction

The emphasis and impact of communication and collaborative learning in the sciences is crucial to support the rapid pace of learning that supports academic and workplace success in the 21st century. In this ongoing study exploring active learning methodologies for language learners in the scientific curriculum, interest focuses on the instructional methods leading to collaborative and engaged pedagogy that will inspire students in the sciences. Greater flexibility and cooperation are achieved as educators worldwide embrace the pedagogies of technology and blended learning. The ultimate aim for students and educators alike is to develop and improve knowledge in a setting of multiple modalities.

In this pilot study, we have divided the investigation into two parts. The first is to investigate cross-disciplinary teaching strategies and interview educators. In this paper, we will share highlights from six of the educators who were interviewed. We will also discuss key aspects of three university programs and provide examples of innovative learning opportunities to engage students. As this study is currently in progress, the student component is still underway and these findings will be reported in a future paper in order to further analyze the data in a side-by-side case study.

2. Review of the literature

Language instruction is based on the acquisition and development of meaningful material. Cross disciplinary learning, particularly in the sciences affords the opportunity to investigate collaboratively and build language skills simultaneously. Cooperative learning incorporates strategies and whole language instruction that recognizes multiple intelligences and diverse learning styles (Association for the Advancement of Health, 1994). This process will help in promoting how different people demonstrate varying views and ideas based on their unique individual ideas and cultural perspectives (Algozzine, 2009). Once students have reached the university level, their learning styles may vary from when they were younger. For example, researchers studying language acquisition with four-year-old Korean children have found that young learners have a natural ability to build their own language structures by filling in gaps of information, even when fully immersed in an environment in which their first language is spoken (Lidz, 2016). This is not always the case in higher education, and collaborative active learning has the potential to bridge gaps in both language and science content.

Hands on active learning allows differentiated instruction in a collaborative setting. Project-based learning is an excellent example of this because it is student-centered, student-driven, and gives space for instructors to meet the needs of students in a variety of ways (Miller, 2016).

What follows is a list of the six questions posed to educators and university students on active learning methodologies for language learning in the scientific curriculum and an overview of the responses to our questions on the multi-national/multi-cultural impacts of Information and Communication Technology (ICT).

2.1. Questions

1. *Discuss a hands-on STEM activity that has positively impacted your learning?*
2. *Is active learning employed universally in your STEM classrooms?*
3. *How has active learning in the science classroom curricula impacted language learning?*
4. *Has collaborative learning in the sciences strengthened science content and knowledge?*
5. *Has blended learning particularly in STEM content areas been emphasized?*
6. *Has the high percentage of English language content in the sciences impacted language learning?*

3. Interviews and examples of hands-on active learning

A professor of biomechanics described active learning methodologies including a class meeting in the swimming pool to demonstrate Archimedes" principle and law of physics fundamental to fluid mechanics. He addressed the needs of ELLs through vocabulary learning and total physical response to ensure comprehension. Students practiced floating and sinking in the pool and investigated buoyancy treading water, hand placement and paddling. Studies of the arm placement of elite swimmers focused on the motion of hydrodynamics and lift force. This same methodology can be employed to discuss throwing a discus, javelin, Frisbee or explain how planes fly. The hand becomes a hydrofoil and the sculling action and angle of attack of the hand creates a lift force. This activity on drag, lift and buoyancy may be further expanded and applied to the air resistance of a parachute and the ways that a skydiver can slow acceleration (Vaughn, 2015).

Bilingual educators conducted erosion experiments with graduate students to simulate actual erosion situations using trays containing soil and pouring water from different heights and angles. Discussion and brainstorming with heterogeneous groups of students using scientific language introduced the lesson. Visual representations with ELL students demonstrated different ways of assessing understanding (Peralta, 2015).

In an interview with a former university student from the field of mining engineering, chemistry labs that required flotation tests and the identification of chemicals through qualitative analysis were extremely beneficial for linking active learning to career preparation. Specifically determining the percent of the compound chromium ore in samples was cited. Additionally, the work in rock mechanics using strain gauges on core samples of rock that were squeezed in a hydraulic press until they broke increased knowledge and language learning necessary for success in this field (Coughlin, 2015).

Active learning focusing on velocity physics coupled with mathematics courses in calculus is described as contributing to the success and motivation of physics and mathematics students. As the only female in this course, it was incumbent to demonstrate success and perform exceptionally well. Neil Degrasse Tyson, astrophysicist and one of the most visible scientists, focuses on women in science and diversity and expresses his concern about the forces of society that challenge opportunities for

underrepresented populations. He serves as a role model and motivator supporting diversity and ELLs (Caspary, 2015).

In Material Requirements Planning which is a strategic component of supply chain management, forecasts are supplied by marketing and sales that learners can use to determine multiple products and supplies required for a completed unit designed to specifications by the engineering team. This impacts relationships with suppliers, lead times, product quotes, time and costs to place orders and ensure that engineers and manufacturers oversee building of a quality product (Kyle, 2016).

Electronics students focused active learning on solar power and wind energy building equipment and using multimeters to calculate wattage, voltage, current and ohms as they determined the optimal inclination of solar panels to the sun in order to charge storage cells. Project-based and cooperative methodologies were incorporated to strengthen analytic insight and group dynamics. This is an example of cross credit STEM coursework that includes highly capable high school students. Collaboration of ELLs with native speakers and incorporation of technology were instrumental in the success of this project (Noble, 2016).

3.1. Three universities

At Georgia Gwinnett College (GGC), the STEM mini-grant Program, supported through the University System of Georgia, encourages implementation of course-embedded research experiences that promote experiential, active learning in the classroom. Undergraduate research experiences are also part of the curriculum for many programs in the School of Science and Technology and contribute to a culture of project-based training that appeals to the strengths of students with a broad diversity of backgrounds. The diversity of the student body at this institution is very high, so in science, technology, and math courses, whenever the curriculum goals emphasize concepts rather than content, flipped classrooms and inquiry-based learning methodologies are used as teaching tools. Strategies that use independent student learning coupled with group reinforcement of topics seek to reach students with different learning styles. Experiential labs, simulations, service-learning, and case-studies are examples of methods to engage students in the STEM fields. GGC also participates in the Students & Technology in Academia, Research & Service (STARS) Alliance, a National Science Foundation-supported organization, which supports the implementation of best practices in STEM fields, including a leadership program for students interested in technology.

At Boise State University, learners are inspired through numerous innovative science programs. A variety of grant funded initiatives address continuous improvement and positively influence science and language pedagogy. Faculty members are actively engaged in the U.S. Department of Education's Mathematics and Science Partnerships Program. Graduate programs in biological Sciences are unique, and Boise State is the only university in the United States to offer a Master's degree in Raptor Biology. Other comprehensive graduate and undergraduate education spans the breadth of contemporary biological sciences focusing on preparing students for real world careers. In the College of Engineering, science and engineering events are designed to engage young learners with opportunities to participate in hands-on events that will introduce them to a wide range of STEM topics. The goal is to prepare them to understand science and engineering, use mathematical reasoning, and tackle tough global issues. Boise State University has established an Institute for STEM and Diversity Initiatives. Among the opportunities available to encourage and recruit college students in STEM fields are the Future City Competition, Science Bowl, University Aerospace Day, the Engineering and Science Festival, Boise Code Camp, and the Robotics Competition. Diverse students who are language learners are encouraged to participate and become actively engaged in these opportunities.

At the University of Southern California, the California Science Center at Exposition Park is located across from campus and is one of the largest hands-on centers in existence. Students at the university often participate in activities at this innovative venue. The University of Southern California is known for its diverse student body and faculty, therefore language acquisition and pedagogy are an integral part of content learning. Emphasis is placed on faculty and students working to find solutions to our global society's toughest challenges. Graphic organizers are used in physics and astronomy to tackle crucial questions. Clifford Johnson, professor of physics and astronomy, has developed graphic novel storytelling to explain the nature of the universe and make sciences accessible to all.

4. Conclusion and future opportunities

By building inquiry and actively engaging language learners in the sciences, powerful opportunities unfold that will transform pedagogy. As students and educators have the opportunity to reflect and process their understanding, they will focus on successful strategies, and much progress is made. As practitioners, we suggest that positive gains should be made in science and language

methodologies from an active learning perspective. The volume and variety of data being collected on language learning and in the sciences is monumental. In order to derive value from both of these arenas, we need to develop analytic insight that is overarching and considers the juxtaposition of both fields.

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MODEL TO PREVENT AND SOLVE THE PROBLEM OF VIOLENCE AMONG CHILDREN IN PRIMARY SCHOOL

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Abstract

Information sources from the Bangkok area collected in 2014 reflected an increase in violent behaviors among primary school children, such as punching, slapping, hitting and quarreling with fellow students. The objectives of the research model are to prevent and solve the problem of violence among children in primary schools, to study and develop model to prevent and solve the problem of violence among children in primary school by using participatory research among schools, communities and responsible organizations. The research found that to succeed in preventing and resolving the problem, agencies and communities cannot work alone. It's required that agencies to be responsible for the whole system and full cooperation in all levels that lead to developing a model of prevention and resolving violent problems for all. There needs to be an agency to regulate, supervise or support solving the problem in each specific component.

Keywords: *Model to prevent and solve the problem, violence, children in primary school.*

1. Introduction

There have been reports of juvenile violence has increased 10 percent over the last 10 years in Thailand, despite the existing of 2012-2016 Thailand's National Development Plan for Children and Youth. The average age of juvenile perpetration of violence found to decrease, mostly between 12 – 18 years old. Majority of the violence happened in schools particularly quarreling with fellow students within or between schools. The violence in schools in Bangkok appear to be more severe among younger age children from middle school to primary school. During 2012-2013, there was alarmingly increase of violence among primary school children. There were more than 48% of children reported to have close friends who like violent solutions. More than 36% had experienced of punching, slapping, hitting and quarreling with fellow students. More than 34% had seen or had been physical abused from fellow students in the same or different school, more than 23% had seen schoolmates carry deadly weapons into the schools and more than 25% had seen or had been exposed to fleece or extort money or property by students in the same school or different school in the past academic year. In addition, more than 55% of the students reported that students are punished with a beating or use of force against students by academic institutions. From these situations schools and communities agreed to develop a model that can be adapted to achieve tangible results for preventing and solving violence among children in primary schools by studying from documents concepts theories research and model of violence solving in the past. They believe that If all sectors can work together to solve the problems since children are young. Those children who are in trouble healed they will grow into a good youth and adult in the future. This will be a significant factor to reduce an individual violence when they are aging.

2. Objectives

1. To prevent and solve the problem of violence among children in primary schools
2. To study and develop model to prevent and solve the problem of violence among children in primary school by using participatory research among schools, communities and responsible organizations

3. Literature review

Knowledge provided by United Nations International Children's Emergency Fund (UNICEF) and UNICEF of Thailand; violence to children is all forms of physical or mental violence that impact to children which clearly divided in to 4 categories. These are physical violence, mental violence, sexual abuse, and neglect (UNICEF 2015). The WHO (WHO. 2015) classified violence into 3 categories; self-directed violence, interpersonal violence, and collective violence.

In other point of view, university of Nebraska Lincoln classified violent behavior of children into 4 categories; 1. Accidental aggression is aggression unwittingly such as to stumble from one friend, 2) expressive aggression is violence from fun to play between friends.) hostile aggression is violence caused intentionally to harm others physically and mentally. Children who cause hostile aggression feel happy, 4) instrumental aggression is violence caused to win or get something like toys.

Jaretl Lehman believes that to solve the problem of violence in primary school children there must be a good relationship between home and the school. The two parties need to have rules that can be put to practice and then tell children to follow. If there is belief of the violence source, such as school, it must be proofed before starting to solve the problem (Lehman, J.2015). Dr. Diane Smallwood from South Bruswick (NJ) School District stated that there are three important strategies to address the problem of violence effectively; 1) to prevention of violence it need the whole system, from major system and area system, 2) it requires understanding, insight, focus, and emphasis on driving or encourage behavior change, and 3) specify and build important skills to make good choices in bringing the process to use (Smallwood, D.2015)

Online violence or cyber bully becomes an important issue and need to seek urgent prevention. This violence are acts between children, preteens and teenager to make other to be ashamed, mentally hurt, to be angry via internet by using devices that have been developed technologies such as computer Mobile phone, IPAD, etc. Online violence lead to negative behavior to children. If this made repeatedly, finally they will attacked each other in the real world (Http://stopcyberbullying.org/ what_is_cyberbullying_exactly.html). There are three types of online violence; 1 direct attack, 2 make proxy, and 3 spread to damage the opponent or the victim continuously. There is a need for parents and teachers to have online access in nowadays world.

There are common factors in concert to cause juvenile violence. These include guardians, school environment around children, psychiatric illness, personal character and the influence of friends. There are corresponding conclusions in articles and researches that there are impact from these behaviors include verbal abuse, bullies, slapped/hit, or fight.

4. Methods

Using qualitative research in the areas include interview, workshop and focus group discussion.

5. Result and discussion

The research found that to succeed in preventing and resolving the problem, agencies and communities cannot work alone. It’s required that agencies to be responsible for the whole system and full cooperation in all levels that lead to developing a model of prevention and resolving violent problems for all. There needs to be an agency to regulate, supervise or support solving the problem in each specific component. Flow Chart (see next page)

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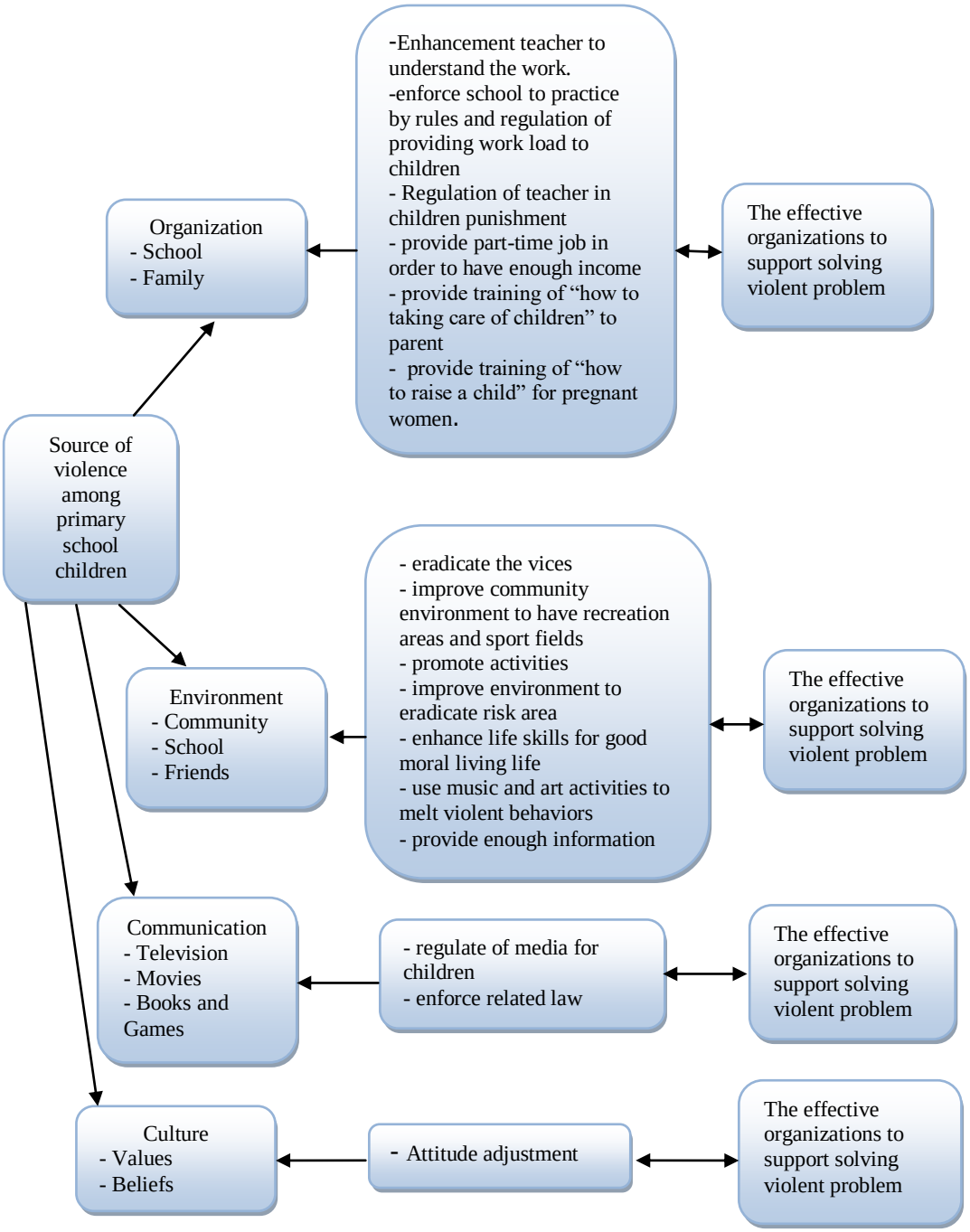
Figure 1. Model is to prevent and solve the problem of violence among children in primary schools



More happiness will be added to children if violence can be reduced. This will lead to the development of future society as a whole. Therefore, the model to prevent and solve the problem of violence with participatory of the model are choices. This model which has component of effective organization to support could be a choice to help solving the problem and can add more happiness to Thai Children. The question from community is that; until the model is fully developed is not easy and how to have opportunity to test the model in practice. Since the person who will make the model to be tested in practice are from several organization. This question need support to answer for happiness of the Thai Children

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BILINGUAL LEARNERS' PERCEPTIONS OF SCHOOL ENVIRONMENT

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Abstract

There is a growing number of students who speak languages other than English in both rural and urban public schools in South Africa. This study investigated the perceptions of 120 learners (54 monolingual and 66 bilingual learners) from Grade R - 3 in an urban public elementary school in Motheo District, Free State province, with respect to school climate, curriculum and instruction, extracurricular activities, self-efficacy, and self-esteem. This is a qualitative study in which semi-structured interviews were used to collect data. All of these indicators contribute to an overall perception of schools and affect learning experiences of monolingual and bilingual learners. Results indicated that the perceptions of monolingual learners and bilingual learners in this particular elementary school are similar.

***Keywords**: Bilingual, monolingual, curriculum, self- esteem.*

1. Introduction

In South Africa, parents are permitted to choose the language in which their children are to be educated (Department of Education, 2002); but the majority of parents demand that their children are educated in English (Heugh, 2010). This is partly due to global prestige of English as a medium of international communication, language of business, and pre-requisite for employment (Buthelezi, 2003). In particular, the post-Apartheid influx of isiZulu/isiXhosa/, Setswana/Sesotho-speaking individuals from rural to large urban areas where English dominates has led to many children in the Metropolitan region beginning their education in English. However, many parents are not cognisant of the relationship between the child's first language and the language of literacy instruction.

The education of bilingual learners continues to pose unique social, political, and educational problems for schools in the South Africa. Social and educational opportunities are typically hindered by frequent moves, poverty, gaps in previous schooling, and language and cultural barriers. The consequences of this on bilingual learners are noteworthy for multiple reasons. Learners' perceptions of school environment can be a powerful predictor of student outcomes (Hanuliakovà & Barnovà, 2015). Unlike typical school environment research, this case study seeks to determine whether learners' perceptions of school environment vary by linguistic diversity. In particular, this study compares the perceptions of bilingual learners to monolingual learners.

2. Theoretical framework

2.1. School climate

According to Scallion (2010) "school climate" refers to the attitudes, beliefs, values, and norms that underlie the instructional practices, the level of academic achievement, and the operation of a school. Hiett (2015) defined school climate as follows: A school's climate is its atmosphere for learning. It includes the feeling people have about school and whether it is a place where learning can occur. A positive climate makes a school a place where both staff and students want to spend a substantial portion of their time; it is a good place to be (p. 5).

School environment research has demonstrated that a positive school climate can increase achievement levels and reduce maladaptive behaviors (DeWilt & Slade, 2014).The Learning First Alliance (2001) acknowledges that many studies of students' subjective experiences in school indicate that positive school climates have a significant effect on student learning and development.

2.2. Curriculum and instruction

English Learning Learners (ELLs) face many challenges in school, including the curriculum and teachers' instructional methods. Since most ELLs have underdeveloped literacy skills in English, these

demands put ELLs at a great disadvantage (Brown, 2005). There are, however, many effective program models for ELLs that include a variety of bilingual programs (i.e., dual language, transitional, or maintenance), sheltered English instruction, or ESL classes. As an example, mathematics is an important component of the curriculum for all learners.

2.3. Extracurricular activities

Extracurricular activities are important components of students' activities at school. After-school programs can be one means of providing more structured, better supervised, and more productive use of free time, and thus may improve students' academic performance (Cordea, 2014). Metsàpelto & Pukkine (2014) outlined strategies for after-school programs. These strategies include having high-quality contact time and highlighting the linkage between fun and learning.

2.4. Learner self-Efficacy

Social science researchers have conducted numerous studies on self-efficacy. As noted by Aukerman and Schuldt (2015), "Social learning theorists define perceived self-efficacy as a sense of confidence regarding the performance of specific tasks" (p. 145). For ELLs and other learners, this confidence (or the lack of it) influences learning across all areas of the curriculum. Indeed, learners may not even engage in instruction when the learner's self-efficacy is low. Bandura's (1986, 1997) work in this area is highly regarded..

2.5. Learners self-Esteem

According to Hosogi et al (2012), self - esteem is the 'feeling of self –appreciation' and is an indispensable, emotion for people to adapt to society and live their lives. For children, in particular, the environment in which they are raised contributes profoundly to the development of their self-esteem, which in turn helps them to adapt better to society. Research findings from several academic domains have demonstrated that learners' perceptions of their own academic capabilities influence their self-esteem (Goldsmith, 2004; Mills, Pajares, & Herron, 2006; Wicker, Turner, Reed, McCann, & Lee, 2004).

3. Method

3.1. Settings and participants

The study was conducted at one particular elementary school in urban Motheo district in Free State Province. Of the 664 students in the school, 120 of them participated in this study. Table 1 identifies the number of participants by grade level and language descriptor (i.e., monolingual or bilingual).

Table 1. Characteristics of Participants

Grade Level	Number of Participants	ELLs	Monolingual
Grade R	31	16	15
First	26	14	12
Second	30	16	14
Third	33	20	13

3.2. Procedures

The researcher visited the school 10 times over a period of six-month in order to collect the data. During the interviews with the bilingual and monolingual students, the researcher followed a modified version of the questionnaire protocol titled "Measuring success in ESL programs," which was originally authored by Carrasquillo and Rodriguez (1998). This questionnaire protocol was modified by the researcher with permission from the original authors. To ensure confidentiality, all data collected were analyzed and reported without the use of names or personal information. The duration of each interview was approximately 15 minutes. The questionnaire was administered in the learner's preferred language (e.g., English, Sesotho, IsiZulu, etc.). Simplified language modifications were made for children in Grade R and 1. In addition, pictures were presented for some items when appropriate.

In order to enhance the reliability of this study, the interview protocol contained two parts that required different data collection methods. In the first part, learners were asked to respond to structured Likert items. In response to each of the 24 items in Part I, each participant responded by stating either: (1) Always; (2) Usually; (3) Sometimes; (4) Rarely; or (5) Never. The data generated from the Likert items were collated for statistical analyses. In the second part of the interview, the participants responded to two open-ended questions. Specifically, the researchers asked these questions: 1) How do you feel

about being a learner in this school? 2) Do you consider yourself a "good learner" in the following areas? (i) Reading in English; (ii) Reading in another language (e.g., Sesotho); (iii) Writing in English; (iv) Writing in another language; (v) Ability to speak and learn in two languages (bilingualism).

3.3. Research questions

The researchers sought to gain insights into the following questions:

Do monolingual and ELL learners perceive the school climate differently?

Do monolingual and ELL learners perceive the instruction differently?

Do monolingual and ELL learners perceive the extracurricular activities differently?

Do monolingual and ELL learners differ in self-efficacy?

Do monolingual and ELL learners differ in self-esteem?

4. Results

First, this section considers the five research questions in light of the Likert data collected from the participants. Those results are summarized in Table 2. Second, this section discusses the results of the open-ended questions.

Table 2. Student Perceptions by Grade and Linguistic Learner Type

	Grade R		Grade 1		Grade 2		Grade 3	
	Mono	ELL	Mono	ELL	Mono	ELL	Mono	ELL
School Climate	2.1	1.5	2.0	1.7	1.9	2.1	2.1	2.2
Instruction	2.1	1.6	2.3	1.7	2.3	2.2	2.4	2.7
Extra-Curricular	4.8	2.6	3.3	4.1	3.3	2.5	2.0	2.9
Self-efficacy	1.2	1.3	1.1	1.2	1.3	1.4	1.4	1.4
Self-esteem	3.2	1.9	2.8	2.3	2.7	2.1	2.9	2.6

Each value is the mean for all learners in the grade and learner type.

Research Question 1:

Do monolingual and ELL learners perceive the school climate differently?

As discussed in the School Climate section, researchers in studies concerning school environment or school climate seek fundamentally to ascertain subjective opinions about what it feels like to be a member of a particular school. Accordingly, this study asked participants the following questions in order to ascertain a sense of the school's climate: 1) Is the school a safe and secure place to learn? 2) Is the school clean and in good repair? 3) Are all students respected? 4) Are you proud of your school? 5) Do students work together on school/classroom activities? 6) Does the school reward excellence in achievement? and 7) Do you feel that the school provides an enriching environment where your first language is respected?

Data in Table 2 reveal virtually no difference in school climate among ELLs and monolingual learners. This is true across all grade levels. Accordingly, all of the students attending the school feel safe and secure in a clean learning environment.

Research Question 2:

Do monolingual and ELL students perceive the instruction differently?

Due to the importance of the curriculum and instruction for learning, learners in Grade 3, were asked the following items: 1) Does the teacher inform you about what you are studying? 2) Are class content and activities neither too hard nor too easy? 3) Does the curriculum vary and is it challenging? 4) Are the classes flexible? and 5) Are there different ways of teaching the class? Learners in Grade R-2 were asked the first three of those five questions; items 4) and 5) were not asked. The data in Table 2 reveal very minor differences in perceptions of curriculum and instruction among ELLs and monolingual learners in Grade R and grade 1. The data reveal no difference in perceptions of curriculum and instruction across all of the grades. Overall, learners are aware of the instructional goals, find the content to be neither too easy nor too difficult, and find that learning activities vary.

Research Question 3:

Do monolingual and ELL learners perceive the extracurricular activities differently?

Researcher asked participants whether the school encourages participation in school/community activities and whether they have been or are currently participating in any plays, sports, or teams at school. The results in Table 2 suggest that ELLs and monolingual learners in each grade differ with respect to the perception of extracurricular activities.

Research Question 4:

Do monolingual and ELL learners differ in self-efficacy?

To assess self-efficacy, learners were asked to respond to the following items: 1) I feel proud of who I am; 2) I feel proud of being in this school; 3) I am motivated to learn; 4) I enjoy coming to school; 5) I feel that the teacher is part of my life; and 6) I work very hard to complete schoolwork. The data show no difference for all other grades in terms of self-efficacy for monolingual learners and ELLs.

Research Question 5:

Do monolingual and ELL learners differ in self-esteem?

For self-esteem, learners were asked to respond to the following items: 1) Are you able to learn in two languages?; 2) Are you able to read and write in both languages?; 3) Do you do well in all of your classes, especially in mathematics?; 4) Do you know science and social studies concepts and skills?; and 5) Is your work displayed in school in both languages? Grade R learners were not asked item 4), which considers science and social studies concepts and skills. The data in Table 2 indicate that differences in self-esteem among monolingual learners and ELLs were evident in Grade R and Grade 3.

Results for Open-ended Questions

In the second part of the protocol, which was semi-structured, the participants responded to these two open-ended questions: How do you feel about being a learner in this school? and Do you consider yourself a "good learner" in the following areas?: (i) Reading in English; (ii) Reading in the other language (i.e., Sesotho, IsiZulu, etc.); (iii) Writing in English; (iv) Writing in the other language; (v) Ability to speak and learn in two languages (bilingualism); and (vi) What do you want to be when you grow up?

Table 3. Percentages of Learners Who Expressed Feelings About Being a Learner in the School

	Positive Feelings	Somewhat Positive	Negative
R Grade	100	0	0
First Grade	93	7	0
Second Grade	100	0	0
Third Grade	97	0	3

Table 3 indicates how ELLs and monolingual learners feel about attending the school. Overall, there is a positive feeling about the elementary school. Specifically, the participants in Grade R expressed 100% satisfaction; 1st grade--93%; 2nd grade-100%; 3rd grade--97%. Students' perceptions of the school, as expressed in this single item, are quite limited in what they tell us, and especially what they do not tell us, about significant issues facing them.

Table 4. Percentages of Students Who Consider Themselves a "Good Student"

	Reading in English			Reading in Other Languages			Writing in English			Writing in Other Languages			Speaking and Learning in 2 Languages		
	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
R	92	0	8	8	0	92	100	0	0	8	0	92	42	0	58
1	100	0	0	14	7	79	93	0	7	21	7	71	50	0	50
2	91	9	0	13	26	61	83	17	0	13	17	70	35	17	48
3	90	10	0	34	32	34	97	0	3	17	28	55	58	14	28

H = High **M** = Moderate **L** = Low

Table 4 indicates the percentages of participants who consider themselves a "good learner" in the following areas: reading in English, reading in other languages, writing in English, writing in other languages, and speaking and learning in two languages. Results demonstrate that both ELLs and monolingual students consider themselves highly confident in reading and writing English. Participants have a mixed consideration in reading and writing in other languages. In general, ELLs considered themselves capable of speaking and learning in two languages, but some ELLs expressed diminishing confidence in their ability to read and write in their family's native language. Positive perceptions toward bilingualism were observed by both learners who read English well and by ELLs.

5. Discussion

This study examined learners' perceptions of factors commonly associated with school climate. This study also examined student self-efficacy and self-esteem. After interviewing a total of 120 learners in Grade R through Grade 3, the main finding of this study is that the perceptions of elementary ELLs and monolingual learners in a particular urban school in Motheo district in Free State were strikingly similar. The researcher was somewhat surprised by the similarity of the results. Although research indicates that

recognition of, and support for, learners' primary language promotes learning, the results of this study suggest that learners do not perceive of this shortcoming as detrimental.

6. Conclusion and implications

Since teachers have an enormous impact on learner learning and learners' perceptions, instructing teachers on techniques for teaching ELLs may be the best method for improving support for ELLs. Tucker et al. (2005) conducted a study in which teachers attended a workshop about effective instructional methods and strategies for teaching culturally and linguistically diverse students. This teacher training intervention was based on self-empowerment theory. The researcher concluded that by developing an understanding of the many external factors (e.g., social, cultural, political, economic, school, family, parental) that affect the academic and social lives of children, teachers will come to appreciate that each child must be taught to achieve under whatever circumstances exists.

Beyond teacher training, this work has implications on school climate. Since positive school climate contributes to academic success in such a wide variety of ways, its importance should not be understated. Positive school climate promotes effective learning, in part by improving students' attitudes about learning; makes a school safer; reduces dropout rates; and helps recruit more parents to assist with school events.

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FOSTERING UNIVERSAL ACCEPTANCE OF EACH OTHER IN THE PRIMARY GRADES

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Abstract

Social Justice Instruction: Empowerment on the Chalkboard (2016), Springer International Publishing, is a book focused on the adult, elementary and adolescent learner. A feature of this book is the Key Instructional Practices and Strategies, birth to adulthood. This presentation will feature research by six authors in early childhood education highlighting specific strategies and practices that influence social justice among young children to foster a climate of universal acceptance.

Keywords: *Early childhood education, developmentally appropriate practice, emotional learning, intentional instruction, social justice.*

1. Objectives

In today's climate of diversity, one element is critical. The more diverse schools become, the more important it is to foster universal acceptance for each other. Teachers can foster harmonious, self- and peer- acceptance by intentionally creating opportunities for student growth in developing a mindset that welcomes each student's contribution to the learning environment. Selected materials, rich in diversity and self-disclosure, provide a teaching platform that supports the individual's quest for acceptance. This presentation focuses on specific social justice practices early childhood teachers can use in their classrooms.

As students learn to honor their own diverse roots, the value others bring to the learning environment is also respected. Teachers have the means to promote universal acceptance through rich literature and meaningful activities. Like magic, students create their own mysterious connections to one another and the world around them.

2. Early childhood professionals organization focused on universal acceptance

The U.S. National Association for the Education of Young Children (NAEYC) Position Statement on Developmentally Appropriate Practice in Early Childhood Programs Serving Children Birth through Age 8 presents core considerations for practitioners (NAEYC, 2009a; 2009b). The NAEYC's position statement is undergirded by a social justice imperative that seeks to honor the varied or different experiences and identities of children, while asking educators to create spaces that value these differences. Teachers/caregivers must recognize that everyone brings their own personal experiences, preferences, and values to the classroom. It behooves teachers/caregivers to examine their biases, opinions, and behaviors to identify potential areas of stereotypes or false perceptions. Learning about and understanding family dynamics, home language, neighborhoods, and communities is critical to supporting children in meaningful and relevant ways.

At the core of honoring each child's culture requires individuals to embrace disequilibrium when a family's customs, traditions, home, occupation, or lifestyle differs from one's own family of origin, socio-economic status, religion, ethnicity or race. Educators must further see children and their families as complex intersectional beings rather than simply through the lens of one demographic (Calafell, 2010). We should ask how identities, family lives, and expectations of learners are shaped by the intersections of race, class, gender, sexuality, and ability, as well as how these factors also shape our perceptions and expectations.

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3. Specific strategies: early childhood experiences link to life trajectories

The span of early childhood, birth through age eight (NAEYC, 2009a; 2009b) represents a momentous time for growth and development in children. This time can significantly impact children's future trajectories in life. This is particularly true in the areas of health, care, and education.

The early childhood years are foundational in these areas and children are at the mercy of their circumstances during these early years. Opportunities, experiences, access to high quality healthcare, childcare, and education come with a price in the United States. Access and affordability in regard to all three are uneven across socioeconomic boundaries leading to those who have and those who have not in the most crucial years of development.

Early childhood care and health cannot be separated from one another, nor can they be separated from education. Unlike the rote "lessons" that some may think of in formal schooling, the child is always learning in all early childhood settings. They are observing, feeling, testing, and hypothesizing.

Education of the young child is constant. Whether at home, in family, friend, or neighbor care, in a center, or in a school, education does not cease. Children's access to quality environments is important to their later achievement, thus influencing their life trajectories.

Quality early learning environments may hold the potential to break cycles, to set children on a track to success across a lifetime. These environments take thought, commitment, and money.

Children living in poverty do not have the same access to quality healthcare, childcare, and educational opportunities in the early years. Their mothers may not have ready access to quality prenatal care. Children and families may not have access to a medical home. Quality care of children outside the home may be unregulated and caregivers may not have the skills and knowledge to create optimal environments for the growing child. Educational opportunities, then, may be less than for children from more affluent backgrounds.

The oft-cited study by Hart and Risley (2003) found:

Simply in words heard, the average child on welfare was having half as much experience per hour (616 words per hour) as the average working-class child (1,251 words per hour) and less than one-third that of the average child in a professional family (2,153 words per hour). (p. 116)

This results in enormous gaps in vocabulary experience in words heard. Furthermore:

We learned from the longitudinal data that the problem of skill differences among children at the time of school entry is bigger, more intractable, and more important than we had thought. So much is happening to children during their first three years at home, at a time when they are especially malleable and uniquely dependent on the family for virtually all their experience, that by age three, an intervention must address not just a lack of knowledge or skill, but also an entire general approach to experience. (Hart, & Risley, 003, p. 117)

If we currently know the effects of poverty on the health, care, and education of children, if life trajectories can be predicted based on the lack of quality in any of the three outlined areas, is it not our moral imperative to act? Just as science was used to affect policy in the nineteenth century in regard to child labor (Perera, 2014), so it is today that research must be used to drive policy in conjunction with the importance of the early childhood years. Further generations must not be kept in the same socio-economic stratification through lack of opportunity for children or substandard means of health, care, and education. Are we not mandated in our preamble to the constitution to "promote the general welfare?" Does this not apply to all, especially our most treasured resource, our children?

4. Specific strategies: creating magical moments

Magical moments occur when instruction is well planned, the audience well prepared, and the events are well constructed. Magical moments occur with greater frequency when the teacher in the classroom has developed a *habit of mind* that supports all of the above. Creating magical moments that will reveal the student's acceptance of other students begins with an understanding that each of us is unique, valued, and contributes to the overarching theme of acceptance and appreciation for our unique differences. Our connectedness makes the magic real and each singular moment builds a lifetime of universal acceptance of each other. Through intentional instruction, teachers can help students create their own *magical moments* when understanding and acceptance become the lens from which student learning is revealed.

While valuing one's own culture, young students are able to transfer that value to another given the opportunity to explore the significance of the interrelatedness of sameness and difference. This presentation will offer key instructional strategies that have been shown to enhance students' peer and self-acceptance, to include:

Developmentally appropriate practices (DAP), Cinderella stories from around the world; illustrate your neighborhood activities; social justice sharing exercises; and, constructing an I am 'Thumbody' booklet, as just a few examples that will be shared.

5. Specific strategies: social justice in the kindergarten classroom

What happens if we engage with children as if they had limitless possibilities and then structured a learning environment that communicated that to them through their relationships with the adults, the community, one another, the curriculum and the environment. This approach counters the negative deficit perspectives that have led to overrepresentation of children of color in special education or in out of school suspension. [In the U.S. Black children represent 18 percent of preschool enrollment but make up 48 percent of preschool children receiving more than one out-of-school suspension, according to the study released by the Education Department's Office for Civil Rights in March 2014. These out of school suspensions have been traced to negative development, as well as patterns of suspension that lead to a pathway to the juvenile justice system].

Teachers with deficit attitudes of students tend to have low expectations, make negative judgments (Villegas & Lucas, 2002). The research and literature speak to the need for beliefs that support social justice (Gay, 2010), and even a mission (Nieto, 2005). We claim that we must go beyond that by holding guiding principles that inform all our actions and thinking in our classroom. Limitless potentialities counter the deficit perspective and the fix-it mentality often found in early child hood programs centered on children of color and low income children.

The first step in creating the socially just classroom is to reflect on your own paradigm as a teacher. Parker Palmer says that good teaching comes from the identity and integrity of the teacher. We teach who we are, and project the condition of our souls on to our students, our curriculum and our way of being together. We must reflect upon our own experiences and beliefs in regards to children.

6. Conclusions

Fostering universal acceptance for early childhood students and their teachers is essential for social justice to occur. Some specific practices mentioned include establishing a cooperative learning community focused on social justice in the kindergarten classroom. For example, each day would begin with "community friendship circle, where cultural identity, self-esteem, character education and classroom team building are introduced and reinforced throughout the day. Character education that comes out through this process is connected to the local community values and traditions.

Early childhood preparation of teachers and those who teach our teachers must adopt practices for classroom use that are social justice based. Without this, children in their early years of schooling are at risk for lower-self-esteem and bullying. Today's classrooms can all be socially just places where all children are safe and universally accepted.

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THE GOOD THE BAD AND THE UGLY PRACTICES IN HIGHER EDUCATION

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Abstract

In this position paper we describe our experience on developing a newly-set-up learning environment within our University, and we provide examples of various practices within the areas of teaching, learning and assessment, student support, feedback provision, student engagement, staff development etc. Indicative examples of 'good' (as opposed to 'bad' and 'ugly' practices) with respect to the methods used to meet the learning objectives stated in programmes specifications are presented. All the above closely relate to the graduate profile agreed at our institution. This piece of work is aimed at every person who wishes to discover or reconsider the challenges involved in the transformation of an existing (or the creation of a new) learning environment in Higher Education. It is addressed to educators and educational leaders who are interested in exploring how an educational environment could be restructured, in order to fit the needs of students and staff in accordance with well-established and tested policies and practices in Teaching, Learning & Assessment.

Keywords: *Best-practices in higher education, innovation in teaching, learning & assessment, challenges in organizational change, university graduates' profile.*

1. Introduction and background

Establishing a new Department in a University is a challenge that very few of us have experienced, or may experience, in our academic careers. Confronting the "tabula-rasa" situation is both a blessing and a curse. It is a 'blessing' because one has the opportunity to set the rules towards an ideal environment, having watched the game numerous times. It is truly rewarding to have the luxury to select from a pool of experiences what to keep and what to ignore. On the other hand, it is a 'curse' because one has to set up the academic standards and quality so high that all stakeholders involved (students, public and University) could perceive the new venture as it had been there for ever. The "first-time" excuse is not convincing if errors and failures occur during the initial stages of operation.

The opportunity to build a new Department, namely the English Studies Department, emerged three years ago, when we decided to develop a new academic organisational unit that would offer Bachelor's and Master's Degree programmes of the University of Sheffield in the areas of English language, linguistics and TESOL. With respect to the framework this effort has been made, CITY College is the International Faculty of the University of Sheffield being the sixth faculty located in Thessaloniki, Greece with the other five located at Sheffield, UK. Having established and maintained this long-term collaboration since 1993, in 2009 CITY College became the International Faculty of the University of Sheffield. One may realize that this is a unique model of academic collaboration, allowing the full academic integration but at the same time ensuring financial autonomy and governance independence (Ketikidis et al., 2013). When the new Department was established, the International Faculty consisted of three other Departments, from which policies and good practices were adopted and adjusted to the new unit, thus exploiting the quality legacy in the best possible way.

The aim of this position paper is to share our recent experience on the challenge of designing and developing a new academic unit, thus facilitating educators and educational leaders who are interested in exploring how an educational environment, irrespectively of the discipline, could be structured or restructured. We will, therefore, discuss a number of issues related to how an engaging and inclusive educational environment can be fostered, aiming towards high educational quality and standards in Teaching, Learning and Assessment (TLA). As challenging as it may sound, the decisions taken in terms of: (a) which practices to apply (or refrain from) in order to establish and maintain a student-centred

approach, (b) which innovative learning technologies to employ aiming at enhancing the learning process, (c) what steps can enhance student and staff inspiration, (d) how education managers could deal effectively with an organizational change, constitute only part of the process followed to make the whole effort succeed. This paper is organised as follows: in Section 2 we describe our philosophy on the student-centered approach to quality. In Section 3 we provide examples of good practices, while in Section 4 we identify 'tips' on managing the organisational. Finally, in section 5 we conclude with a preliminary evaluation of the approach followed so far.

2. A student-centered approach to quality

Quality and standards are quite hard to define. According to QAA (The Quality Assurance Agency for Higher Education, 2015) "*Academic quality refers to how and how well the higher education provider supports students to enable them to achieve their award. It covers learning, teaching and assessment, and all the different resources and processes that a provider puts in place to help students progress and fulfill their potential*". This implies a student-centered approach, which in the case of the University of Sheffield is based on OR built around its detailed description of a graduate profile and the means (TLA methods) to accomplish that. In 2005, the University identified "The Sheffield Graduate Attributes" as part of its commitment to supporting student development. Throughout their studies we offer students access to support, guidance and exciting schemes that can help them stand out from the crowd (The University of Sheffield, 2005). In particular, a Sheffield Graduate is:

- SGA1 - knowledgeable in their subject area;
- SGA2 - a skilled and ethical researcher;
- SGA3 - information literate;
- SGA4 - a critical, analytical and creative thinker;
- SGA5 - an entrepreneurial problem solver;
- SGA6 - a flexible team worker;
- SGA7 - an accomplished communicator;
- SGA8 - skilled in the use of IT;
- SGA9 - a well-rounded individual, reflective, self-aware and self-motivated;
- SGA10 - an independent learner;
- SGA11 - an efficient planner and time manager;
- SGA12 - someone who sees the big picture and understands the importance of context;
- SGA13 - capable of working with clients, communities and partners outside the university;
- SGA14 - an active citizen who respects diversity and has the cultural agility to work in multinational settings;
- SGA15 - competent in applying their knowledge and skills;
- SGA16 - professional and adaptable.

Therefore, our goal is to develop an academic environment (both in terms of curricula and extracurricular settings) with programme specifications which will be able to "deliver" to the society a graduate with the above profile. This environment will have to be based mostly on practices that make a difference in the overall student experience (Fry et al., 2015). According to the authors, practices in TLA can be divided into three broad categories:

- 'Good': proven to be worth applying, as they contribute to the attribute enhancement of the graduate's profile,
- 'Bad': irrelevant to the graduate's profile, unsuitable to the context, of questionable value, and
- 'Ugly': positive in principle, yet repetitive or in need of refinement.

Due to length limitations, we will focus mainly on the good practices which have been employed to meet the learning objectives stated in programme specifications (English Studies Department, 2014).

3. Adopting good practices

Starting from a zero point, one has an excellent opportunity to reconsider how things are done in Higher Education and, in particular, in their own institution. Having worked with other Departments within the same University, we had a plethora of TLA methods and practices to choose from, continuously attempting to map each one of them to the SGA.

3.1. Teaching and learning

Cohorts of students are partitioned in small-size groups in order to facilitate interactive lecturing. This is an expensive model because it requires teaching of the same modules to different groups, retaining the academic staff workload, increasing on the other hand the overall cost in terms of contact hours for

the Department. Yet, it has tremendous impact on students' learning experience; students experience individualised treatment and guidance in class by interacting significantly with lecturer and peers. The lecture resembles a discussion triggered by notes in projection (SGA4). The contact hours often mutate easily when working in small groups, receiving the form of flipped lectures, question and answer sessions, invited speeches etc. with no extra logistics arrangements (SGA12). In addition, tutorials are scheduled exclusively for weak students who are in need of extra support (SGA1).

Towards skills development, the delivery of a specialised module during the first semester plays an important role to ensure that all students coming from different national educational systems, cultures and backgrounds acquire the necessary understanding of Higher Education set-up and requirements. The module "*Academic and Transferable Skills*" extends from reading to writing skills, from referencing to plagiarism and ethical implications, from report structures and oral presentations to the understanding of basic research methods only to mention a few (SGA2-11). This unit infuses students with the seed of all SGAs necessary to develop further during their studies. In addition, during the first year of their studies, a specifically designed week comprising of induction and crash courses facilitates further the integration of undergraduate or postgraduate students with diverse background and experiences either from high school or from different Universities respectively. Special attention is also paid to the use of IT as the tool for facilitating studies, research and professional practice (SGA8). Laboratory hands-on sessions introduce new ways of working both as individuals and in collaboration with others. Contemporary tools are introduced for word and arithmetic processing, as well as presentation and time management (SGA11). Tutorials on effective bibliographic search skills through the available e-resources have been rated as absolutely necessary by students (SGA3).

Learning Technologies contribute to a great extent to enhancing the overall learning experience (SGA8, SGA5). Students learn to use the features of a Virtual Learning Environment as a routine. Clickers seem to complement the effectiveness of classroom learning. Media use, such as TED Talks and other short videos break the daily routine and trigger contemplation and in-class debates. Structured e-learning activities, such as a talk in a virtual classroom over a teleconferencing tool serve a twofold purpose; to make students aware of the potential of synchronous blended learning, and at the same time to teach them how such tools can be used by themselves in their profession. Home-made screencasts and videos are created as libraries of sort "how-to" tutorials available at any time.

Finally, in an effort to overcome the rigidities of the semester structure and aiming at creating life-long learning opportunities for professionals we have also set up curricula (specifically at postgraduate level) delivered in teaching blocks over weekends. This delivery method address the needs of a niche market, targeted towards students who are already employed or have family obligations, but who wish to study at the same time. The challenge of this 'executive' mode of delivery is to maintain the student interest during the teaching blocks by applying a variety of teaching and learning methods, and also to offer them an equivalent learning experience as the one that students who study during week days experience (SGA9, SGA10).

3.2. Student support

A student-centered approach to support implies prioritizing communication with students. The "open-door" policy (including synchronous electronic communication) together with the email response time policy have proved to be crucial in supporting students and their needs both promptly and effectively. As a result, students do feel that they are top priority for the academic staff and, therefore, get motivated to carry on undistracted by other concerns. In addition, pastoral support is achieved through the personal-tutor mechanism, which is in place since the commencement of the programme.

Student support falls under the "*learning outside the classroom*" concept together with a number of other activities, such as:

- Research Scheme supervision for undergraduate students, with funded projects, offering 2nd-year students the unique opportunity to engage with research (SGA2);
- Support towards submissions to conferences and other events of exceptional student work for presentation or publication in scientific and professional fora (SGA15);
- An in-house multi-disciplinary Student Symposium organised by students for students with presentation of student work or coursework to their peers of different disciplines (SGA13);
- A series of Seminars organised by the Department inviting guest speakers (SGA13, SGA16);
- Career Days following preparation for interviews and CV-writing seminars, providing the opportunity to meet potential employers and experience real interviews (SGA16);
- Work Placements (normally in summer) in which students work in a real environment applying their knowledge and practicing their skills (SGA13,SGA16);
- Extra-curricular activities organised by Student Affairs such as membership in thematic clubs, participation in student union and class representation activities, etc. (SGA14)

3.3. Assessment and feedback

Equally important in terms of good practices are the assessment methods. Obviously the combination of coursework and exam assessment remains the 'backbone' of measuring student performance. The variety of assessment methods employed guarantees that: (a) the mapping of performance to the learning outcomes of individual modules and the programme as a whole is maintained, (b) the standards and quality of discipline-specific aspects are preserved, (c) the accomplishment of SGAs is achieved, and (d) students' interest and engagement remains increasingly stimulated.

Although the types of assessment are basically limited, for example essay type, presentation type, unseen examinations , we have early enough realized that there are numerous instances of each one with variations that add enough "spice" to distinguish it from others and to achieve different SGAs. Below, we attempt to describe only few of them focusing on the specific 'flavour' added, rather than the assessment type itself.

- Self-reflective reports: they are closely associated with essays and presentations, allowing students to articulate how they improved through the process and feedback (SGA9);
- Virtual presentations: using screencast tools, students create online presentations striving for skills different from the ones they develop in live presentations (SGA8,SGA7);
- Competitions: students compete each other in assignment quality and are awarded prizes which motivate them to work harder and more systematically (SGA14,SGA15);
- Poster exhibitions: the work that students produce in the form of posters is displayed in public at the institution premises, making them proud of what they have achieved and engaging the further into higher quality coursework (SGA7,SGA16);
- Debates: structured discussions among students adopting opinions and arguments from research literature, assist them in enhancing their knowledge but also their communication skills (SGA4);
- Peer assessment: students evaluate the work of other students and provide peers with extra feedback, identifying best practices and hopefully adopting them in the future (SGA12);
- Demo teaching: students teach peers in a subject area, acquiring professional skills in a 'safe' environment in the form of simulation exercises (SGA7,SGA15,SGA16);
- Research ethics exercises: students submit research ethics application forms for a hypothetical scenario in the research methods unit, which prepares them fully for any work that involves human participants, such as their dissertation or their final-year project (SGA2, SGA13).

All the above can add more value if considered on individual or groupwork basis, with groups comprising a mixture of gender, nationalities, cultures, age and other diverse characteristics (SGA13). Some of the above, if used in the right way, can ensure that various types of learners are given equal opportunities to meet the intended learning outcomes (Biggs, 2011).

Finally, it is worth mentioning that continuous improvement is based on feedback that students receive on their work. Two success stories should be highlighted: (a) the initial feedback on drafts and (b) the electronic feedback. The former depends, undoubtedly, on the number of students and it might be proven an expensive policy to apply in large groups. In our case, students submit a draft (sketch) of their work on agreed date, some days prior to the deadline to allow consideration by lecturers. Module leaders give initial feedback that will help the students to get or stay into the right track and draw their attention to specific issues related to the assignments. This is an excellent opportunity for students who wish to make the most out of it, in order to avoid common pitfalls and better understand what they need to produce by the deadline.

The electronic feedback, on the other hand, has been essential to maintain turnaround time (2 weeks from submission) and increase the quality and quantity of feedback provision. All submissions are made electronically through the plagiarism prevention system and marked online. A library of detailed comments as well as generic feedback forms (rubrics) have been created based on the characteristics of assignment types and re-employed saving a lot of time in marking. The most important factor is the three-pillar analysis in each feedback form, namely "*What you have done well*", "*What you have not done so well*", and "*What you can do in order to improve in future assignments*". All feedback forms are kept by students within their portfolio for personal development and self-reflection (SGA10, SGA12).

4. Managing organisational change

Such innovative practices cannot materialise without staff appropriately qualified and adequately trained. Appointing staff to a new Department is a huge advantage since the operational rules are set from scratch. In existing environments, it is always a major challenge for the senior management team to deal effectively with organizational change. Academics seem strongly resistant to change; especially in a research-led University, academic staff prioritises research while teaching becomes a daily routine.

One of the priorities of the new department's management team was staff induction, mentoring and development. Thus, a series of induction workshops that dealt with all aspects of LTA as well as regulations and policies of the University were organised. It is much harder than one might think for newly-appointed staff to be able to deal with situations regarding procedures of the institution. Knowing that, we appointed a mentor to each member of staff for an induction time period of two years. In addition, a number of staff development sessions and workshops took place on a monthly basis introducing staff to new techniques, learning technologies, assessment strategies etc. Lastly, a number of staff members enrolled in an in-house accredited programme which leads to the award of the PG Certificate in Learning and Teaching, aiming towards academic qualification related to TLA and professional development through fellowship in the UK Higher Education Academy.

Finally, significant effort and time has been put in the quality assurance processes for checking that the academic standards and quality meet the agreed expectations. Yet, the central exercise of control in a new Department seems to be the only way to maintain the complete picture of the progress of the curriculum, at least until the programmes are fully fledged. Admittedly, pairing staff to teach components of the same module has created a useful interaction between colleagues and a unique network of assuring that preparation, delivery and assessment are of equal standards across the board.

5. Conclusions

It has been two years since the establishment of the new Department and the launch of its programmes, and there is still a lot of room for the development of innovative practices. We were thrilled to see that student feedback in evaluation questionnaires has reached maximum satisfaction, which constitutes evidence that our approach is effective. External examiner's report commended the useful practices. The University Annual Reflection exercise highlighted the tremendous potential. When student representatives were asked about any issues in the new Department's operations, they replied with a genuinely-surprised expression "*New Department?? Which new Department?*" which made us feel rather reassured that everything had run smoothly and as according to the plan.

During the last few years, we wondered many times: "*Which are the 'good', the 'bad' and the 'ugly' practices?*" Judging from the preliminary outcome, we believe that we have identified the 'good' practices as those which are more suitable than others in developing the Departmental and University graduate profile. We have rejected all those which do not have anything new to contribute as 'bad,' and we have considered a set of 'ugly' processes, which infused with the appropriate 'spice' could be turned into 'good' practices and, together with the good ones, engage students on an ongoing basis, ensuring that equal opportunities are provided to different types of learners so that they can meet the module and programme learning outcomes.

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UNIVERSITY LEADERSHIP; THE CASE OF UNIVERSIDAD NACIONAL AUTONOMA DE HONDURAS[1]

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Abstract

The research tries to understand and explain the phenomenon of leadership in the context of Universidad Nacional Autónoma de Honduras (UNAH). This study uses the design of mixed method, based on a quality framework (rigor, reliability and validity). It describes the design in terms of the scope, purpose, priority and sequence of methods (quantitative and qualitative); and characterizes each method in terms of sampling, data collection and analysis. For both approaches, convenience sampling is used. The dominant theory (Transformational and Charismatic Leadership) is only used in the quantitative dimension; the Multifactor Leadership Questionnaire was applied to a sample of 149 observations in three levels (linkage) of the new educational model of UNAH. An Analysis of variance (ANOVA) was applied. In the qualitative dimension, the expanded system of leadership theories was applied in sixteen (16) interviews and five (5) focus groups allowing covering the different levels established in the educational model (Macro, Meso and Micro). Was also achieve to interview ten (10) males and six (6) females. Focus groups were integrated into five (5) groups for a representation of ten (10) men and nine (9) women, i.e. involving in total thirty-five (35) persons. Based on the results of this study, in the field of Leadership, we can identify the recommendations for future studies. In all organizations, independent of the sector to which it subscribe the leadership is a critical engine and causal determinant factor. The actual progress of the organization and / or institution depends critically in pushing the management team. With the analysis of the quantitative approach, it is demonstrated that on average, women score higher on transformational and transactional leadership compared to man, who also scored lower on leadership direction characterized by Exception Passive and Laissez-Faire. With the qualitative approach, the highest percentage of saturation was the so-called Transformational and Charismatic theory, and surprisingly a new category of centralized leadership was identified in an inductive way. The findings provide insights into the types of leadership that influence the educational model of UNAH, and could contribute to design higher education initiatives in terms of policy, programs and projects.

Keywords: *Mixed method, transformational charismatic, and system of leadership theories.*

1. Introduction

The reform process and its actual educational model represents large challenges for the Universidad Nacional Autónoma de Honduras (UNAH) in all its complexity and comprehensiveness, in its governing Honduran higher education and policy initiatives, programs and projects role, as well as the dynamics of knowledge management and internationalization (Calderon & Arias, 2008). Therefore, it is crucial to understand and explain the dynamics of management in a variety of contexts and levels, but also what causes or move the processes, mechanisms and devices (internal and external), towards sustainability and autonomy defending higher education as a public good. The leadership is now widely recognized as a key determinant driver of outcomes and impacts.

Previous studies on leadership managed to implement meta-analyzes taking into account the last ten decades (one hundred years) in order to identify key categories of theoretical and structural foundation. These studies elucidated that the field of study needs to continue making research in order to achieve greater maturity. Some of the recommended key issues are: 1) context of several levels of

[1] The article is derived from results obtained of the PhD thesis; Arias, C.E. (2014). *Liderazgo Universitario hacia una gestión del desarrollo humano sostenible con excelencia; el caso de la UNAH*. (Doctoral dissertation, Universidad Nacional Autónoma de Honduras). Retrieved from https://issuu.com/doctoradoccssgd/docs/liderazgo_universitario_hacia_una_g

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analysis (multi-level), 2) context of leadership, 3) women as leaders or women's leadership 4) international leadership, 5) transformational / charismatic leadership, 6) mixed methods, and 7) leadership development and leadership system as a common language able to articulate the diversity of theories.

The effectiveness of the management model in academic excellence depends largely on leadership by the institution (Wesseler, 2013; Arias, 2009). Therefore, UNAH needs to have original information about it, to lead the institutional mission and vision (Arias, 2014). This paper examines all key aspects (directions and recommendations) guided by extant theoretical and empirical research on leadership. (Lowe, & Gardner, 2001; Gardene, Lowe, Moss, Mahoney, & Cogliser, 2010; Hernández, Eberly, Avolio, & Johnson, 2011). I focus on understand and explain the different styles of leadership in a common language as a system of theories, under the new educational model of the UNAH (Arias, 2009; Arias, 2014).

2. Objectives

The overall objective is to evaluate the application of the concepts of leadership as a system of theories in the context of the educational model of UNAH.

Specific objectives such as; 1) analyze the different levels of the educational model of UNAH; 2) leadership development and leadership system; 3) leadership in two campus of UNAH; 4) women as leaders and women's leadership; 5) international leadership, and 6) transformational / charismatic leadership as the dominant theory (Arias, 2014).

3. Methods

This study uses the design of mixed method research. Guided by (Cameron, 2009; Cameron, 2012; Cameron & Molina-Azorin, 2010; Cameron, Trudy, Scott, Ezas, & Aswini, 2013) At all stages and phases of the research process criteria of rigor, reliability and validity were taken into account, in both methods gave a clear sequence and application. Also identified were the complementarity of both approaches (quantitative and qualitative); limitations of a method associated with the presence of another one.

The structured and systematic process ensures the objectivity of the research process. Another aspect that contributes and ensures the validity was through presenting this research in colloquia of doctoral schools, obtaining comments and feedback of other researchers and practitioners.

Reliability went to have all official steps of the methodology. The minimum requirement is that the analysis is conducted by researcher with experience in the subject and methodology. While inter-rater reliability is very high when mixed methodology is used, which allows complementarity in quality control and articulate well the strengths and weaknesses of both methodologies (quantitative and qualitative). (word underlines the sentence – meaning not clear

A mixed-method approach was employed to investigate the leadership as a system of theories; the Multifactor Leadership Questionnaire (MQL) was used to measure the dominant theory of Transformational and Charismatic Leadership (quantitative approach). An Analysis of Variance (ANOVA) was use with the data collected. A survey was administered and applied to a sample of one hundred and forty nine (149) observations in three levels (macro, meso and micro) of the new educational model of UNAH, including internal and external institutional actors; decision makers, docents, students and practitioners.

In addition, considering the expanded system of leadership theories. quanti-qualitative (with qualitative emphasis) measure were employed in the form of open-ended written interviews and semi-structured focus group. Interviews conducted with open questions about the perception of leadership in the UNAH and based on the constructs and components of leaderships system proposed by (Hernandez et al., 2011). A content analysis of categories and coding were applied to the data collected.

The interviews were applied to sixteen (16) decision makers, lectures (docents), students, practitioners, ten (10) males and six (6) females, who had been active participants of in the process of UNAH activities. The five (5) focus groups were comprised of a core set of approximately ten (10) men and nine (9) women. In total thirty-five (35) persons were involved covering the different levels established in the educational model (Macro, Meso and Micro), belonging to four regional networks, and two campus of UNAH.

Interviews and focus group discussions enabled consideration of how actors perceived leadership. Interviews and focus groups provided insight on how stakeholders (students, lecture, decision makers, context, etc) engaged at different levels of educational model of UNAH; and they revealed a

complex array of factors and categories that influenced paths of university leadership as institution, including all mechanisms: traits, behaviors, cognition, and affect.

The ongoing processes of self-assessment and reflection revealed how individuals conceptualize leadership, when they practiced it, and which mechanisms impeded or supported its practice.

4. Data source and discussion

The quantitative (MQL) survey results revealed that on average, women score higher on transformational and transactional leadership than men. In addition, they scored lower on leadership characterized by passive management by exception and Laissez-Faire. An analysis of variance performed to test the hypothesis that the mean scores in Transformational leadership differs significantly between men and women. By Levene test ($p = 0.01$), the null hypothesis that the variances between groups are the same is rejected, so the ANOVA results are robust. The significance of the test F is 0.001, so the null hypothesis that the mean scores in transformational leadership is the same for men and women, ie, the groups differ significantly.

Under the Analysis of Variance, there are significant differences (0.10) in effectiveness and satisfaction and (0.01) for Extra Effort. The test of homogeneity of variances of Levene is significant at 0.05 for all variables. Therefore, women have a greater perception of effectiveness, and promote greater satisfaction and extra effort, which is consistent with the styles of leadership displayed.

Regarding the level of connection of the survey, according to the results of ANOVA, there are no significant differences between measures of organizational performance (satisfaction, effectiveness, extra effort), or the emergence of transformational leadership at various levels (macro, meso and micro). The test of homogeneity of variances Levene is significant at 0.10 for all variables, so the main assumption of ANOVA is met.

With regard to the subsample of Western Regional Campus (CUROC, acronym in Spanish), according to the results of ANOVA, there are significant differences between measures of organizational performance (satisfaction, effectiveness, extra effort), and the emergence of transformational leadership. The test of homogeneity of variances Levene is significant for all comparisons, so the main assumption of ANOVA is met. It concluded that the average for transformational leadership is significantly lower in the Western Regional Campus (CUROC, acronym in Spanish) compared to other universities campus. Similarly, measures of organizational performance (satisfaction, effectiveness, extra effort) are lower in CUROC.

In the first part of quantitative and qualitative analysis, the frequency and distribution of content analysis categories and codes of the sixteen (16) in-depth interviews and focus groups five (5). These categories are linked to both the proposed system by (Hernandez, et al., 2011), as well as other theories proposed by other authors (Eagly & Carli, 2003; Einarsen, Aasland, & Skogstad, 2007). In descending order; the highest percentage (35%) was obtained by the theories called Transformational and Charismatic, followed by the categories of Destructive Leadership Model (20%); then emerging theories (9.75%); theories strategic approach (9.48%); contingency theories, contemporary theories (7.32%); shared leadership theory (5.13%); female leadership theory (2.46%); theories of social exchange (0.82%); Centralized leadership (0.38%); and finally with the lowest percentage theories of new perspectives (0.27%).

The dominant theory identified in the literature review "Transformational and charismatic leadership" was the only one evaluated with both approaches; a) quantitative and b) quanty-qualitative (qualitative emphasis). In the approach with qualitative emphasis, nine (9) categories of the eleven (11) proposed by the system (Hernandez et al,. 2011) were identified. The theory of "transformational and charismatic leadership" resulted with the highest levels of saturation. However, it was not the only one with high saturation levels. In addition were identified inductively other categories that are not part of the system of theories; such as cases of destructive leadership and women's (female) leadership. Added to the above were identified (empirically) a category that was not detected in the literature review and was called centralized leadership.

In relation to female leadership. In the word of a leader (man) from University Council at Macro, level. "*Then it is a different situation, but definitely we have seen now what we call the university government at times has been a most formal and legitimate women's leadership the process of university reform has advanced not only at a speed greater effectiveness, but with a depth and consistency with the aims of the reform*". Clearly, this leader is using direct terms (effectiveness and consistency) to describe female leadership. The category of transformational leadership. In the word of a woman´s leader at meso level."*I think I feel more identified with transformational, that's what I could say, I have seen the transaction and the progress is not visible, then I'd say marry me a little more with the Transformational, that's my style take and change it for something better or different, if something is working well and after*

taking a little time and space to study and is working well, do not change, but what I try to do is improve it, but if something is wrong ". It's possible to recognize that in general the transformational it's the preference style of woman, in this statement directly expressed, but we can link to the frequencies coding (quantitative) and to other subcategories related to "transformational leadership". In contrast I identify statement related to centralized leadership. For example in the word of students and docents at micro level in different campus. "*The key stakeholders in the context unaware of the process of university reform, see also explicitly make decentralization and joined the bureaucracy affects the efficiency of regional campus"…"Accountability at all levels would be good practice to achieve communication, trust, more allies, transparency and less centralization of processes"…" Loss of belligerence in management of regional campus by centralized decision-making and budget, in relation to real needs of new careers and physical infrastructure"…" Loss of regional leadership by the centralization of budget and decision making*". I began to image a different management style, more decentralized with less bureaucracy, but with accountability, communication, transparency. Students and lectures see opening for participatory decision-making and budget process.

Another category that take the attention its ´destructive leadership`.in the word of leaders (man and woman) at macro and meso level, …"*the actions of this academic direction (unit) are not in function or the institution or the internal actors*"…"*destructive actions toward the institution and human talent*"…"*Partisan practices do not meet the interests of the institution or the common good of employees"…"Group interests and not of the institution ... difficult to change where interest groups*". The relation and correlation of this style of leadership with other categories was not measure in this study, but for future studies will be important to develop hypothesis in order to see variance and significance and which factors are the most determinant.

5. Conclusions and recommendations

This study of leadership at all levels of educational model of Universidad Nacional Autónoma de Honduras revealed the importance and value of seeking out all stakeholders (docents, students, authorities, and so on) voices and theories related.

Quantitative surveys give elements to explain the dominant theory the so called "Transformational and charismatic leadership", through analysis of variance which demonstrated significant differences between determinant factors, levels of concretions, university campus and control variables. Quantitative analysis concluded that the average for transformational leadership is significantly higher in women than in men. Measure with qualitative emphasis demonstrated that ´transformational and charismatic leadership` is the most saturated style, nevertheless there are other theories of leadership identified at context of UNAH. Consequently give elements to understand wider the phenomenon, therefore that not only the dominant theory influences the leaderships styles. The female style it is more significant than male style, but take the attention that there are some contrast between some important styles, for example, ´transformational and charismatic` versus ´destructive`, `centralized`. One of the limitation of the study could be that is not possible to ensure with significant indicator if this contrast belong to female or male actors. So, will be necessary in future studies to continue with more systematic triangulation of complementary between both approaches (quantitative and qualitative) in order to have a more complete picture about university leadership in the context of UNAH. Integrating the new advances and maturity of leadership as a field of study.

Notwithstanding the above limitations, this study with actual results could be a starting point at the institutional level that identifies and provides some elements (based on findings) to design some programs, projects and initiatives to promote institutional leadership in the UNAH.

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ASSESSING GLOBAL FINANCIAL LITERACY - IMPLICATIONS FOR TEACHERS AND POLICY MAKERS

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Abstract

There is little debate that being financially literate can help citizens participate in everyday life. Such "twenty-first century" skills are increasing sought after by employers and there is no shortage of talk from policy makers. Yet the financial education of school aged students in many countries remains ad-hoc at best. As the number of available financial products grows, and the volatility experienced in financial markets continues, we have an obligation to ensure that our students have the skills to cope with, are prepared for, and are able to successfully navigate the world of personal finance.
Drawing on international data from the 2012 PISA Financial Literacy study, and lessons learned from attempts to incorporate financial education in Australian classrooms, the presenter will argue that by the time some countries get around to addressing such "twenty-first century" skills, we may well be approaching the twenty-second century.

Keywords: *Assessment, international, PISA, financial.*

1. Introduction

There is little debate that being financially literate can help citizens participate in everyday life. Such "twenty-first century" skills are increasing sought after by employers, and there is no shortage of talk from policy makers, yet the financial education of school aged students in many countries remains ad-hoc at best. As the number of available financial products grows, and the volatility experienced in financial markets continues, we have an obligation to ensure that our students have the skills to cope with, are prepared for, and are able to successfully navigate, the world of personal finance. Financial literacy is now globally acknowledged as an important element of economic and financial stability and development (INFE, 2009).

2. PISA data

As with any large-scale intervention programme, before we can begin teaching students we must first assess what their current skill set is. The 2012 PISA Financial Literacy study was a very strong step in the right direction, a ground-breaking international assessment that allowed participating countries to see not only what was happening domestically, but also to see how each country fared on an international scale.

And the results were not so pretty. On average, across the participating OECD countries and economies, 15% of students scored below the accepted baseline level of financial literacy, meaning these 15 year-old high school students could make simple decisions about everyday spending, and apply basic numerical operations in contexts that they are likely to have experienced personally, but little else. Only one in ten students could show an understanding of the wider financial landscape, such as the implications of income-tax brackets, or explain the financial advantages of different types of investments (OECD, 2014). And while countries like Australia, New Zealand and others from Eastern Europe performed relatively well, Western European countries like France and Spain struggled, and Italy was ranked next to bottom, managing to outperform only Colombia.

When taking into consideration the qualities measured from the associated student questionnaire, the PISA data produced few surprises. The usual socio-economic factors played their part: for example, the academic achievements of the child's parents was strongly correlated to the child's performance on the test.

But one piece of data did raise eyebrows: the amount of financial literacy related instruction received by the child had no effect on the child's performance on the test. There was, in some cases, even a small amount of negative correlation. Initially, this seems shocking, but when one considers which students are most likely to receive financial literacy instruction, it perhaps makes sense. Many weaker students who are struggling with the basic concepts of money are often the ones who are placed into classes designed to assist them with such concepts.

3. Factors affecting difficulty of financial literacy test items

Three researchers from the Australian Council for Educational Research independently analysed each of the 84 test questions that were included in either the trial assessment or the full PISA survey. They evaluated each question according to different criteria in eight separate strands, and awarded a score for each strand. The strands were as follows:

- Familiarity of experience with (financial) products
- Life stage relevance
- Understanding and use of financial terms
- Understanding and application of financial products
- Reading demand
- Conceptual understanding of numeracy
- Application of numeracy skills
- Capacity to make effective (financial) decisions

Each strand had either two, three or four possible categorisations. Where the researchers were not in agreement for the categorisations, an average (mean) score was calculated. This meant that there were 84 test items with 8 different score values attached to each item to determine that item's 'theoretical' difficulty. This data was then analysed against the actual difficulty as determined by the 2012 PISA survey and trial studies.

Linear regression techniques were used to determine which (if any) of the eight strands played a role in determining the difficulty of the test item. The following four of the strands showed to significantly affect the item difficulty.

- Life stage relevance
- Understanding and use of financial terms
- Reading demand
- Capacity to make effective (financial) decisions

3.1. Life stage relevance

Test items that were of immediate relevance to 15 year-old students were shown to be easier than items than those which assessed concepts normally associated with adulthood. For example, items that dealt with mobile phone plans were easier than those that dealt with mortgages regardless of the difficulty or complexity of the numeracy involved.

3.2. Understanding and use of financial terms

Items which used familiar financial terms proved to be easier than those items that used specialist vocabulary. For example, the term 'budget' is a more commonly used word than 'invoice' for 15 year-olds, and so items along these lines tended to be easier for students to answer correctly.

3.3. Reading demand

Since the financial literacy test was a written test there was always going to be a reading demand required of the students. Attempts were made to simplify the language as much as possible to prevent students' literacy levels becoming a significant factor in item difficulty, but more complex items often require longer explanations. This was the case here with longer test questions proving to be generally more difficult.

3.4. Capacity to make effective (financial) decisions

Items which required students to evaluate the information presented before making an effective financial decision proved to be more challenging than items that did required students to merely respond to the information without having to make decisions. Items that required students to generate their own response were shown to be more difficult than items that required students to select one of a set of presented responses.

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4. Country approach

There is no agreement in countries (and indeed in schools within countries) about what constitutes financial education. For some students, such education could be a formal course developed by the education authorities, run by specialist teachers on a weekly basis. For others, it could be irregular visits from banking professionals dressing up a promotion of the bank's products as financial education. With such a diversity of financial education available it becomes impossible to draw reliable conclusions from the data collected.

So how have different countries approached such a mammoth task of preparing its students for life in an ever-changing financial landscape? Some countries like the high performing Czech Republic have developed national strategies enforcing compulsory financial education on its students, while other countries like Australia have made ill-fated efforts to incorporate financial education into subjects within the national curriculum. Financial education in Australia has been improved by ASIC's (Australian Securities and Investment Commission) freely available MoneySmart programmes. The problem is, that with an increasingly crowded school curriculum, very few teachers have the time to dedicate any teaching to these learning modules, and so the uptake of such a useful resource has been limited.

5. Policy implications

The financial landscape is changing. For many people in the past, a high level of financial literacy was not needed: the local bank manager lent you money to buy a house, you paid it off, went on a decent holiday towards the end of your working life, and then let the government look after you in retirement. These days the financial responsibility has been shifted from state to individual with the individual now having to make discerning choices about pension plans, healthcare schemes, education options and investments. Most surveys show that a majority of workers are unaware of the risks they now have to face, and do not have sufficient knowledge and skills to manage such risks adequately, even if they are aware of them (OECD, 2008). How can we expect our students to learn "twenty-first century" skills if our policy makers' frames of reference are stuck squarely in the twentieth century?

Though most pronounced in developed countries, similar issues are playing out in many developing economies. Individuals everywhere need the skills to make sensible financial choices. And the amount of choice available is vast. Around the world, growing numbers of consumers have greater access to a wider range of financial products and services than ever before. The products themselves are also more complex with so many different options, plans and payment schemes that they appear to have been designed deliberately to bamboozle the consumer.

Most policy makers agree that financial education should begin before adulthood and thus the responsibility falls within the school system. But with administrative pressures on teachers increasing every year, and with so many classroom teachers not being particularly financially literate themselves, it's a big ask for schools. Empirical evidence shows that adults who have had some form of financial education are more likely than others to save and plan for retirement (Lusardi 2009), suggesting that financial education can have an impact on consumer behaviour.

The results of the PISA study raised some interesting questions for teachers and policy makers alike. But at the heart of this is the question of whether we are adequately preparing our young people for life in an increasingly complex financial world. It appears that, at the moment, some countries can be awarded a grade A while on many other countries' report cards it will read "could do better". And by the time some countries get around to addressing such "twenty-first century" skills, we may well be approaching the twenty-second century.

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DESIGN AND CONSTRUCTION OF TEST FOR TECHNOLOGY COURSE IN COLOMBIA

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Abstract

Education in Technology is essential to make citizens participate actively in society. Colombian Ministry of National Education (MEN) guidelines for Technology and Computer Science suggests competence and competency that a student must achieve, but it´s necessary to specify there are not performance indicators or another mechanisms to measure technological skills making teachers evaluate only superficial knowledge. This way is necessary to develop tools for helping teachers to measure technical competences levels proposed by MEN. Diagnostic tests involved 'Problem solutions by using technology' and 'Ownership and use of technology. To make diagnostic tests design was necessary to build competency indicators and qualitative evaluation scale which establish the student level in each competency. Also for every competency a bank of questions was elaborated considering the goals proposed by PISA tests, these questions prevail problems solutions in context. Validation process was conducted in twelve schools of the country by implementing a pilot. Difficulty level of the test, the discrimination index and its reliability was established from the results and tools to correct and eliminate determined instrument. An autonomous assessment tool is been created from diagnostic tests.

Keywords: *Evaluation, validation, test design, tool education.*

1. Introduction

The education based in competences allows the development of learnings, therefore is configured as an extended educational strategy worldwide (Bakx, Baartman & Schilt-Mol, 2014). Although the characteristics of the model, the evaluation of these present as a major challenge in the learning process of the students. This challenge implicates to identify and recognize in the students, the ability to apply skills and knowledge versus a problem that belongs to a given environment. The evaluation process has three main parts: diagnostic evaluation, formative part and summative part. The diagnostic part takes place at the beginning of the process and allows determine those pre-concepts that students have before starting the course. The formative part is developed throughout the educational process and allows the teacher to establish through various mechanisms, the level the student has in each of the skills worked. Summative part lets determine at the end of an academic period, the scope that the student received. The diagnostic and summative assessment makes a gradual systematic measurement, delivering as a result the level of achievement obtained by the student. For the case of technology education, they will have different experiences working through competencies. Works such as (Arsenault, Godsoe, Holden, & Vetelino, 2005) and (Excoffon, Papillon, Fesquet, Bsiesy, Bonnaud, 2012), show the need to work with evaluative mechanisms to provide information about the educational process of the student. These mechanisms should evidence the progress made by the students through the process, should provide information about the skills that they have difficulty and those where they have strengths. In order to determine the advance from the beginning to end of the process it is necessary to create input instruments type diagnostic. The most common of these are the evidences, which have been used to determine the initial state of the student.

In Colombia although there are the technological skills, there are no instruments to determine the initial level of the students. The normativity established by the MEN do not present indicators to measure achievement levels obtained by the students, so the previous concepts are not established, nor the technological skills that students have before starting the course. That is why in this work the steps followed for the construction and validation of two diagnostic tests are presented. Then we describe the organization given by the MEN in the technology education, together with the design process of diagnostic tests as well as the characteristics that define the process of validation and reliability of

assessment instruments, then we describe the process proposed to develop the application of the pilot in the two district institutions and we analyze the results obtained in the validation process, finally we present the conclusions and future work to be developed.

2. Organization of technology education in Colombia

Technology education is internationally recognized as a fundamental area which enables future citizens participate actively in society. In Colombia, the Ministry of National Education (MEN) established guidelines for teaching information technology through a document where is indicated the competences and competency that primary and secondary students must reach. These skills must be developed in the curriculum of the different institutions of primary and secondary, taught compulsorily in each one (MEN, 2008). MEN in 2008 published the document 'Series 30: Be proficient in technology: a need for development', in it is given the organization of relevant aspects of education technology. However, the Series 30 do not present in its organization the performance indicators that have to be developed in the learning process. This leads to not have mechanisms that allow establishing measurements on the skills that have to be enhanced. That's why teachers do not often evaluate the competencies, but the knowing of any subject. Nor previous concepts or technological skills that students have before starting the course are set. It is therefore necessary to create a diagnostic tool for contribute to teachers and students in establishing the previous level of the technological competences. Thus they were created and validated two diagnostic tests for two of the components, troubleshooting with technology and the appropriation and use of technology.

3. Design and validation of educational tools

3.1. Principles of validation of written evidence

Validate an educational tool allow to determine necessary information about the veracity of the obtained data by the instrument created (Froncek, Hirschfeld, & Thielsch, 2014), to obtain data that validate the created diagnostic tests. In this tool there are two main stages, the design of testing and the validation of these. Within each stage we have a number of phases which can obtain an input. In the first case when finishing the phases of conceptualization and construction of reagents it will obtain the diagnostic testing. In the second case when finishing the internal phases will obtain the validation of the tests.

3.2. Design of diagnostic tests

The first step in the design of the tests was to review the performance and translate them into skills to determine the cognitive level to which they belong, according to the revised Bloom taxonomy (Krathwohl, 2002). For this, the main verb of each performance was taken, it was categorized in any of the cognitive domains within the scale of Krathwohl and it was concluded: the scope of learning, the quality that develops and the possible evidence to be obtained in the student. The remaining aspects of performance let determine the scopes expected in the student. Thus, the indicators will be set to get evidence of learning that has or will have the student.

By having the scopes of each performance and cognitive skills expected, it began with the construction of the tests. To do this we took into account some aspects of the PISA tests, particularly the one who established that a written test must not only determine knowledge, aptitudes, and abilities of the student, but also must demonstrate the application of these characteristics in various environments (OECD, 2006). So, it took each of the skills and translated it to a series of questions that have in common the troubleshooting in a context.

In order to build the evidences, it was necessary to establish the types of possible questions, according to the skills that have to be examined. It explored with true or false questions, mating questions, filling blanks, but many of them did not satisfy the skills to be measured. Therefore, it was established that the open and closed questions with single or multiple choices, might be appropriate for this case. These types of questions help determine the level of competence of a student properly (Stangal, & Kstner 2011).

In the case of open questions, provides students the opportunity to show their skills and to show the highest levels that are into Bloom's taxonomy. For its construction we follow the guidance given by (Husain, Bais, Hussain, & Samad, 2012), where five criteria were posed: Concept in a particular field, a question can have multiple answers, the need to communicate the reasoning process, questions should be clearly established and have a scoring model.

In the case of closed questions it took into account the guidance given by Case and Swanson (Case, & Swanson, 2006), where there are a number of strategies for the construction of multiple-choice

questions. Among the characteristics that are considered most relevant they are: The statement should be clear and should not induce to the possible answer, the distractor should not confuse, and although it is less correct should not be totally incorrect, this could result in the discarding selection of the real answer by the student, do not use questions involving rote answers or simple deduction and the question should evaluate the application of knowledge, integration, synthesis and judgment about a given problem. Considering these elements, 22 questions were made for the test of ownership and use of technology, and 18 for the test of troubleshooting with technology. The following section is explained the procedures used for the validation of diagnostic tests created.

3.3. Validation of written tests

The validation of content of the designed tests was develop through an application on a pilot group, because in this way it is possible to make a rigorous monitoring, as from the traditional guidelines of measurement and evaluation (Obando, 2009). To make this validation we used the difficulty index, for establishing the proportion of students who correctly answer a test question (Backhoff, Larrazolo & Roses, 2000). Also was used the validity by discrimination index, this indicator is used to measure skills and competencies, thanks to it provides information about the possibilities expected on the student who had a high score throughout the test, on the assumption that he has a higher probability of correctly answering a question (Froncek, Hirschfeld & Thielsch, 2014).

It was also necessary to consider the reliability of a test, which refers to the precision with which the test measures what it should measure in a given population and in normal application conditions (Almanera & Llorente, 2013) and (Aiken, 1996). This measure allows us to confirm that the tests that are applied in similar populations will produce consistent and coherent results with what you want to measure. In the case of the designed tests it was made a measurement of reliability by internal consistency, since this provides the necessary information in a single application of the tests. Cronbach's alpha was used, since it scans the weighted average of the correlations between questions that are part of the measuring scale given (Merino & Lautenschlager, 2003).

The last aspect that is taken into account to validate an evaluation instrument is standardization. At this stage are determined the rules to be considered for implementation, as well as scoring and interpretation of the obtained results. With these aspects will be possible to determine that the test carried out, measures the planned competitions, allowing teachers and students to identify the strengths and weaknesses they need to develop, for a better planned educational process (Saxton, Burns, Holveck, Kelley & Prince, 2014).

4. Implementation of pilot testing and the analysis of results

The diagnostic instruments designed were applied to students from various institutions in the city of Bogota. For proof of ownership and use of technology it was featured 93 students and for the troubleshooting tests 50 students. Participants belong to the V cycle of secondary education, which corresponds to levels tenth and eleventh. The tests were applied in June 2015, for this it was taken two sessions of two-hour class. In both sessions, one of the tests was applied individually, without disclosing any aspect leading to the selection of a response. After the implementation process of the tests in institutions, analysis of the results was made. In each one of it, we analyze the valid from the indices of difficulty and discrimination as well as the reliability of each of the tests.

4.1. Analysis, proofs, ownership and use of technology

Table 1 presents the test results of appropriation and use of technology. For the analysis of the data is taken into account, acceptance of items raised by Guilford (Guilford, 1955), which states that the acceptable range for the index of difficulty is from 0.35 to 0.85. The results should be seen as a frequency distribution curve, where the answers given by the student allow to consider the level of difficulty. One question that got 5% can be considered easy, with 20% moderately easy, with 50% medium difficulty, with 20% moderately difficult and if it has 5% difficult. For the discrimination index, minimum acceptance is 0.3.

Table 1. Results of difficulty index and discrimination, test appropriation and use of technology

Item	1	2	3	4	5	6	7	8	9	10	11
Difficulty	0,35	0,58	0,61	0,11	0,37	0,32	0,63	0,32	0,6	0,37	0,58
Discrimination	0,45	0,65	0,71	0,6	0,36	0,46	0,9	0,1	1	-0,2	0,9
Item	12	13	14	15	16	17	18	19	20	21	22
Difficulty	0,64	0,63	0,78	0,32	0,61	0,37	0,37	0,37	0,9	0,02	0,85
Discrimination	0,81	0,84	0,03	0,42	0,71	0,35	0,1	-0,3	1	0,97	0,45

Table evidence in the case of questions 4 and 21 that have difficulty indices outside the acceptable range defined by Guilford. This is may be because questions are too complex or unclear for the student. For the discrimination index questions 4 and 19, have low rates of discrimination. It means that no matter if they belong to the group of students from high or low performance (GA or GB in equation 2), the students can answer correctly or incorrectly. So the question does not discriminate between student with high performance and those with low levels. That is why these questions together with the 4 and 21 are likely to be eliminated, although is necessary to analyze previously, whether or not, it affects the reliability of the test.

The reliability of the test is analyzed by Cronbach's alpha through the SPSS program. The scale analysis was also made, if the item is deleted. The latter analysis determines or not, a change in the reliability of the instrument, when is deleted one or more of the questions. The results of the reliability, test appropriation and use of technology shows that the confidence level is 0.545 for 22 elements, and a value that can be interpreted as a moderate reliability (Obando, 2009). This means that there are questions that cannot contribute to the test in order to have the necessary clarity to the student. Therefore we should analyze what happens if some items are deleted.

Table 2. Results of the reliability by question, test appropriation and use of technology

Item	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
Cronbach's alpha	0,492	0,486	0,502	0,538	0,547	0,546	0,511	0,509	0,509	0,522	0,522
Item	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22
Cronbach's alpha	0,491	0,514	0,472	0,53	0,517	0,606	0,559	0,553	0,51	0,512	0,521

The Table 2 set that eliminating some questions generate an improvement in the level of reliability of the test. Therefore it proposes to eliminate questions 4 and 19. It should be noted that at the time they are removed, it does not affect any skill; therefore it not affected any performance. When doing the test again, the reliability reaches 0.66, increasing the coherence and consistency of the test.

On the other hand, it was decided to keep question 21 on the test. This does not affect the reliability of the test and the discrimination index allows to establish that indeed, differs students with good performance of those who have a low level. Therefore it is amending the way the question is worded, and it analyzed whether the concepts in the table, assesses the expected indicators.

4.2. Analysis of test: troubleshooting with technology

The Table 3 presents the results of the 18 questions that make up the test of troubleshooting with technology. Again, based on the parameters Guilford, questions 11 and 12 have difficulty indices out of range. The result indicates that the questions are too complex and need to be modified or removed from the test. In the case of discrimination index, questions 11 and 16 have values outside the range. Therefore these two questions could be eliminated because they not discriminate between students performing well and those with low levels. In deciding whether or not these test questions are modified or are removed, it will be analyzed to determine how these questions affect the reliability of the test.

Table 3. Results difficulty index and discrimination, test of troubleshooting with technology

Item	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
Difficulty	0,26	0,4	0,34	0,23	0,62	0,62	0,34	0,76	0,56	0,21	0,16	0,12	0,52	0,48	0,5	0,44	0,52	0,44
Discrimination	0,35	0,41	0,35	0,41	0,53	1	0,41	0,41	0,41	0,41	0,24	0,29	0,47	0,29	0,47	0,12	0,35	0,3

The Results of reliability, test of troubleshooting with technology presents a high reliability rate for the test, indicating that the instrument will deliver coherent and consistent when being applied results. In the Table 4 by observing the behavior of the questions 11, 12 and 16, who obtained under difficulty index and discrimination, it is observed that not substantially affect the reliability of the instrument. Question 11 will be removed from the test, as it does not fulfill the function of determining whether or not the student has the ability that has to be evaluated.

Table 4. Results of reliability by question, test of troubleshooting with technology

Item	*P1*	*P2*	*P3*	*P4*	*P5*	*P6*	*P7*	*P8*	*P9*
Cronbach's alpha	0,782	0,762	0,786	0,779	0,762	0,76	0,798	0,76	0,75
Item	*P10*	*P11*	*P12*	*P13*	*P14*	*P15*	*P16*	*P17*	*P18*
Cronbach's alpha	0,78	0,758	0,775	0,768	0,76	0,744	0,749	0,76	0,72

5. Conclusions and future work

The created and validated tests must have a new application, so it is possible to establish the improvement that can provide in the indices, the corrections to some questions. It also has been set as a result, that the validation process has sufficient levels of difficulty and discrimination in most of the questions. These instruments and their proper implementation, will give the information necessary to make a planning process of the classes, more coherent with the needs of the group, which can produce better indices of performance and higher motivation from the student, compared to the skills that are presented. Within the future work, is projected implementation of constructed and validated instruments in different educational institutions in Colombia, so will be known its relevance in the classroom.

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AWARENESS RAISING IN THE CLASS CREATING BOOK RECOMMENDATION SLIDES BY MEANS OF POWERPOINT

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Abstract

This paper deals with the class where university students recommended books they are interested in by means of PowerPoint slides. In this course, they were required to create PowerPoint slides to introduce books by inserting animations and narrations. It applied active learning in combination with evaluation and revision activities to enhance their computer skills, to raise awareness towards various types of skills necessary for problem solving and to nurture active thinking. It particularly aims not only to acquire PowerPoint skills but also to develop their skills in expression, project planning and suggestion. This paper informs of the content of the course and proves its effectiveness.

Keywords: *Book recommendation, making PowerPoint slides, evaluation, revision, problem solving skills.*

1. Introduction

There are a number of attempts to propose new ways of teaching and to practice effective classrooms. Currently, the Central Council for Education points out the importance of active learning that students actively discover and solve problems. It therefore encourages Japanese higher education to provide students with high quality education by promoting such active learning so that students are able to experience autonomous learning and acquire lifelong learning skills (Ministry of Education, 2012).

In the previous studies, I have identified the possibility of active learning for enhancing problem solving skills and nurturing active thinking in the classroom by applying the activities of self-evaluation, mutual assessment and revision in a task (Miyaji, 2006). One of my studies reported that the third year university students enhanced their problem solving skills in an experimental course called 'Creating Storytelling'. In this program, they were required to create stories about themselves in order to closely observe and understand who they were. Furthermore, in the process of creating the stories evaluation and revision activities were applied (Miyaji 2010, 2011, 2012). Another study of mine identified the effectiveness of a task to create PowerPoint slides to introduce commodities in the classroom. It aimed not only enhance students' computer skills but also develop their expressive skills, project planning technique and proposal ability (Miyaji 2015a, Miyaji, 2015b).

Following this task, which consisted of seven lessons in total, we provided students with another seven lessons to create slides for book recommendation, which is the main data of this paper. This time, the structure of the course applied active learning so that they must have actively participated in the task in the classroom. They created slides to inform books they are interested in by using animations and narrations. Later on, they watched all the slides in the class, evaluated and commented with each other. Based on the evaluation from other students and the teacher's feedback, they revised the slides and watched them again. By actively conducting evaluation and revision in interaction with others, the course attempted to raise their awareness towards various skills necessary for problem solving and to nurture active thinking. This paper firstly explains the course content, the contents of the slides they made, how to make the slides and evaluation items in the assessment sheet. Secondly we will analyze the data and discuss the results. We will report useful activities for improving attitude in introducing books. Finally we will demonstrate the difference in useful activities between these two tasks (introducing commodities and books).

2. Class contents and plan

The course in this study is categorized in subjects of Information Technology (see Table 1), which is a compulsory subject for the third year students in A university. Students were required to

choose one theme from three and the course was conducted according to the selected theme for 15 times (90 minutes per lesson). The number of the students who enrolled my course was 26, about one third of the whole third year students. In this course, students were required to create two different slides to introduce commodities and books (see Table 1 for the course procedure). The former seven lessons were for product recommendation and the latter seven for book recommendation. Slide observation and evaluation were conducted twice and revision was undertaken once throughout the tasks (Miyaji, 2015).

In this paper, we only focus on the latter task: book recommendation. The objectives of this course were (1) to acquire computer knowledge by actually using computers and (2) to make use of such knowledge in practice. It also aimed to introduce books they were moved and found interesting and useful to recommend others to read them. Students created six slides consisting of book information, summary, reasons why they recommend, tips for reading and related books. They had to use animations for easy understanding and recorded narrations in the slides. Through all of these processes, they were able to acquire writing skills and expressive skills by using pictures and diagrams. In this way, the purposes of the program were to raise students' awareness towards various skills necessary for problem solving and to nurture active thinking by applying evaluation activities in the creative task.

In this task, students had to consider how to recommend a book in an attractive way, including the way of explaining the book and how to insert visual images and photos such as cover pages. The course encouraged students to learn (1) how to express their thoughts and feelings towards the books by writing, images, animations and narrations and (2) how to encourage others to read the books they like. The course does not end by merely creating slides; students observe all the slides, evaluate each other and revise them.

In the first lesson, a 39-page booklet to explain the course objective, content, schedule, how to make slides and the way of experiment was distributed to the students. How to use animation and to record narration are already explained at the second and third lesson respectively. An image sheet for book recommendation was also provided in the seventh lesson. Students were required to explain the contents of books for recommendation at the right page of the sheet, draw a figure at the left page and bring it for the next lesson. In the eighth lesson, we made students to create slides. Later, students added animations in their slides. In the tenth lesson, students recorded narrations and completed the book recommendation slides. They submitted the files to an e-learning and we combined them into one file. In the eleventh lesson, students watched all the slides in the classroom for evaluation. The evaluation results were written on the assessment sheets and the files of the sheet were collected to the e-learning at the end of the class. We combined them into one file and uploaded it to the e-learning. After downloading it, they revised their slides according to the evaluation results and the feedback. In the following twelfth lesson they again watched the revised slides and assessed them again. The evaluation sheets were collected at the end of the class.

Students wrote final reports. They submitted one-third each on the previous days of the eleventh, twelfth and thirteenth lessons. They were returned with the teacher's comments within the lessons. They then revised and submitted the reports at the thirteenth lesson. They also filled in and submitted all the evaluation sheets. Some students who could not complete the reports and the sheets completed them at fourteenth lesson.

Table 1. Class Plan

Time	Class plan	Plan related to assignment
8	Creating slides to introduce books	Submission of the entry form, creating slide, completion of the report
9	〃	Creating slide, putting the animation
10	〃	Creating slide, recording narration, writing report 1
11	Evaluation and correction of slides to introduce books	Mutual evaluation, inputting evaluation sheet 2, modifying slide, writing report 2
12	Evaluation of slides to introduce books and report	Mutual evaluation, inputting evaluation sheet 3, writing report 3
13	Completion of the report and the evaluation sheet to introduce books	Completing report and evaluation sheet
14	〃	Completing report to introduce books

3. Analysis and results

In order to understand the effectiveness of learning in creating slides for book recommendation explained in the previous section, we conducted several studies. Firstly, students were required to write down how long it took for each activity in a task on the cover pages of their final reports, based on the idea that the basis of learning is to make time for studying. Secondly, we analyzed the length of narrations

and calculated time necessary for observing the slides. Thirdly, by comparing their awareness towards the acquired skills before and after the task we attempted to see the achievement level of the course objective.

3.1. The length of time in each stage

Students were required to specify how long it took to complete each activity in a task including book research, creating slides and writing final reports on the cover pages of the final reports. The results are shown on Table 2. The average time relating to slide creation was 15.8 hours including 5-hour lesson. This means that students spent about 11 hours outside the classroom.

Comparing the time spent for product recommendation slides with the one for book recommendation by a test of significance, the total time of three steps showed significance. In consequence, the time consumed by the second task was shorter than the first task.

The length of time consumed for each step in both product and book recommendations were also analyzed by the test of significance. The result showed that there was significance, meaning that the research time for book recommendation was shorter than the one for product recommendation.

These results prove that students spent less time in the second task due to the fact that they already experienced all the procedures through the first task.

Table 2. Time Consumed for Each Step (hour)

Kind of required time	First Work		Second Work		Difference		t-test	
	m	SD	m	SD	m	SD	t	p
Book research	5.1	2.7	3.3	2.1	1.7	2.1	4.4	***
Creating slides	6.8	2.8	5.8	2.9	1.0	3.1	1.6	
Writing final reports	7.4	3.2	6.7	2.9	0.8	2.8	1.4	
Total	19.3	5.7	15.8	5.7	3.5	4.9	3.7	**

*** p<.001, ** p<.01

3.2. Length of narrations and the number of letters and figures

26 students submitted the slide files. Each of them took two minutes for watching and it took a minute for other student's evaluation. The length of narrations is shown in Table 3. The total length for six slides was 100.7 seconds. By limiting the number of slides, the average time for presentation was about 1.68 minutes. The maximum length was 167 seconds whereas the minimum was 33 seconds. Most of the slides took almost 2 minutes, which were the limit of the presentation time. The total time for watching and assessing was thus about 70 minutes.

We conducted tests of significance with regard to the narration time of the first and second tasks, the number of letters for narrations and the number of figures used in the slides. All the results showed significance, showing that all the items in the second task were smaller than those in the first task. Students used a number of figures in introducing products in order to compare what they introduced with other products whereas in book recommendation they merely used cover pages of the books as the primary visual images.

Table 3. The Length of Narrations and the Number of Letters and Figures

Contents	First Work		Second Work		Difference		t-test	
	m	SD	m	SD	m	SD	t	p
Narration (sec)	124.2	36.1	100.7	28.0	23.5	31.8	3.7	***
No. of letters	539.8	193.3	441.3	113.5	98.5	152.4	3.2	***
No. of figures	12.2	6.5	6.0	2.3	6.2	6.3	4.9	***

*** p<.001

3.3. Awareness-raising towards skills acquired

Students were required to fill in evaluation sheets concerning their awareness towards skills on the first (pre) and the last (post) lessons (see Table 4). Nine-evaluation scale includes (1) not at all; (3) slightly acquired; (5) acquired a little; (7) acquired a lot and (9) very much acquired. The number of participants was 26. The average rating of 30 items concerning the awareness towards skills before and after the task were analyzed by the test of significance. The result showed that the significance level was 0.1%, showing significance ($t(779)=4.1^{***}$, $p<0.001$). This means that students thought that their awareness towards skills was raised.

After analyzing the average rating of each item relating to skills before and after the task, all 30 items had significance. This means that students felt that all the awareness towards skills were developed more than before. This proves that the course was effective in enhancing awareness towards problem solving skills and self-satisfaction.

The result in Table 4 shows that (1) interests towards computers; (2) understanding of computers; (3) computer skills and (4) usages of computers in other fields were developed. This means that one of the course objectives, to equip with computer knowledge, was achieved although it was in the awareness level.

By making book recommendation slides, students nurtured expressive skills in writing by explaining books and writing final reports as well as acquired skills of using non-linguistic devices by inserting visual images and photos relating to the books. Acquiring various skills and raising awareness necessary for problem solving are both developed significantly (see Table 4), showing that the course objective was achieved in the consciousness level.

The development of all 30 items in the first and second tasks was analyzed by the test of significance. The result didn't show significance. This means that although the awareness rose after the tasks, there was no difference between them. Pairs of ratings before and after the task for the first and second tasks were (4.1, 5.1) and (4.8, 5.7).

The awareness-raising of each item in both tasks was also analyzed by the test of significance. The result shows that the items (12) skills to express your own ideas by writing and (15) presentation skills had significance. This means that the awareness of these items in the second task was less than that in the first task. It is also seen that the item (14) skills to explain something to others in an easy way had a tendency of significance. This means that the awareness of this item in the second task was less than that in the first task.

Table 4. The Results of Tests of Significance Concerning the Awareness towards Skills

Evaluation Items	First Work				Second Work				Difference of Rating Value			
	m	SD	t	p	m	SD	t	p	m	SD	t	p
(1) Interest in and curiosity about computers	0.9	1.2	3.6	**	0.7	1.0	3.3	**	0.2	1.0	1.2	
(2) Understanding of computers	1.3	1.5	4.6	***	1.2	1.2	4.9	***	0.1	1.9	0.3	
(3) Computer operation skills	1.3	1.0	6.2	***	0.9	0.9	5.0	***	0.3	1.2	1.4	
(4) Computer usage methods and broadening of situations	1.0	0.9	5.1	***	1.1	1.1	5.0	***	−0.1	1.0	0.5	
(5) Ability to set challenges, ability to discover problems	1.1	0.9	6.3	***	0.9	0.9	5.3	***	0.2	1.2	0.8	
(6) Ability to plan, to do things in a planned manner	1.2	1.2	4.7	***	0.9	1.0	4.2	***	0.3	1.7	0.8	
(7) Cultivation of understanding of knowledge learned	1.3	1.3	5.3	***	1.1	1.3	4.1	***	0.3	1.8	0.7	
(8) Ability to study by oneself, ability to learn	1.0	1.2	4.0	***	1.2	1.3	4.7	***	−0.2	1.5	0.8	
(9) Ability to gather information, ability to conduct research	1.3	1.6	4.1	***	1.0	1.2	4.5	***	0.2	1.7	0.7	
(10) Ability to sort through related information or data	1.3	1.3	5.2	***	1.0	1.2	4.5	***	0.3	1.6	0.9	
(11) Ability to analyse information	0.8	0.8	5.2	***	1.0	1.1	4.6	***	−0.2	1.0	0.9	
(12) Ability to express thoughts in writing	1.2	1.0	6.1	***	0.8	1.0	4.0	***	0.5	1.0	2.4	*
(13) Ability to express thoughts through media other than writing	1.3	1.3	5.2	***	0.8	1.1	3.4	**	0.5	1.6	1.6	
(14) Ability to talk to and explain to others comprehensively	1.3	1.1	6.1	***	0.9	1.0	4.5	***	0.5	1.3	1.8	+
(15) Ability to make presentations	1.4	1.2	5.6	***	0.7	0.9	3.9	***	0.7	1.5	2.2	*
(16) Ability to listen to others and to ask questions to others	0.7	0.9	4.3	***	0.8	1.0	4.2	***	−0.1	1.1	0.4	
(17) Communication ability	0.7	0.8	4.5	***	0.9	1.2	3.8	***	−0.2	1.4	0.7	
(18) Ability to appropriately self-evaluate one's thoughts	1.0	1.1	4.3	***	1.0	1.2	4.5	***	−0.1	1.5	0.3	
(19) Ability to appropriately evaluate other people's thoughts	0.7	1.1	3.5	**	0.7	0.9	3.8	***	0.0	1.4	0.1	
(20) Ability to correct and improve on one's own thoughts	0.8	1.0	4.2	***	0.9	1.0	4.8	***	−0.1	1.3	0.4	
(21) Ability to pursue matters deeply, ability to explore matters	0.7	0.9	4.3	***	0.8	1.1	3.5	**	0.0	1.3	0.1	
(22) Ability to execute, ability to practice, ability to put into action	0.7	0.9	4.1	***	0.7	0.9	3.9	***	0.0	1.0	0.0	
(23) Ability to cooperate and to learn concertedly	0.7	1.3	2.7	*	1.0	1.2	4.1	***	−0.3	1.3	1.0	
(24) Sense of accomplishment, sense of satisfaction	1.0	1.2	3.9	***	1.2	1.5	4.0	***	−0.2	2.0	0.5	
(25) Sense of fulfilment, sense of achievement	0.8	1.1	3.9	***	1.4	1.4	4.8	***	−0.5	1.7	1.5	
(26) Ability to solve problems	0.8	0.9	4.4	***	0.9	1.0	4.6	***	−0.1	1.5	0.4	
(27) Ability to construct and create knowledge	0.8	1.0	4.1	***	0.6	0.9	3.1	**	0.3	1.3	1.0	
(28) Ability to think, consider and come up with ideas by oneself	1.0	1.2	4.5	***	0.8	1.2	3.3	**	0.2	1.6	0.7	
(29) Creativity/ability to create	0.8	1.2	3.6	**	1.2	1.1	5.3	***	−0.3	1.6	1.0	
(30) Interest in and curiosity about this field	0.8	1.2	3.5	**	0.7	1.2	3.1	**	0.1	1.4	0.4	
Average	1.0	1.1	4.4	***	0.9	1.1	4.1	***	0.1	1.5	1.4	

*** p<.001, ** p<.01, * p<.05, + p<.1

4. Conclusion

In this study, we designed and practiced a course to make students create PowerPoint slides for book recommendation by applying the idea of active learning. Students selected books they recommended, researched them, considered the contents of the slides, created the slides, added animations and recorded narrations. Furthermore, they watched others' slides and learned from them. They mutually evaluated and commented. After all this, they revised, watched and evaluated the slides again. By interacting with other students for completing the task in this way, they were able to experience active evaluation and revision activities. In consequence, they enhanced problem-solving skills and nurtured active thinking through the classroom practice.

The findings from this class can be summarized as follows.

(1) Total time taken for surveys of explanations and creation of slides, the creation of product presentation slides and the creation of reports was 19.8 hours on average.

(2) Total narration time for projects was 115.2 seconds on average.

(3) Assessment values for awareness relating to skills were felt to have improved overall.

(4) Statistical significance tests for each category for awareness relating to skills showed awareness in all 30 categories was felt to have improved overall.

In the future, we would like to compare useful activities in improving attitude in class with them in creating slides to introduce product (Miyaji, 2015) by analyzing the post survey of attitude. In addition, we would like to compare the effects of the above-mentioned storytelling (Miyaji, 2012) and the effects of this class. We would also like to apply innovation to class methods to improve learning ability for students with a wide range of learning abilities.

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A MODEL FOR PERFORMANCE ASSESSMENT: A CASE OF PROFESSIONAL MUSIC TRAINING PROGRAM

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Abstract

The goals of a professional music training program are designed to prepare students to present performances of music as a featured soloist, educational content of programs in alignment with the requirements of the professional world. Ideally, a professional music training program fosters high quality skills in playing the instrument with preferences and capabilities towards a more musician oriented career or more pedagogical career regarding their qualities and skills. To measure the efficacy of a professional music training program, the use of the Associated Board of the Royal Schools of Music (ABRSM) Performance Assessment based on nationally recognized assessment principles and procedures to evaluate student skills in university music training courses in regards to literature, musical styles, playing technique, or eventually operational contexts relative to a music education. The achievement criteria presented generally accurate contrasting performances, demonstrating a range of technical skills, and appropriate musicianship and presentation skills. The assessment procedure will be accompanied by the on-going development of exemplar material for all standards, and opportunities for teacher professional development and dialogue to assess and refine music-inquiry processes of course content. The procedure resulted in an assessment system for benchmarking accumulate evidence of performances in students' work and offered insights into the effect of professional music training courses on student knowledge and understanding of the musical style. The findings demonstrate a true assessment of music performance in summative contexts is realized by raising the quality of practice, defined as meeting learning objectives in performance, that conform to the criteria of academic and performance requirements.

Keywords: *Music assessment, performance assessment, standards.*

1. Introduction

Researchers from the National Association for Music Education (NAME) in America, the National Certificate of Educational Achievement (NCEA) in New Zealand, and Shepard (2000) conducted many studies on education assessment. The results indicated that the education assessment process should be seated in the middle of the teaching and learning process, and that feedback should scaffold expert tutoring techniques (Parkes, 2010). NAME's current assessment trends emphasizes student reflection, tracking progress over time, and formative as well as summative measures (Simon, 2014). Professional educational assessment provides essential "information that is used for making decisions about students, curricula and programs, and educational policy" (Nitko, 2004, p. 5) and provides information to assist policy makers to "become competent in selecting and using assessments" (p. 6). Assessment helps improve the value of the decisions made and outcomes produced.

Since 1990, assessment in higher education has been under scrutiny, and music assessment can be included in the area "identified by those in the measurement community as prime examples of unreliable measurement" (Guskey, 2006, p. 1) in the teaching and learning setting (Parkes, 2010). Without doubt, the Tainan University of Technology's (TUT) seven-year program for music students has faced many unprecedented challenges in the past decade. The challenges include promoting good communication between faculty, fostering a desire to remove the secretive or subjective nature of assessments, developing a willingness to embrace new methodologies, and ultimately, testing and refining for teachers the methodologies' effectiveness in the teaching and learning setting.

2. Searching for musical standards in the TUT

The development of individual performance skills occupies a significant place in the Western classical music traditions that have dominated Taiwan's music education. Since 2005, the Ministry of Education Advisory Office (MOEAO） has begun to develop a four-year program to improve the pedagogy and curriculum of the Social Sciences and Humanities (SSH). There are many sub-programs under this strategic plan（2007-2010). The Innovative Teaching Program of Performing Arts is one of them. This is reflected in the weighting given to solo performance achievement standards in the SSH (Ministry of Education, 2010). The American National Board for professional teaching standards (NBPTS) was used as a guide: "Professional competences" (Chen, Song, & Zhen, 2010).

The purpose of this paper is to provide a review of noteworthy developments at the Tainan University of Technology (TUT), Taiwan, Music Department's seven-year program from high school directly to a bachelor's degree in vocational education. A performance assessment process at the TUT has been selected to discuss criteria and guidelines for measuring the effectiveness of both student assessment and the ongoing process of program evaluation. Two research questions and their rationales guided the focus of the study:

RQ1: What were the main challenges that performing arts studios faced when implementing teaching and learning methods, and what dilemmas emerged?

RQ2: Were the standards that emerge to resolve these challenges reliable and valid for Taiwan's situation and the TUT's version of "structured quality judgments," or were the weaknesses exposed inherent in the performance-based assessment model itself?

Selected areas for consideration are the following:

- The selection and/or development of instruments,
- Alignment to existing programs,
- Student rights and responsibilities,
- Prevention of bias,
- Instructor and administrator responsibilities,
- Student achievement,
- Accommodations, and
- Issues in developing, selecting, scoring, and interpreting student results.

3. The performance assessment - An existing student assessment and program evaluation process review

According to Reynolds, Livingston and Willson (2006), "The Joint Committee on Testing Practices (JCTP, 1998) noted that probably the most fundamental right of test takers is to be evaluated with assessments that meet high professional standards and that are valid for the intended purposes" (p. 424). Student assessment provides "students and parents with feedback about achievement" (Nitko, 2004, p. 9); students communicate their learning via activities by "showing them [students and parents] what you want[ed] them to learn" (p. 10). Student achievement can be evaluated "for formative or summative purposes" (Nitko, 2004, p. 9). As Nitko (2004, p. 9) noted, "Formative evaluation of students' achievement means we are judging the quality of a student's achievement while the student is still in the process of learning." Nitko also suggested, "Summative evaluation of students' achievement means judging the quality or worth of a student's achievement after the instructional process is completed" (p. 9). In other words, the instructor uses formative (vertically aligned) and summative (horizontally aligned) assessment data to modify future instruction.

In his analysis of formative and summative evaluation of programs or materials, Nitko (2004, p. 9) made a distinction between spontaneous decision making in the classroom and using assessment "during the design or development of instructional materials, instructional procedures, curricula, or educational programs" and "already-completed instructional materials, instructional procedures, curricula, or educational programs."

There are six approaches to student assessment final goals; these are profiling content strengths and weaknesses, identifying prerequisite deficits, identifying objectives not mastered, identifying students' errors, identifying student knowledge structures, and identifying competencies for solving word problems (Nitko, 2004, p. 301).

Program evaluation final goals are the following:

- To revisit "lessons or learning materials based on information obtained from their previous use" (Nitko, 2004, p. 9) by the teacher; and

- To summarize strengths and weaknesses of "stated goals and objectives" (p. 9) as they are "implemented program or procedure" (p. 9) within classroom decision making and from using assessments.

Student evaluation is the detailed and basic evaluation, whereas the program evaluation is the overall general evaluation. These are interdependent processes: Feedback for program evaluation comes from students, and student evaluation comes from teachers.

4. Strengths of seven-year program at TUT

As Bergee (2003) noted, "Assessment of music performance in authentic contexts remains an under-investigated area of research" (p. 137). Bergee (2003) also developed an assessment process to evaluate performance aspects, using criteria-specific rating scales, which "are more comprehensive, encouraging attention to all aspects of the performance and providing balanced feedback to performers" (p. 147). Performance assessment should be seen as a meaningful task for enhancing student presentations (Nitko, 2004). As Nitko (2004) noted, "Performance assessment is sometimes called alternative assessment or authentic assessment" (p. 248). At the TUT's Music Department, performance assessments are seen to have their own set of strengths, and Nitko (2004, p. 249) cites several researchers' summaries as follows:

1. *Performance tasks clarify the meaning of complex learning targets.* Performance assessment helps students "apply skills and knowledge gained through instruction to musical problems within the context of this instruction" (Scott, 2004, p. 4).

2. *Performance assessment is consistent with modern learning theory.* When a teacher gives instruction in music, he/she should also encourage students to become involved in meaningful related activities, such as contributing to interdisciplinary curriculum design, and constructivist approaches that "require exploration and inquiry" (Nitko, 2004, p. 249).

3. *Performance tasks require integration of knowledge, skills, and abilities.* Performance assessments require students to demonstrate their learning outcomes through complex performance tasks. For example, the TUT's music appreciation competency evaluation assesses for inspiration, rhythm, melody, harmony, and tone color, and students are asked to demonstrate their music appreciation ability by showing measurable knowledge about what to listen for in music.

4. *Performance assessments may be linked more closely with teaching activities.* Performance assessments include solo and ensemble performances, using a Single Focus rubric for

5. instructional outcome to assess a "single skill or element of performance," and using a Multiple-Foci rubric for instructional outcomes to examine "several skills or aspects of performance" (Scott, 2004, p. 5).

6. *Performance tasks broaden the approach to student assessment.* Reynolds et al. (2006) asserted, "Performance assessments require test takers to complete a process or produce a product in a context that closely resembles real-life situations" (p. 23). At the TUT, students in the Music Department's seven-year program are required to take both academic credits and performing credits. How can staff as the TUT make sure learning outcomes are effective? Some types of evaluation used are derived from Hackney et al. (2003, p. 16) such as, Needs Assessment (paper-pencil tests), Formative Evaluation (expert consultation, vertically aligned), Summative Evaluation (the jury performance, horizontally aligned), "norm-referencing (relative standards)," and "criterion-referencing (absolute standards)" (Nitko, 2004, p. 343). A score of 60 is required to pass.

7. *Performance tasks let teachers assess the processes students use as well as the products they produce.* At the TUT, for example, solo piano performance assessments are "focus[ed] on key points of instruction" (Scott, 2004, p. 6) and include such areas as "Interpretation/Musical Effect, Rhythm/Tempo, and Technique" (Bergee, 2003, p. 143).

The greatest strengths of the seven-year program as the TUT Music Department are its instructional programs use multiple measurement/assessment tools in its performing requirements (see Table 1). For example, a critical listening audience, not only a professional panel, assesses music students in public. Performance assessment at the TUT has continued to expand beyond only learning outcomes to include learning processes. After five years, staff at the TUT's Music Department want to know in what areas students have developed to meet learning goals (skills and knowledge). After seven years, staff in the Music Department wants to know 'how' students have grown in their professional development.

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5. Conclusion

How can the increased reliability and validity of performance-based assessment be effected? Is the practical solution for evaluating performance arts such as music reducing validity and reliability problems associated with the secretive or subjective nature of assessments for faculty in performing arts departments? This does appear to be the case with respect to the TUT, although the structured quality judgments (SQJ) model also proved to have limitations: Applied music performance faculty use their 'subjective' evaluation in music 'performance assessment' to evaluate performances. To exclude the possibility of developing criteria that would make what was previously of a secretive nature would not be a desirable solution. The nature of musical performance assessment includes both "cognitive complexity and content quality, and [must] be comprehensive" (Parkes, 2010, p. 101); therefore a case can be made that the 'subjective' criteria should be formalized and included in evaluation models for the performing arts. In this paper, the quality of learning outcomes as part of an assessment strategy that supports the vision of effectiveness in the teaching and learning setting at the TUT and applying the principles of the SQJ model to the TUT's practices to help address some of the TUT's effective assessment and implementation issues was described.

Table 1. Strengths Guidelines in TUT

The assessment regime	Teacher assessment	Performance examinations	Accountability	Penalties	Failure of Performance Examinations	Appeals
1. Teacher assessment, jury examinations, and recitals. 2.The fifth year is a barrier exam; a student must pass to be admitted to the upper classes 3.Semester assessment	1.Holistic judgments capture the overall quality (Thompson & Williamon, 2003, p. 26)	1. Preparation 2. Scheduling 3. Exam structure for B.Mus. performance principal study 4. Repertoire requirements 5. The provision of scores to examiners 6. Marking guidelines for performance examinations 7. Membership of examination and recital panels 8. Conduct during performance examinations 9.Marking procedures 10. Procedures for resolving conflict 11. The report	Staffs are accountable for all grading decisions.	1 Penalties may be applied if performances fall short of or exceed the allowed time limit. 2. Changes in program incur a penalty.	If student failure occurs in the semester jury, the student can retake the class during the following year along with his/her current credits, or delay his/her graduation one year to complete the requirement.	Under TUT policy students have right to appeal on the basis of procedural fairness or final result.

Note. From *Undergraduate performance assessment: A guide to requirements and processes*, by the Academic Board, 2004, p. 1-7.

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VEO (VIDEO ENHANCED OBSERVATION) AS A TOOL FOR STUDENT TEACHERS' PROFESSIONAL DEVELOPMENT

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Abstract

Videos have become increasingly popular artefacts of practice in teacher education and teacher learning. Previous studies have indicated positive effects of video recording on teachers' and student teachers' learning and reflection. Despite the interest for using video technology, there has been relatively little research on the effectiveness of various uses of video in teacher professional development. This paper focuses on trialing of a new technology VEO (Video Enhanced Observation) and relating study in one primary school teacher education program in Finland. VEO uses iPad capabilities to enhance the professional development of teachers and student teachers through video observation practice. VEO allows users to time-stamp live video of lessons with tags relating to the activity in the classroom based on a range of pertinent categories and subcategories. The option to rate instances as positive, negative or simply as one that provokes a question can support dialogue around practice in teacher education program. In a small study described in this paper eight student teachers trialed VEO-app during their final teaching practice. Trialing was voluntary for the students and was not connected to practice supervision. The students recorded each other's lessons and discussed videos together. After the practicum period the students filled a webropol-questionnaire where they told about their experiences of VEO. The data was analyzed using thematic content analysis. The original purpose of the study was to find out how VEO could support student teachers' learning and reflective skills. According to the results of trialing the students were suspicious and negative towards a technology. The students did not consider VEO as a tool supporting their professional development. Reasons behind these thoughts were that the students did not understand meaning of VEO trialing for themselves. English language of the application and variety of tags caused problems for the students. VEO trialing gave information about VEO and its possibilities in teaching practice. The results contribute to previous research highlighting that, to be an effective tool for learning use of video has to be well planned including a clear purpose and aim. It seems to be useful to connect technology trialing to students' guided reflective activities and supervising discussions. Based on the students' feedback in this study VEO will be modified and applied to Finnish context. This includes translations and making of new tags among others. A new version of VEO will be tried by student teachers in autumn 2016.

Keywords: *Student teacher, professional development, reflection, teaching practice.*

1. Introduction

There have been debates about a gap between educational theory and teaching practice: it has been stated that educational knowledge acquired during teacher education program and practical needs of a teacher's work are too far removed from each other (Knight, 2015; Korthagen, 2010; TALIS Report, 2009). A teacher's work requires practical skills and educational thinking. Following an idea of research-based approach the aim of teacher education program is to educate pedagogically thinking and acting teachers who have acquired an inquiring stance to their work so that they are able to observe, analyze and develop their teaching (Toom et al., 2010; Westbury, Hansén, Kansanen, & Björkvist, 2005). Teaching practice is considered as an essential arena for student teachers' reflection and learning (Toom, Husu, & Patrikainen, 2015; Wopereis, Sloep, & Poortman, 2010). Reflection is a systematic way of thinking, a process consisting of interpreting of a situation, realizing a problem and testing explanations (Dewey, 1933). Especially guided reflective activities during the practicum periods aim to promote integration of theory and practice (Körkkö, Kyrö-Ämmälä, & Turunen, 2016; Mena-Marcos, García-Rodríguez, & Tillema, 2013).

Student teachers face difficulties in learning reflection. Prior studies (Körkkö et al., 2016; McFadden, Ellis, Anwar, & Roehrig, 2014; Mena-Marcos et al., 2013) have indicated that students hardly reach level of critical reflection during their studies and reflection mainly remains as descriptive at the end of the education program. Previous research on the model of teacher education at the University of Lapland (Körkkö et al., 2016) showed that research methodologies were absent in the students' portfolio writings which indicated a weak connection between research and practice in the students' thinking. It seemed that the students did not consider research studies as useful tool for themselves. The findings contributed strongly to the prior studies on that matter, for instance that of Papasotiriou and Hannan (2006), and raised a need to strengthen a link between research and practice and make research methodologies more visible for students.

Video observations, recordings and discussions based on videos have been used to deepen teachers' and student teachers' reflection. Research findings (see e.g. Borko, Jacobs, Eiteljorg, & Pittman, 2008; Sherin & van Es, 2009; Vesterinen, Toom, & Krokfors, 2014) have shown videos' positive influences. The purpose of video recording is to recall past events in classroom for further analysis which might be difficult without recordings (Powell, Francisco, & Maher, 2003). Despite the interest for using video technology in teachers' learning, there has been relatively little research on the effectiveness of various uses of video in teacher professional development. Many previous studies (Borko et al., 2008; Seago, 2004; Sherin & van Es, 2009) have focused on video-based teacher learning in group settings and that is why research on individual perspective is scarce. Moreover, majority of previous studies have focused on mathematics (Borko et al., 2008) or science instruction (Seidel, Stürmer, Blomberg, Kobarg, & Schwindt, 2011). Providing contribution to the existing literature this study investigated student teachers' use of new video technology during their final teaching practice. The aim of the study was to find out how VEO (video enhanced observation) could support students' professional development. The focus was on students' experiences, and their reflection and learning. The following research question and two sub-questions will be explored:

How can VEO promote student teachers' professional development?

(1) What kind of experiences do student teachers have about VEO trialing during teaching practice?
(2) How does VEO affect student teachers' learning and reflection during teaching practice?

2. Context

This study was carried out in a primary school teacher education program at the Faculty of Education, University of Lapland, Rovaniemi, Finland. In Finland, all teachers complete a master's degree in education, which includes theoretical studies and practicum sessions as well as research methodological studies (Toom et al., 2010). It usually takes four to five years to complete the master's degree. The model of teacher education at the University of Lapland connects theory and practice so that pedagogical studies, professional experience (practicum sessions) and the learning of research methods are combined in a spiral that spans the duration of the program. The model includes five practicum periods. Before the practicum sessions student teachers attend seminars where they learn theories of education and orientate themselves towards various research methodologies. This knowledge is then applied during the practicum sessions: student teachers investigate educational phenomena by applying various research methodologies. During each practicum students first write private notions in their personal diaries and from these notes, they compile their reflective journals, which are used in supervision discussions and are thus read by the supervisors. This kind of writing during practicum sessions represents reflection-in-action (Schön, 1987). During the seminars that follow the practicum sessions reflection-on-action (Schön, 1987) takes place: Students evaluate theory again by using their practical experiences and write their pedagogical portfolios based on their reflective journals. Portfolio writing is guided by questions aimed at focusing student teachers' attention on specific points relating to their practicum experiences (Kyrö-Ämmälä, 2012; Lauriala, 2013). Research and practice are interrelated, and each practicum involves practicing research approaches in authentic contexts, i.e. in real school settings. This aims to enhance reflection by guiding student teachers to analyze and assess their own actions during their portfolio writing and seminar work (Kyrö-Ämmälä, 2012; Lauriala, 2013).

Since September 2015 teacher education program at the University of Lapland is along with an international research project VEO Europa (VEO Europa, n.d.; VEO Group, n.d.). Newcastle University leads the project which aims to improve the quality of teaching and learning through using an innovative technological approach to support initial teacher training and continuing professional development. VEO (Video Enhanced Observation) uses iPad capabilities to enhance the personalized professional development of teachers through video observation practice. VEO allows users to time-stamp live video

of lessons with tags relating to the activity in the classroom based on a range of pertinent categories and subcategories. Tags allow for the easy review of key moments instead of having to watch the entire video. The option to rate instances as positive, negative or simply as one that provokes a question can support dialogue around practice in teacher education programs. At the University of Lapland VEO-app is being trialed with student teachers and teacher educators. The main aim of the project is to promote student teachers' reflection and develop new ways of practice supervision. For the first VEO trial the application was used by student teachers during the last practicum period, the Advanced Practicum, in spring 2016. The last practicum session is attended during the fifth year of study either during the autumn or spring term. It lasts five weeks and aims to develop student teachers' ability to take overall responsibility for their pupils and classrooms and to adopt different pedagogical perspectives (Kyrö-Ämmälä, 2012; Körkkö et al., 2016).

3. Research design

The study reported in this paper was done in spring 2016 when 16 student teachers attended the final teaching practice, the Advanced Practicum. VEO trialing was voluntary for the students and eight students, six female and two male, wanted to use VEO during their practice. Before the practice the researcher (the author) gave the students a brief presentation of VEO. The last practicum period was carried out so that two students taught in a same classroom individually and in co-operation. For the trialing the students recorded each other's lessons and discussed lessons and observations with their peer students afterwards. The students were not guided to discuss VEO-observations with their supervisors and thus, the videos were not used as a basis for practice supervision. After the practice, students filled a webropol – questionnaire consisting of 19 questions, 12 of them were open questions. There were four questions including 5- point Likert scale in the questionnaire. All of the eight students gave permission to use their answers for research purposes.

The original plan was to study students' learning through VEO with help of Mezirow's theory of transformative learning (1991). After reading students' answers it seemed obvious that the data could not be used for that purpose. The answers were critical and showed no evidence of learning through VEO. However, the data seemed valuable and could be used as a basis for development of VEO. The researcher read the answers to get an overview of the data. After this she analyzed open-ended questions by using thematic content analysis so that key finding were found. The first, answers were coded using single words and sentences as units. Units indicating negativity were marked as a read color and positive comments as a blue color. After this the codes were used to summarize (Cohen, Manion, & Morrison, 2011) the data in the following themes: unwillingness to use video technology and no signs of professional development.

4. Results

4.1. Unwillingness to use video technology

The results indicate that the students were mostly not at all interested in using video technology during their practicum period. The students told that they were not so excited about using technology. Only three students told that VEO trialing succeeded well. One reason for the students' thoughts was that the students had recorded lessons with video camera during the previous practicum period and, in their opinion, VEO did not bring any further value for observation. The idea of video technology caused the students stress and frustration because they had many tasks to do even without technology trialing.

One reason for a negative attitude was that meaning of video recording was unclear for the students. The students were not aware of the purpose and aims of recording which are, according to Brophy (2004), important features of using videos, and that is why an effective learning was not possible. As a result, the students considered the trialing as useless. Moreover, VEO trialing was not well planned, like it should be (Seidel et al., 2011), which caused uncertainty among the students. In previous studies (Borko et al., 2008; Sherin & van Es, 2009; Tiilikainen, Heikonen, Toom, & Husu, 2016) where positive feedback from videos was reported, use of video was connected to teachers' professional learning program or teaching supervision and videos were used systematically. VEO trialing was not connected to practice supervision which might explain the negative feedback. Moreover, some students mistrusted their technological skills and were skeptic towards technology. There were only three positive comments on technology as being 'new', 'special' or 'good'. Previous studies (Banas, 2010; Süleyman & Göktas, 2014) have showed both positive and negative attitudes of student teachers towards technology and mistrust to one's own technological skills. VEO was a new thing for the students and without training it was not surprising that it caused difficulties, especially when taking account specificities of the app.

4.2. No signs of professional development

The students' answers show that VEO trialing did not support the students' learning or reflection. English language and variety of tags caused problems for some students. Learning through VEO was not possible because role of VEO for the practicum period or the purpose of the whole project was not clear for the students. Without a purpose and aim (Brophy, 2004), the students were not motivated to use the application. VEO trialing was not part of guided reflective activities or linked to supervising discussions (Husu, Toom, & Patrikainen, 2008; Toom et al., 2015) which might explain lack of motivation and meaning. Only two students described VEO trialing in a positive manner and saw possibilities of VEO in their learning. The students appreciated a possibility to tag events and give quick comments and feedback. However, mainly because of English language and many tags the students had to concentrate on technology and were not able to observe classroom situations. Thus, understanding an overall picture of the classroom was not possible. It can be stated that in some cases VEO hindered the students' observation and learning from peer students during lessons. In previous studies (Borko et al., 2008; Sherin & van Es, 2009; Tiilikainen et al., 2016) recordings have been made with a video camera and by a researcher. In VEO project one purpose is to teach students to observe and analyze lessons and to develop these skills, students need to record lessons themselves.

The students wished Finnish version of VEO with fewer tags and categories. Some tags could be taken off, new tags created, and there could be different versions of VEO that focus on only one category at a time. The suggestions included a possibility to make written notes while recording. One development area concerned tagging after recordings which became possible already after the first trialing.

5. Discussion and conclusions

According to the results the students' experiences of VEO trialing were either negative or relatively neutral. The students did not consider VEO as a tool supporting their observation, learning or reflection. According to some students VEO even disturbed their observation task. The students were not always able to learn from other students' lessons in a reasonable way. However, after lessons the students watched their own videos and discussed them with their peers which made it possible for them to get a new insight in their teaching. This study showed VEO-app's potentiality to promote student teachers professional development but to be an effective tool, the original VEO-app has to be applied to context of University of Lapland so that it meets needs of teacher education program. The process includes creation of Finnish tags for each practicum period. These tag sets concern key aspects of periods. Through this VEO trialing could become a meaningful and motivating issues for students (Brophy, 2004). The next trialing on September 2016 will be well planned and organized, and closely connected to guided reflective activities (Husu, Toom, & Patrikainen, 2008; Toom et al., 2015).

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WHAT DO NEWLY RECRUITS NEED AND WHAT DO WE DO IN INDUCTION? THREE CASES FROM ANADOLU UNIVERSITY SCHOOL OF FOREIGN LANGUAGES

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Abstract

Pre-service training is the primary means by which candidate teachers of English obtain the fundamentals of teaching and get expertise in English language. However, pre-service education can only partially train language teachers for their professions, because every job environment has its own dynamics and inner mechanism, and hence unique in many ways. Therefore, it is essential for institutions to run their own orientation and induction programs where they familiarize the newly recruited teachers about the dynamics of the school, the curriculum, the assessment procedures, institutional teaching philosophy and other details about how the administrative works run at the institution. Anadolu University School of Foreign Languages (AU SFL) has an intensive language programs in English, French and German languages and harmony within and across these three programs is very important for smooth running of the language program. These intensive language programs entail regular teaching duties, as well as other duties, such as student club activities, testing and assessment, technology integration and curriculum design. So, it is really important to inform the new comers about these major and minor duties, as well as orientating them in the initial stages of their professional lives and professionalism. Orientation and induction programs have always been conducted at AU SFL; however, in the last three years, these induction programs have been planned and carried out meticulously taking into account the immediate needs of the newly recruits. This paper aims to present three individual cases of induction programs with their evaluations from the eyes of the participants, namely, the newly recruits.

Keywords: *Induction, novice teachers, professional development, institutional support.*

1. Introduction

Teacher training is a process that starts with candidate teachers' personal observations of teachers and teaching (Lortie, 1975; Borg, 2004), followed by pre-service training and empowered by in-service training and practice. Therefore, teaching as a skill is gained by both theory and practice. The acquisition of fundamental knowledge, teaching skills and key concepts require formal training, so teacher training programs all around the world involves certain subject matter courses and basic pedagogical knowledge at tertiary level. This fundamental training constitutes the pre-requisite skills and knowledge bases to be able to start and be able to qualify to teach. Once the beginning teachers start their careers, they also start having hands-on teaching experience. Through in-service training, they might cope with the obstacles of their initial teaching. However, it is now a well-known fact that beginning teachers experience challenges in their initial years. Pre-service on its own may not prepare these teachers for the challenges of their initial years of teaching, due to different reasons, such as lack of contextual knowledge, experience and lack of self-efficacy or confidence (Bullock, 2011; Darling-Hammond, 2006). Therefore, there is a need to support them through continuing professional development and in some cases to help them retain in the profession. These beginning teachers need support about teaching, information regarding how certain practices and procedures run in the institution, the roles, responsibilities and expectations from them as teachers (Alan, 2015).

In Turkey, pre-service training, especially the practicum, is generally very limited in terms of hours of supervised teaching and most beginning teachers start their profession without getting enough feedback and enough practice, so they generally start teaching with concerns and uncertainties.

For this reason, these beginning teachers need some kind of in-service training that focuses on the challenges of their initial teaching period. This is called the induction period and the support given to the recruited teachers in this process is highly influential for their professional development. The length of the induction period may vary depending on the context, but it is generally the first year(s) of teaching, aiming to provide a smooth transition to their new jobs and eliminating their deficiencies. Support from experienced teachers is an important part of this induction period because what these beginning teachers generally lack is not theoretical knowledge, but practical knowledge about institution-specific practices (Alan, 2003; Alan 2015). Since the induction programs are specifically designed and implemented for beginning teachers and their adaptation and smooth transition to their teaching career at that particular context, it is the upmost importance to evaluate the success of the programs.

2. Objectives

The main objective of this research study is to explore the effectiveness of three different induction programs that were implemented at different times to different beginning teachers starting their profession at Anadolu University School of Foreign Languages.

3. Methods

In this qualitative study that evaluates the effectiveness of induction programs from the eyes of the participants, all the data came from open-ended survey questions, follow-up interviews and document analysis. The data came from the comparison of three distinct groups of beginning teachers and induction programs specifically tailored for these teachers. The induction programs differed in their focus and practices; however, they all aimed at preparing the beginning teachers to the challenges of their first year(s) of teaching. Table 1 below shows the three induction programs.

Table 1. Description of the Induction Programs

Induction Program 1 (2003)	Induction Program 2 (2013)	Induction Program 3 (2014)
-top-down approach to program design -lecture type input sessions focusing on different aspects of teaching in general and teaching language skills -no needs-assessment, no mentoring, or class-observations	-partly designed taking into account immediate needs of beginning teachers -mentoring and classroom observations -video-recordings and reflections of their own teaching -academic readings and sharing ideas / experiences	-observations of experienced teachers -no teaching work-load, but close contact with students through extra-curricular activities -weekly meetings with mentor teachers and reflections -academic workshops on practical issues

After each induction program, the researcher conducted post-program evaluation with the participants. The data was qualitative in nature and analyzed for emerging themes using constant comparative method (Glaser and Strauss, 1967).

4. Findings & discussion

The evaluation of the first study revealed that the participants found the INSET workshops the most valuable when the knowledge presented during these INSET courses were contextual and addressed the immediate needs of the participants. Having limited time after lessons to pursue a professional development program was a challenge for the novice teachers. Their heavy workload in a tight schedule did not allow them to fulfill the necessary requirements of the program. Data analysis revealed that reduced amount of participation transformed some training sessions into lectures. This structure did not allow participants to ask further questions and they could not participate in discussions. When participants are not involved in discussions in an INSET program, it is difficult to convince them that they are in the process of professional development. On the contrary, they feel like students who are learning the basic pedagogical knowledge bases and teaching skills. Classroom observations and video recordings were some of the new components of the second induction program and the participants did not fully agree on whether it was effective or not. Especially, the inclusion of video recordings caused the main difference. While some of the participants liked to record their lessons and share them with their mentors and peers, some did not like this implementation because they thought that their students might think as if the administration was monitoring their teachers, mainly because of their deficiencies. In the third induction

model, the beginning teachers mostly perceived classroom observation valuable for their professional development since they learned different types of activities, techniques and teaching strategies that they could apply when they start teaching with the same group of students they would likely to teach. They also perceived the induction program beneficial for their continuing professional development because it helped ease the transition from being student to teacher. They appreciated the support they received from the staff. Table 2 summarizes the emerging themes after the analysis of the data.

Table 2. The comparison of three induction programs

Induction Program 1 (2003)	Induction Program 2 (2013)	Induction Program 3 (2014)
➢ Amount of Contextual Relevance of the Knowledge Presented ➢ Timing of the Workshops ➢ Amount of Reflection and Participation Allowed in Training Sessions	➢ Practical Applications and Reflections of the Program ➢ Timing ➢ Classroom Observations and Video-Recording	➢ Classroom Observations ➢ Bridging the gap / transition ➢ Support

The comparison of the three induction models and the support that came from follow-up interviews with the participants show that there are some features of induction programs that makes them more favorable. These are:

- Focus on unfamiliar areas
- Facilitate adaptation to new school
- Present relevant knowledge to the context they teach
- Emphasize local issues (special induction programs)
- Allocate enough time
- Allow novices to have a light schedule (minimum teaching)
- Design program on a collaborative basis
- Assign mentor teachers
- Design elaborated observations and video-recordings

5. Conclusion

It is important to help newly recruited teachers in the adaptation process to their new profession. However, what is more important is to make this process relevant, systematic and beneficial for these teachers. This study, in the context of Anadolu University School of Foreign Languages, showed that induction programs require careful planning, as well as taking into account the needs of the participants. Top-down approach with too much theory does not seem to appeal to these beginning teachers and they seek practical ideas and classroom practices (e.g. new techniques, teaching strategies, ways of handling classroom management problems) that can easily be applied in their teaching context. While doing this, beginning teachers need continuous academic and social support from the administration and colleagues in a way they are treated as co-workers, rather than trainees in profession. As also emphasized in earlier studies (Alan, 2015, Farrell, 2012, Kessels, 2010, Strong, 2009; Wong, 2004), support in induction is one of the most important factors for the adaptation of beginning teachers. The induction programs keeping these considerations in mind are likely to meet the needs and expectations of newly recruited teachers.

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CAREER COUNSELING ACTIVITIES IN SCHOOLS CASE STUDY: ROMANIA, CYPRUS AND LATVIA

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Abstract

The analysis of pupils' access to career counseling programs in schools was realized within the Erasmus + project „Information and Communication Technology for Romanian Career Counseling" (ICT4RoCc) as a preliminary activity in order to further develop career counseling activities according to pupils' needs and expectations.
The research sample consisted in 2336 pupils in Romania, Cyprus and Latvia, age 12-20, both genders and residential areas, pupils in public educational institutions, from grade VII to XII.
The results shows that around 55% of the pupils in those countries have never participated to career counseling activities and less that 15% of the sample have participated to individual career guidance activities (the percentage in a little higher in Cyprus as a direct consequence of accessing the private career counseling services). Almost 40% of the pupils consider that they don't have direct access to public career counseling services, irrespective of the country or residential area. Less than 5% of the pupils plan their educational and professional future without the help of a career counselor.
Regarding pupils needs for career counseling, almost half of the pupils mentioned the need for career guidance in order to choose their career (the percentage is also higher in Cyprus); the most mentioned needs are "information" and "advice, suggestion, practical instructions".
The results demonstrates the need to develop the public career counseling services in all three educational environments and to identify the most effective solutions to include as many pupils as possible in career counseling and guidance activities. Pupils are interested in career counseling and planning their educational and professional future, but public services for career guidance are not as available as they should.
The results in the three countries are similar, but the solutions in the educational and cultural areas are different: in Cyprus, pupils have the economic resources to hire a private career counselor that provides the services that the public sector doesn't provide; in Latvia, many schools hired a specialist in career counseling, so the number and the quality of those activities increased in the last years; in Romania, one plausible solution is to implement online counseling services and digital resources that could help the school counselors in providing services to all the interested pupils.

Keywords: *Career counseling, education, professional guidance.*

1. Introduction

The analysis of pupils' access to career counseling programs in schools was realized within the Erasmus + project „Information and Communication Technology for Romanian Career Counseling" (ICT4RoCc) as a preliminary activity in order to further develop career counseling activities according to pupils' needs and expectations.

The research and the mentioned project were realized based on the international recommendations regarding career counseling:

- European Council recommends "Strengthening guidance and counselling supports students' career choices, transitions within education or from education to employment. It reduces poor decision-making based on false expectations or insufficient information. It helps young people to make choices which meet their ambitions, personal interests and talents" (Council Recommendation of 28.06.2011 on policies to reduce early school leaving, Official Journal of the European Union (2011/C 191), p.6).

- European Commission is stating that "High quality, up-to-date guidance made available at an early stage is essential for providing young people with the information they need to make informed education and career choices. Helping young people understand their own strengths, talents, different study options and employment prospects is essential. Guidance could be provided through interactive methods (mentoring, coaching, one-to-one guidance, work placements) and through online services." (Reducing early school leaving: Key messages and policy support, 2013, p.20)

- European Commission anticipates that, for the future "it is important to ensure that skills, interests and preferences are respected and addressed to keep learners motivated and engaged in employment. Targeted and personalised support and guidance is needed to improve employability" and "ICT will change what, how, where and when people learn. ICT will enable teachers to better respond to diversity and heterogeneity in the classroom and to adapt learning material and objectives to individual students' learning needs" (Christine Redecker et all., The future of learning. Preparing for change, European Comission, 2011, p. 79 and p. 81).

In this context, the research was developed in order to facilitate the adaptation of the resources, tools and strategies used by the specialists in career counseling to the needs of the pupils.

2. Objectives

The investigation of the perceived needs for career counselling and guidance in Romania, Caprus and the Baltic Countries was focused on:

a. analyzing the access of the pupils to career counselling and guidance services;

b. analyzing the pupils' perceived subjective need for career counselling and guidance services;

c. analyzing the opportunity to introduce the online career counselling and guidance services;

d. analyzing the relevance of the different themes and intervention areas correlated with career counselling and guidance from the perspective of the pupils;

e. identifying the main needs of the pupils regarding career counselling and guidance.

3. The sample

The research sample consisted in 2336 pupils in Romania, Cyprus and the Baltic Countries (mostly from Latvia, also from Lithuania and Estonia), age 12-20, both genders and residential areas, pupils in public educational institutions, from grade VII to XII.

The larger sample in Romania (1399) was is dot to the involvement of three Romanian partners in the implementation of the project and the accessibility of the subject in this country.

The analysis did not take into consideration the differences between the Baltic Countries, so there was no comparisons between the answers of the pupils in Latvia, Lithuania and Estonia. The analysis of the impact of the educational system are only focusing on the differences between Romania, Cyprus and the Baltic countries.

4. Results

4.1. The perceived need for career counseling services

The results show that 55% of the investigated sample never participated in career counseling activities (similar in Cyprus and Romania, lower in the Baltc Countries as a direct effect of the public projects dedicated to facilitate the access to career guidance services in Lithuania, projects implemented especially in the last years). Less than 15% of the pupils have participated in individual career counseling activities (8% participated only in individual activities, 6% in both individual and group sessions), this percent being bigger in Cyprus, where there is a lot of interest in accessing private career counseling services.

The answers proved that there is a significant need for public services in the area of career counseling and guidance in all the three educational environments analyzed in this research and the public educational institution should focus on identifying efficient solution to implicate as many pupils as possible in career counseling programs and activities.

The access to career counseling services in the public educational system is not ensured for all the pupils in Romania, Cyprus and the Baltic Countries, with 39% of the investigated sample stating that they have no access to this service, the percent being larger in Cyprus. More pupils have direct access to career counseling services in schools on the Baltic Countries, because of the public policy for career guidance in those countries: school counseling is considered different from career counseling and more

and more schools have two different specialists working with the pupils: a school counselor and a career counselor.

The number of the pupils that have no personal development plan / career plan is relatively low, with only 22% of the investigated sample stating that; there is a big difference between the Baltic Countries (where 45% of the pupils have not planned their professional development) and Cyprus (20%) and Romania (15%). The access to professional expertise in career planning is a big issue in all those countries, with only 5% of the pupils benefiting from working with a professional career counselor in redacting their personal development plan (the percentage being slightly bigger in Cyprus, where private career counselors are involved).

Those results show the pupils high interest in career planning and the reduced availability of the public services in this area, most of the pupils having to plan their career based on some general ideas that they have on career planning and their personal point of view and not on the expertise of a career counselor.

The need for professional career counseling services is mentioned by almost half (47%) of the investigated sample, the percentage being bigger in Cyprus, where 60% of the pupils stated that they need to plan their career with the help of the specialist (private career counselors in Cyprus have a positive social image). The perceived need for professional career counseling services increases with age.

4.2. Pupils' preferences for career counseling activities

More than half of the respondents (57%) would prefer to have access to career counseling in the online environment, via dedicated websites and learning platforms. This percentage is bigger in Romania (62%) and the Baltic Countries (61%) than in Cyprus (38%), partially because of the shorter distances and the accessibility of the locations for the face-to-face career counseling activities in this small island.

Most of the pupils in Romania, Cyprus and the Baltic Countries associated career counseling with "advice, practical suggestions" and "information", their interests being similar in all those countries. In addition, there is a bigger interest in self-knowledge and career planning and less on self-presentation and career management.

4.3. Pupils' interests regarding career counseling

The most interesting career counseling specific topics for the investigated pupils where:

- self-knowledge, especially professional skills, self-image and self-esteem, communication skills;
- career planning, focusing on sources of information regarding the career and the personal development plan;
- career management, focusing on the balance between career and personal life and on time management;
- self-presentation, focusing on the job interview.

The comparative analysis of the results in Romania, Cyprus and the Baltic Countries showed that pupils made similar evaluation regardless of their educational, cultural, social background. Nevertheless, there were some specific tendencies for each country. In Romania, pupils have a bigger interest in getting the information about career, the personal development plan, the balance between personal and professional activities and the legislation regarding employability. In Cyprus, pupils have a bigger interest in time management and less interest regarding the job interview. In the Baltic Countries, pupils are more interested in topics like communication skills and letter of intent.

The pupils' interest in self-knowledge and self-presentation is increasing with age and educational level, while the interest in career planning and career management is constant. The interest in all the areas of career counselling is bigger for girls than for boys, the biggest differences regarding the self-presentation and career planning.

5. Discussion

The access to career counseling public services is not ensured for all the pupils enrolled in schools in Romania, Cyprus and the Baltic Countries, especially regarding the access to individual counselling, while the pupils' interest in such activities is obvious, almost half of the respondents mentioning their need for professional career counseling. Most of the pupils hope that the career counselor would provide them the necessary information and some advice, practical suggestions, especially on self-knowledge and career planning. More pupils would prefer to have access to online career services, more flexible and more interesting for the digitally born generation, the specialized websites being a possible solution to the reduces access to career counseling activities in schools.

The most interesting aspect of career counseling is the balance between personal and professional activities, which is surprising for the career counselors that tends to focus less on this topic. The pupils' answers proves that there is a need to focus on their choices and interests, on what they want to gain through career counseling activities and less on what the specialists consider to be relevant for them.

The results demonstrates the need to develop the public career counseling services in all three educational environments and to identify the most effective solutions to include as many pupils as possible in career counseling and guidance activities. Pupils are interested in career counseling and planning their educational and professional future, but public services for career guidance are not as available as they should.

The results in the three countries are similar, but the solutions in the educational and cultural areas are different: in Cyprus, pupils have the economic resources to hire a private career counselor that provides the services that the public sector doesn't provide; in Latvia, many schools hired a specialist in career counseling, so the number and the quality of those activities increased in the last years; in Romania, one plausible solution is to implement online counseling services and digital resources that could help the school counselors in providing services to all the interested pupils.

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CREATING SUSTAINABLE TEACHER EDUCATION LEARNING ENVIRONMENTS: A SOCIAL REALIST APPROACH

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Abstract

The search for quality in teacher education has been the focus of the post-apartheid South Africa. Taking a cue from Gerard Guthrie, I demonstrate how the dominant progressivist agenda to transform teacher education has not fully yielded the promised outcomes even after 22 years of experimentation and re-engineering. Through this analysis I agree with Guthrie that the problem might be with the progressivists' focus on teaching and not on learner performance, as well as on learner-centered pedagogies at the expense of learning-centeredness and recognising the value of the local modes of learning. Currently teachers are educated almost exclusively in the taken for granted global learner-centeredness as though there are no other ways of learning which are indigenous to the South African experiences, fears and aspirations. To periodise the efforts of the progressivists' towards this elusive quality enhancement project since 1994, I use Joel Kinchloe's impression of bricolage as the organising principle to describe the 8 moments which have characterized theorisation, policy changes and research work in this regard. The eight moments constituting bricolage are the; *traditional qualitative research, the golden age, blurred genres, crisis of representation, postmodernity, post-experimentalism, methodologically contested representation and the current fractured futures.* These, although describing eras in the development of qualitative research, they also seem to be useful epochs in understanding how quality was striven for in teacher education since 1994 South Africa.
This historical analysis is important to show how various attempts were embarked upon with good intentions to improve the quality of teacher education, but with limited success. In contrast to the above, I bring the argument to a halt by suggesting that investing in and valorising local knowledges where instances of civil society are involved in the crafting, implementation, evaluation, assessment and monitoring the development of teacher education, could add more value and improve the levels of success.

Keywords: *Sustainable learning environments, social realism, bricolage, progressivism, teacher education.*

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USE OF COMPUTERS IN MATHEMATICS CLASSROOMS: DATA FROM TIMSS 2011

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Abstract

Mathematics teachers are expected to use computers in their mathematics classrooms efficiently to catch the era. The aim of the current study was to investigate the frequencies of mathematics teachers' usage of computers by using TIMSS 2011 data. Seventeen countries out of 45 countries were selected based on their performance in TIMSS 2011 eighth grade mathematics achievement test. The results indicated that all of mathematics teachers included in the study use computers both for preparation and administration work at higher percentages with a few exceptions. As to the using computers in classroom instruction, the results vary for high-performing, average-performing, and low-performing countries. It is not so meaningful to claim that there is a relationship between use of computers in mathematics classrooms and average mathematics achievement in TIMSS 2011. Although some of these countries provide support for their mathematics teachers to use computers in their classrooms, some of them fail to satisfy mathematics teachers' need in providing technical support.

Keywords: *Mathematics teacher, mathematics classroom, TIMSS 2011, computer.*

1. Introduction

Under favor of increasing technology, the computer has taken its place in mathematics classrooms for over 30 years (Thomas, 2006). Thus, mathematics teachers are expected to use computers in their mathematics classrooms efficiently to catch the era (Forgasz, 2006). For this reason international studies obtaining extensive data from all over the world try to measure to what extent the mathematics teachers use computers in mathematics classrooms and how they integrate computers to their mathematics instruction. One of these international studies is Trends in Mathematics and Science Study (TIMSS) conducted by International Association for the Evaluation of Educational Achievement (IEA) for more than 50 years (Mullis, Martin, Foy, & Arora, 2012). TIMSS, known as the most extensive international study involving a wide geography, provides educators unprecedented opportunity to compare the effects and practices of education systems of different countries. Forty-five countries participated to TIMSS 2011, which is the fifth and the recent cycle of TIMSS studies (Mullis, et al., 2012). In the light of this information the current study is motivated by a desire to investigate and compare the frequencies of using computers of mathematics teachers across selected countries by using TIMSS 2011 data.

2. Review of literature

It is an inevitable fact that as computer science improves, the mathematics education changes (Aydin, 2005). Because of the necessities of our age, technology should be as integral to mathematics education, because it is a reality of our world (Wiest, 2001). The change of mathematics education displays itself as the revision of the mathematics curricula in many of the developed countries (Aydin, 2005) and investment in educational technology all over the world (Mullis, et al, 2012). National Council of Teachers of Mathematics (NCTM) emphasizes proper use of technology in mathematics classrooms by stating "Students can learn more mathematics more deeply with the appropriate use of technology" (NCTM, 2000, p.25). The positive advantages of the various computer applications in mathematics education affect classroom practices favorably (Aydin, 2005). It is also reported that use of computers in the classroom has a significant positive effect on achievement at all grades and in all subjects (Tamim, Bernard, Borokhovski, Abrami, & Schmid, 2011). The use of computers in mathematics education can be classified in broad categories. For instance, Aydin (2005) indicates that computers have been used in three general categories; computer assisted instruction (CAI), student (educational) programming, and

general-purpose educational tools such as spreadsheets, databases and computer algebra systems (CAS). NCTM (2000) attracts attention to the point that technology itself should not be the object of the instruction but it should be used as a medium in order to facilitate powerful mathematics learning via modeling and exploring mathematics and conducting mathematical investigations. Although computers can be used to access information, the major aim should be developing students' higher order thinking skills with an emphasis on inquiry and reasoning during mathematical tasks (Wiest, 2001). Wiest (2001) identified using technology properly as emphasizing mathematical thinking in an environment with well-integrated instructional approaches grounded in current mathematics education theory. However, in the related literature it is reported that, although mathematics teachers use computers for graphical and statistical work and for Internet, the use of computers for skill development is very low (Thomas, 2006). It is indicated that use of computers for low-level applications such as computations or demonstrations without exploration and reasoning shades its potential to challenge student thinking (Wiest, 2001).

As the necessity of the technology age the mathematics teachers have been bombarded with the suggestions on how to teach mathematics with a computer (Aydin, 2005). At this point the role of teachers in using computers in the mathematics classrooms gains crucial importance. Thomas (2006) pointed out the significant role of mathematics teachers in using computers in mathematics lessons efficiently and drew attention to their beliefs and attitudes as principal elements to increase computer use efficiently in mathematics teaching. The mathematics teachers' attitudes towards computer use and the predictors that influence teachers' these attitudes have been widely investigated in both developed and developing countries (Teo, Milutinovic, & Zhou, 2016). Many mathematics teachers have ignored the computers, although the number of these teachers has decreased each passing day (Aydin, 2005). Thomas (2006) also noted that a respectable number of mathematics teachers believed that computers hinder mathematics learning and understanding. It was noted that teachers should believe that using computers will satisfy their own and their students' needs in order to intent to use technology in their teaching (Teo, et al., 2016). In that case, it should not be expected to change math classrooms by computers unless the teachers change (Thomas, Tyrrell, & Bullock, 1996). We should change teachers' attitudes from negative to positive and this requires time (Thomas, et al., 1996). Even teachers have knowledge of and experience with computers, this is not sufficient to ensure that they use computers in mathematics teaching (Thomas, et al., 1996). What is necessary is that teachers should be involved in using computers in their own mathematics classrooms and in this way they are able to have positive perception of the value of using the computer (Thomas, et al., 1996). Thomas et al. (1996) characterized the change in teachers' perceptions from negative to positive and identified the important factors in this process. They noted that in this process teachers should have a willingness to become a learner alongside the students, a desire to plan lessons which incorporate the computer as another tool for learning and an ability to focus on the mathematics and its applications rather that on the computer. According to them teachers need confidence that they can successfully use computers in their mathematics teaching.

Although there is strong emphasize in the use of computers in the classrooms and despite to the attempts to change teachers' attitudes towards computers to positive, related research reported that usage of computers in mathematics teaching was low even in developed countries at the end of twentieth century (Ely, 1993) and at the beginning of the twenty-first century (Thomas, 2006). For instance, the percentage of secondary mathematics teachers never use computers in their mathematics lessons was 30% in New Zeland (Thomas, 2006). Thomas (2006) concluded that there are now many computers available in schools, however accessing to them to use as mathematical learning tools is problematic. Another reason for this low usage has roots in both economical and political issues. Most of the mathematics departments do not have their own technology budget and they do not have a technology policy to support mathematics teachers in order to integrate computers to mathematics teaching efficiently (Thomas, 2006). They possessed very general ideas such as "Technology should be used wherever possible as an aid to learning" or "All teachers are expected to integrate ICT into their teaching and learning practices" (Thomas, 2006, p. 271).

3. Methodology

3.1. Participants

TIMSS 2011 has two-stage random sample design, with a sample of schools drawn as a first stage and one or more intact classes of students selected from each of the sampled schools as a second stage (Martin & Mullis, 2012). The mathematics teachers of these selected classes responded TIMSS 2011 Teacher Questionnaire asking various questions related to their education, professional development, experience in teaching, instructional activities and materials used in the class. For the current study, 17 countries selected based on their eight grade students' mathematics performance in

TIMSS 2001. Table 1 displays the selected countries, number of teachers participated and their average years of experience.

Table 1. Selected countries, number of teachers participated and their average years of experience

Country	Average Scale Score of students	Relative to TIMSS Scale Centerpoint of 500	Number of teachers	Average years of experience
Korea	613	Higher	376	13
Singapore	611		330	8
Chinese Taipei	609		162	14
Hong Kong	586		148	12
Japan	570		181	17
Russian Federation	539		239	24
England	507	Same	212	12
Hungary	505		280	22
Australia	505		802	15
Lithuania	502		262	25
Italy	498		205	22
Romania	458	Lower	248	25
United Arab Emirates	456		603	13
Turkey	452		240	9
Lebanon	449		172	14
Malaysia	440		180	11
Georgia	431		202	25

3.2. Procedure

The data of 17 countries including responses of mathematics teachers in TIMSS 2011 Mathematics Teachers Questionnaire were downloaded from TIMSS International Web Site (IEA, 2015). The items related to computer use in TIMSS 2011 Mathematics Teacher Questionnaire were analyzed by using descriptive statistics. The related items are; whether mathematics teachers use computers in their teaching for preparation, administration, and classroom instruction; to what extent they agree that they feel comfortable using computers in their teaching, that when they have technical problems, they have ready access to computer support staff in their school, and that they receive adequate support for integrating computers in their teaching activities; whether they use textbook, workbooks, concrete objects, and computer software as basis for instruction, supplement or not at all when they teach mathematics; and how often they have their students explore mathematics concepts, practice skills and procedures, look up ideas and information, and process and analyze data on computer. The frequencies of each item were calculated by using Statistical Package for the Social Sciences (SPSS).

4. Results

The results indicated that all of mathematics teachers included in the study use computers both for preparation and administration work at higher percentages (average percentages were more than 90% for preparation and more than 80% for administration) with a few exceptions. For instance only 41% and 38% of mathematics teachers of Lebanon used computers for preparation and administration, respectively. The percentages of mathematics teachers using computers for administration were %20 and %24 for Turkey and Georgia, respectively. As to the using computers in classroom instruction, the results vary for high-performing, average-performing, and low-performing countries. For instance, 96% of mathematics teachers of Singapore indicated that they use computers in classroom instruction whereas this percentage was only 22% for the mathematics teachers of Japan. The case was more favorable for average-performing countries. In these countries more than half of the mathematics use computers in classroom instruction with the highest percentage of 98 in England. The situation was similar for low-performing countries; mathematics teachers from United Arab Emirates had the highest percentage of 80 and consistently with the previous results only 32% of mathematics teachers of Lebanon use computers in classroom instruction.

The results of mathematics teachers' confidence in using computers and having technical support were given in Table 2. Similar to the use of computers in classroom instruction, the results vary across countries within the same group. Among the all countries, mathematics teachers of Singapore were the most confident teachers. Moreover, they had the highest percentage being able to access computers staff in the school. On the other hand, Japan, a country in the group of high-performing countries had the lowest percentages of mathematics teachers for the confidence and technical support statements.

Table 2. Percentage of mathematics teachers who are agree a lot with confidence statements

Country	I feel comfortable using computers in my teaching	I have ready access to computer support staff in my school	I receive adequate support for integrating computers in teaching
Korea	17	19	12
Singapore	71	65	51
Chinese Taipei	18	35	22
Hong Kong	57	62	42
Japan	28	20	18
Russian Federation	43	52	52
England	82	62	45
Hungary	64	55	50
Australia	63	47	33
Lithuania	48	53	52
Italy	44	18	10
Romania	22	48	55
United Arab Emirates	70	57	55
Turkey	51	49	40
Lebanon	45	50	40
Malaysia	37	27	33
Georgia	38	67	70

On average, internationally, textbooks were used most often as the basis for mathematics instruction, by 77% of the mathematics teachers at the eighth grade. Additionally, workbooks or worksheets and concrete object or materials were used 34% and 23% of the mathematics teachers, respectively. Unfortunately, the international average percentage for using computer software for mathematics instruction was only 7%. In the current study most of mathematics teachers reported that they use textbook as basis for mathematics instruction with some exceptions in different groups of countries (Singapore: %60; England: %30; Australia: %54; Romania: %68). The highest percentage of mathematics teachers was in Korea (70%) and the lowest percentage of mathematics teachers percentage was in Russian Federation (%5) in using workbooks or worksheets as basis for instruction. The highest percentage of mathematics teachers was in Romania (50%) and the lowest percentage of mathematics teachers was in Chinese Taipei (%6) in using concrete objects or materials that help students understand quantities and procedures. As to the use of computer software as basis for instruction, the highest percentage of mathematics teachers was in England (24%) and the lowest percentage of mathematics teachers was in Chinese Taipei and Japan (%1). However, the percentage of mathematics teachers of Singapore who use computer software as supplement was 82.

Approximately, 21 to 24 percent of the mathematics teachers ask their students to explore mathematics principles and concepts, to look up ideas and information, to process and analyze data, and to practice skills and procedures at least once in a month. Table 3 displays the percentages of mathematics teachers of the selected countries conducting related computer activities. According to the Table 3, the percentages of mathematic teachers conducting related computer activities were higher than international average in Korea, Singapore, Russian Federation, England, Australia, Lithuania, and Georgia. On the other hand, the percentages of mathematic teachers of Japan, Lebanon, and Malaysia were lower than the international average in conducting related computer activities.

Table 3. Percentage of mathematics teachers who use computer as least monthly

Country	To explore mathematics principles and concepts	To look up ideas and information	To process and analyze data	To practice skills and procedures
Korea	32	30	25	28
Singapore	38	26	24	34
Chinese Taipei	8	6	5	4
Hong Kong	14	15	14	10
Japan	3	5	6	1
Russian Federation	36	40	29	40
England	34	27	24	38
Hungary	18	28	18	24
Australia	49	34	40	53
Lithuania	23	31	30	30
Italy	18	24	20	23
Romania	25	24	22	25
United Arab Emirates	25	25	21	26
Turkey	24	26	22	21
Lebanon	6	8	7	8
Malaysia	5	5	4	4
Georgia	29	37	34	29

5. Discussion and conclusions

The results revealed that most of the mathematics teachers in high-performing, average-performing, and low-performing countries frequently use computers for both preparation and

administration with a few exceptions. These exceptions were discrete cases and they should be investigated independently for each country. It is also quite reasonable to claim that these low percentages may be originated from countries' educational policies or economical reasons. High percentages of using computers refer to the fact that many mathematics teachers integrate computers to their professional life to some extent. However, the case for using computers in classroom instruction is not the same. Percentages of using computers vary across the countries in the same group. Therefore, it is not so meaningful to claim that there is a relationship between use of computers in mathematics classrooms and average mathematics achievement in TIMSS 2011 as indicated in literature (NCTM, 2000; Tamim et al., 2011). This result verifies the importance of proper use of technology and emphasis on mathematical learning via modeling, exploring, and investigating (NCTM, 2000; Wiest, 2001). In TIMSS 2011, it is seen that all of the computer activities are carried out at the similar percentages at the international average. Also the case is similar for the selected countries in the current study. Although computer activities in which students explore mathematics principles and concepts are strongly recommended, activities such as looking up ideas and information or practicing skills and procedures are conducted at the similar frequencies (Thomas, 2006; Wiest, 2001). The results indicated that mathematics teachers' confidence in using computers in teaching, technology staff, and support for integrating computers in teaching vary across the countries in the same group. Although some of these countries provide support for their mathematics teachers to use computers in their classrooms, some of them fail to satisfy mathematics teachers' need in providing technical support. For instance, the case of Singapore attracts attention by the highest percentages providing opportunities to mathematics teachers in accessing technical staff in school and receiving support for integrating computer in teaching. Finally, it is suggested that TIMSS mathematics teachers questionnaires should include items questioning teachers' attitudes toward computer use in classroom, ideas related to whether a computer can enhance mathematical learning and understanding, information about what kind of computer software teachers use and for which mathematical subject they use computer software.

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CREATING SELF LEARNING, ACCESSIBLE & LOW-COST MINI-VIDEOS

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Abstract

E-learning (CRUETIC,2011; Marketdata Enterprises, 2011) and, in particular, its mixed variety or b-learning (Heinze & Procter, 2004) is one of the most efficient ways to train faculty (García-Cabrera, 2013). In this sense, training courses are time consuming for these professors, whose responsibilities turn out to be a lot in fields like teaching, researching and management.
Offering mini video tutorials in these courses allows a more flexible and self-sufficient formation (Letón, Durbán, D'Auria & Lee, 2009), since they combine a sort of learning process which is both face-to-face and practical (Valderrama, Sánchez & Urrejola, 2009). In this sense, mini videos can be considered as Knowledge Pills (Sanchez, Cancela, Maceiras, & Urrejola 2010) (Bengochea Martínez, 2011) because they are e-learning contents designed to provide a briefing, refreshment or training about a specific subject matter within 15 minutes or less.
However, the production of mini videos involves a lot of time and complex tools are very often required. Moreover, faculty members do not usually know the theoretical or practical process to elaborate them.
This work suggests a systematic process and the use of free tools to make mini videos in a regular way. They should be accessible, multilingual and low cost in terms of both time and money. We propose a flexible and simple process together with the use of Google App tools to make the transcription and translation process can be quicker. Google Apps are accessible in any modern browsers, letting the edition of different kinds of contents by various users who work collaboratively.
The final aim of this work is to prepare a guide of good practices to make mini videos for b-learning courses, which should be divided into different parts or workshops aimed to train faculty. In this way, we intend to contribute to their lifelong learning to ease its follow-up from everywhere at any time.

Keywords: *Higher Education, lifelong learning, e-learning, knowledge pills, video tutorials.*

1. Introduction

There are different methods of transmission of knowledge by teachers. Traditional and new resources share space in the classrooms. Today students use all kinds of resources in all languages and with all types of devices outside the classroom. All levels of education and, universities in particular, cannot leave aside technological developments applied to the teaching and learning processes.

Mini video tutorials as a learning resource are being used more and more nowadays (Kay, 2012). The main advantages of mini videos for students are that they can choose the time and place of learning and having access to the video as often as they need. On the other hand, mini videos have a lot of advantages for teachers such as the possibility of being used for different subjects or strengthening some concepts or examples for students.

Sometimes mini videos just consist of the recording of entire lectures that are viewed passively (Thaphagan et al. 2010). However, mini video tutorials are resources especially designed for teaching a specific topic from a subject. These mini videos, in contrast with other didactic resources, have some accessibility problems (Bengochea & Medina, 2013). When we design videos for a group of students, it is necessary to take into account some accessibility elements, which allow people with some kind of functional diversity to interact with the videos.

Elements like subtitles or the possibility of choosing from different languages are essential to distinguish a good mini video.

Following Bengochea & Budia (2012), who suggest some recommendations, and from our experience, we propose some characteristics for a good mini video:

- The video length should be about 5 to 10 minutes.
- It must use agile and minimal resources.
- It is necessary to have quality for video and sound using a high quality sound.
- It is important to use standard formats W3C.
- It is necessary to synchronize images, text and sound.
- Use simple and clear language with an active voice, if possible.
- Essential concepts should be uttered, eliminating the non essential parts.

2. Previous work

Nowadays, it is not surprising that in academic circles e-learning lives together with the traditional classroom learning, helping universities move toward a vision of lifelong and on-demand learning. In this sense, University of Jaén has provided an innovative b-learning course for the faculty for the last four years (Garcia-Cabrera, 2013). The course combines conventional classroom work, online activities (web-conferences and class-videos) and e-learning. It is organized into independent modules which are freely chosen by attendees depending on their needs.

The results have shown that this course has managed to make learning more efficient (close to 80% improvement) and 100% university professors are more satisfied. Factors that have contributed in their learning have been, first, modularity because the students focus on whatever interests you, and second they focus their effort on making learning more effective. Furthermore, the video recordings have made the training be more autonomous and flexible.

However, right now the videos have a duration of 1 hour or more, which means too many drawbacks, since keeping attention for so long is difficult, the cost of producing is high, reusing is limited, heavy files are hard to up/downloading and there is too much material to subtitle and translate. Therefore, this type of course means a benefit if videos focus on a very specific aspect and do not exceed 15 minutes, less than 10 minutes is would better indeed. So, authors need a systematic process and the use of free tools to make mini videos in a regular way. They should be accessible, multilingual and low cost in terms of both time and money too.

3. Working methodology

Based on the previous work, there are some objectives/aims that restrict and determine the process:

- Open to all authors. All authors should be able to follow the methodology and tools proposed in this work without the need to have technical knowledge.
- Short time process. The process should not consume much time.
- Free/Low Cost. The tools to be used should not assume a high cost. It is preferable to use freeware tool.
- Autonomous. The whole process must be able to be autonomously performed by a single author.
- Cooperative. In case several people want to perform the process, the tools should allow cooperative work.
- Heterogeneous environment. Authors could be working on any Operating System.
- Ubiquitous. An author must be able to carry out the process from any place and at any time.
- Outsourced. The different parts of the process can be outsourced if needed.

4. Practical proposal

The main aim of training in mini videos is making the process of learning more efficient. The clue is to offer an easy and cooperative process, which could be outsourced if needed. A learning mini video can be performed or narrated. In both cases, the phases are preparation, video recording, subtitling, internationalization and validation. The first and last phases are clear but the others can be done in a different order or grouping some parts at the same time.

Preparation is critical and it will be analysed in our next section. Video recording can be done in different ways: direct camera recording, from a screencast or from a live streaming. Independently of the source we find fundamental the quality of video image and sound. Diction, vocalization and proper speech pace make learning easier to follow. In this process we find essential to feel and communicate the

subject contents with enthusiasm to engage our students' interest. In subtitling phase, video voice must be transcribed and synchronized. Subtitles can be created from the transcription by breaking up the text into smaller segments called frames of subtitle, and then synchronizing them with the video so that each subtitle frame could be displayed at the right moment. Internationalization phase consists of the translation and maybe the dubbing into several languages. The text, obtained from the phase of transcription, could be translated into several languages so that potential viewers can select them. However, these translated subtitles could need an individual synchronization.

Finally, validation phase checks the quality of video and sound, possible mistakes, a good synchronization, and so on.

4.1. How to manage and organize contents

Preparation is the first and most critical phase. The first is to make a good choice of a self contained topic. It should be very clear, that is, what learning objectives are, how and what to expect, and in what order (in no more than 10 minutes).

At this point a draft or a script should be prepared as easy to understand as possible. For this reason, it is advisable to use simple sentence structures, simple vocabulary and expressions that avoid jargon or acronyms. Instead, plain, active and clear English must be used (Boldyreff, 2001) to convey factual information. Working in this way not only increases accessibility and understanding, but also makes easier the translation and subtitling phases.

During this process authors should rehearse at least once or twice in order to correct and suit speech and tempo.

4.2. Tools and process

This section shows the tools and workflow developed for helping authors in the process of transcription and translation of mini videos. Our approach is mainly centered on individual or small author teams, probably with limited resources or technical knowledge. In no case it is considered as a global solution for institutions or companies. Therefore, the main objectives for the selection of tools are: global availability, reduced cost, simplicity of use or support, and collaborative work.

The result of our tool research is a complete workflow centered around two tools from Google Apps Suite: YouTube, as transcription and even a semi-automatic translation tool for videos; and Google Translation Toolkit, GTT, as collaborative and semi-automatic subtitle translation framework.

They are free tools and can be used from any Operating System. Only a connection to the Internet, a modern browser and a Gmail free account are needed to start working. Author can have access to their work material anytime and from any computer connected to the Internet. Despite recent criticism and controversy about practices from companies which owe those services on the use of personal information, we think that those tools are currently one of the best technological and affordable options.

Proposed workflow begins with the uploading of the original video to a YouTube account, selecting its spoken language and marking it as hidden to avoid public access throughout the process. The tool presents us different options to edit related information: metadata, visible contents over video image (text, links, etc.), soundtrack and subtitle management.

YouTube can generate automatically subtitles for original spoken language for English, Dutch, French, German, Italian, Japanese, Korean, Portuguese, Russian and Spanish. This process can take up to 24 hours depending on different aspects like video length, sound quality or speech velocity and clarity. Our experience showed us than videos should not take more than 10 or 15 minutes, they should not to use background sound, they should avoid surround noise and use a slow, loud and clear speech. However, these conditions are easy to achieve for self-learning mini videos, whose contents and even their speech are previously established. After the automatic translation process finishes, authors can mark this subtitles for public selection and download them on SRT format for translation purpose as we should see below. Also, they can improve those subtitles by editing them from a simple interface.

It is important to resemble that during this automatic translation process, an essential task is accomplished too: the synchronization of subtitles with speech. The entire process is usually time consuming when using other manual subtitle edition tools.

However, YouTube allows accomplishing speech translation and synchronization in a manual way like other offline tools. In fact, its editing interface is very intuitive, has a great usability and provides a pleasant user experience. When the author begins the manual subtitle creation process, he/she has the video playback on their left and an input text area on the right side. The user starts the video playback and, when he/she starts to write down the text, the video playback stops until it pauses. After that, playback resumes until the user starts writing again. The author can rewind the video anytime and the tool selects automatically the correct text frame (Figure 1).

It is important to resemble that throughout this process, the written text remains perfectly synchronized with audio thanks to the tool speech recognizer. As we did mention above, this process is time-consuming when the author makes it manually, so this automatic help is very appreciated for this kind of work.

Figure 1. Screenshot of the YouTube tool for adding subtitles to a video

After finishing the subtitling process, the next step to achieve accessibility and to help the video to reach more users is subtitle translation. During this process, we will use other tool from Google Apps ecosystem, which is known as Google Translation Toolkit, GTT. There are three reasons because this tool has been selected. First, this tool can make an automatic first draft translation of subtitle file to different languages. Second, it allows to work directly with this kind of files, preserving speech synchronization information throughout the whole process. Third, its collaborative nature allows an author team to work simultaneously on the same subtitle file translation.

As commented above, automatic translation content must be considered as a draft version, because the results have not enough quality for this kind of content and need a last author revision is needed. However, despite its low quality, the initial bulk translation reduces the duration of the overall process, leaving the user the responsibility of making minor corrections over the results. The tool provides specific utilities for this task like thesaurus or personalized dictionaries. Finally, in case that the author does not master the target language, the tool allows to send content to a professional translation company. In fact, the tool can show us a previous budget and a time estimation of the process.

The collaborative nature of the tools supposes an advantage with respect to other off-line tools. This allows to access translation contents from all on-line computer. The author can add other collaborators to help him/her in the translation process. In fact, different users can be editing the same subtitle file on different parts or sections. Any author can know which subtitles are untranslated (in green color) or modified (orange color), and they can add comments on each subtitle to explain or debate different aspects of the process with their teammates (Figure 2).

Figure 2. Screenshot of the YouTube Google Translation Toolkit (GTT)

Finally, authors can download translated subtitle version file, upload it to YouTube and associate it to our original video.

4.3. Results

As example, we present the results of the overall process for a mini video of 16 minutes length. The mini video is a screencast for faculty teaching in Spanish. It is about an exercise didactic resource for e-learning platform ILIAS. Speech transcription is 1731 word length and is performed manually in 30 minutes by a professor without prior knowledge of the process or tool use with basic support of an expert. However, as mentioned above, this could have taken less time if YouTube automatic translation was

used. English translation of subtitles with the described tool took about 60 minutes by the same professor. As explained, subtitle synchronization is transparent with described workflow. Translation is first done automatically and next revised manually by the same person. In the author's opinion, the bulk translation helps to reduce the overall process, although some additional work was needed to improve the result. However, it should be clarified than the author has a B2 English level and expert knowledge of the video domain context. So, the overall process took 90 minutes, which means an approximate rate of 5' of work per minute of original video or one minute of work per 19 words. These results can be compared, for example, with the own GTT proposed budget for an external professional translation company, which was 121.17$ (July, 2015), with a delivery time of 24 hours.

Finally, authors can download translated subtitle version file, upload it to YouTube and associate it to our original video.

5. Conclusions

We consider that the proposed workflow helps professors to create and translate mini videos in an easy and efficient way nowadays. We thought this is not a solution for Institutions or Companies, where a professional approach and support should be taken into account to help authors in the whole process. However, we think than the presented tools suppose a globally available and affordable solution to improve professors' teaching tools. This process has remarkable advantages, as it does not require technical expertise, it takes short time, and it is low-cost, autonomous, cooperative, independent of the operating system and outsourced. Last but not least, the author can make use of it from anywhere and at every moment.

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A FRAMEWORK OF PRACTICE FOR EDUCATING NOVICE STUDENTS TO BECOME PROFESSIONAL COUNSELLORS

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Abstract

The design and delivery of a training programme for counsellors is challenging, because it necessitates considerable enhancement of trainees' attributes that are key factors for effective counselling. The arising issues are academic, practical and ethical. In this paper, we present a framework developed within a postgraduate programme that ensures high quality academic standards in teaching, learning and assessment and at the same time offers students the opportunity to exercise the acquired skills within a real working environment safely, ethically and effectively for both themselves and their clients. We present the complexities that trainers and trainees encounter during this journey. The proposed approach ensures that the practical experience which trainees acquire, will help them to develop an accurate self- concept that leads towards becoming professional counsellors.

Keywords: *Higher education practical experience, counselling training, professional eligibility.*

1. Introduction

A growing body of research stresses the importance of practice in creating efficient practitioners – particularly where dealing with psychological issues is part of the daily routine, i.e. Counselling. Good academic performance cannot guarantee good professional practice. Educating effective counsellors has been debated significantly, as relevant research points to not only skills acquired through practice, but also to particular personality traits, without which a counsellor is ineffective, regardless of their training. The quality of a counselling training programme has been thought as the result of its raw components: the instructors, the students and the learning environment (Wheeler, 2002). The literature describes the good counsellor as someone combining particular qualities as a person, e.g. self-awareness and willingness to help with empathy (Mearns & Thorne, 2007), with other qualities as a professional, e.g. knowledge about personality and psychopathology, awareness of the ethical issues, etc. (McLeod & McLeod, 2011).

The challenging part about all these essential qualities lies on the fact that training can foster some of them, but it cannot affect others. Empathy for instance can be developed further through practice. Not being genuinely interested in people's concerns cannot. As a consequence, there are 'fitness to practice' issues arising during a student's course, that will either have to be dealt with effectively and solved through training, or otherwise they make practice too challenging for both the trainee and the trainer.

In the University of Sheffield International Faculty[1], we have developed and we are delivering a Master's programme in Counselling Psychology with a Practicum, and we have launched also a Community Counselling Center, in which the trainees (students) complete their supervised practice. Recruiting suitable candidates for the practicum part is challenging too at many different levels, such as assessment, supervision, fitness to practice, and eligibility criteria. This paper aims to report our experience and practice on the way we prepare novice counselling students to acquire the basic counselling skills. We focus on the concerns and the challenges we faced during the different stages of designing and running the programme. We also discuss the steps taken to deal with these challenges and how progress is monitored and we underline the strong aspects of the approach, which make it research led and competitive.

[1]http://www.citycollege.sheffield.eu/

2. Curricula design

The dilemma whether counsellors are born or trained is not new at all. Freud (1912) had attempted to construct the profile of an efficient practitioner, and among others he suggested that not treating more than one patients per day, keeping notes to ensure accurate memories of what the patient said, not using data from patients for scientific purposes during the treatment, being healthy and taking the patients capacities rather than their desires would lead to better results.

Since then, the debate has grown and raised questions about the counselling relationship, the ideal programmes in counselling, admission criteria, interview tactics and any other factor related to the primary question. The counsellor's personality was never doubted as one of the criteria differentiating an efficient from a inefficient counsellor, but neither was the importance of the training ever indicated as lower than originally thought (Wheeler, 2002). Both academically and ethically speaking, the need for training efficient practitioners has been stressed considerably. Although the desire of the counselling trainee to help those in need is crucial, it is not adequate for facilitating the helping process.

The question triggers also issues about the curricula design, assessment and teaching methods in counselling programmes. Within such a framework, there are three different axes that considerably affect the design of such programs (discussed below): (a) fostering trainees' self-awareness**,** (b) facilitating understanding of the counselling process and (c) offering trainees the opportunity to exercise their skills within a practical setting. Thus, accredited programmes should include theory and research, practical training and a placement where the skills will be exercised.

To address these issues, we have incorporated teaching, learning and assessment techniques that foster development of self-awareness through interactive lectures and various experiential activities (e.g. supervision focusing on personal aspects of the trainee). The theoretical part of the programme consists of eight counselling units, all of which involve practical activities. Students undertake modules, such as *Current Paradigms in Counselling*, *Research Methods*, *Psychopathology, Counselling Skills, Applied Counselling Psychology* which aim at developing relevant knowledge about theory and latest research. A module on *Personal and Professional Development* aims at providing students with some foundation awareness of personal aspects about aspects that need further work before onset of practice, e.g. the way they relate to others, how they deal with losses, etc. Some modules have a stronger experiential component used for their assessment, as explained further below. In particular, the programme as a whole is designed to meet the following aims: (a) to make students acquire knowledge and develop understanding of the basic counselling theories, (b) to equip students with basic skills in counselling and psychotherapy, (c) to promote the development of a personal and professional identity that is in accordance with expectations and the ethical code of the counselling profession and (d) to make students utilise own strengths and potential in a lifelong and dynamic manner.

3. Self-awareness issues

> *"Gerald was an experienced and competent social worker who seemed to be an ideal candidate for counsellor training. He was bright, personable, motivated, psychologically minded and able to be empathic towards others. These personal qualities seemed to make him suitable for training, but other qualities emerged as the course progressed, including his inherent narcissism. Critical feedback led him to withdraw or attack. Supervision became a battleground and he made little progress with his therapeutic practice."* (p. 430).

This case was used by Wheeler (2002) to illustrate the complexity of recruiting suitable candidates. One aspect of this complexity is associated with the trainee's self-awareness. Self-awareness reflects the way a trainee relates to own strengths and weaknesses and has been pointed as a key aspect in the process of learning to offer a counselling relationship (McLeod & McLeod, 2011). It does not relate to any school, paradigm or therapeutic approach that is used in helping professions. It is about the counsellor's ability and sensitivity to internal feeling states, their accurate idea of how they are perceived by the client and their potential for staying alert during the counselling procedure. Therefore, self-awareness can be defined both as a holistic knowledge of one's perceptions and experiences or a temporary procedure of exploring own emotional and physiological reactions (Pietersea, Leeb, Ritmeesterb & Collins, 2013). Knowledge of own perceptions and experiences can be identified through understanding one's value and relationship system, while the emotional and physiological reactions can be explored through real time responses within interpersonal interactions. Both are influenced by significant past experiences. Therefore, facilitating understanding of how the trainee's self responds to and is being used in the counselling relationship, should be greatly emphasised in a relevant training programme. On the other hand, counselling is a highly demanding process. Therefore it may stretch the

counsellor's ability to relate well to those being helped (McLeod & McLeod, 2011). Personal fears and insecurities can block the counsellor's efficiency.

Unlike other programmes, counselling programmes go beyond students' academic performance, being driven by an ethical obligation: to ensure that students' personal and professional development is up to a desirable level. Incorporating formal assessment methods for students' personal and professional development and mechanisms for dealing with deficiencies has been stressed as important, although there are no published studies on assessment of students' personal and professional development (Hensley, Smith & Thomson, 2003). In our programme, we aim to facilitate higher levels of self-awareness of our trainees through two paths: (a) a theoretical one in which students participate in self-awareness activities and is completed during their first year, and (b) a practical one in which they initially participate in experiential/analytic groups, where various issues are explored depending on the topic of each session and they later proceed with real client contact under supervision.

In our '*Personal and Professional Development'* module, students are asked to explore relational patterns acquired through significant interactions initiated in childhood, adolescence and adulthood. These *"Putting the past in place''* activities (Cross & Papadopoulos, 2001) allow trainees to identify own perceptual patterns, likely to affect the way they would also perceive their future clients' issues. Students form triads exploring past situations/events from their different developmental stages that have significantly shaped them as individuals. They reflect on these experiences confidentially (with a signed contract) with their other group members and explore perceptions, feelings and effects on current self from each other's perspectives. Upon completion they submit a reflection on these exercises, comparing own perceptions with the perceptions of others and identify any dysfunctional cognitive and emotional patterns used in their every day interactions.

In the *'Current Paradigms in Counselling and Psychotherapy'* students need to complete a project pointing to personal aspects that could or could not be utilised in particular approaches, justified by examples of their personality traits that can be an obstacle. A trainee with a very rationalising tendency, for example, would be expected to consider a cognitive-behavioural technique more suitable than a person-centred one. They also complete analytical work on how they experience the 'here and now'. As the course develops, they also complete other activities producing reflective reports on behaviours, feeling and thoughts during their interactions. In *'Counselling Skills',* for example, they form triads and run real helping sessions, interchangeably playing the counsellor, the client and the observer. These sessions are supervised and feedback is included in the reflective journal they submit explaining the weak and the strong aspects as they were displayed in the sessions. They also need to explain what patterns of their thinking and feeling are associated with their life outside these sessions. The difficulty accepting constructive and positive feedback from others could be identified as a self-esteem issue that needs to be treated before they start practicing. In all modules, the in class behaviours of trainees are discussed by the site supervisors and managed as appropriate.

4. Understanding of the counselling process

The way counselling is understood varies among schools and specialists. Because of this variability, there is not a widely acceptable definition. A possible explanation is that counselling has evolved a lot over the years to meet expectations in the field. There is though an explicit need to clarify the primary condition for counselling to take place: it can only happen if the person in need wants it to happen. But there are also 'principles' for counselling to be effective. The first is about the counsellor having a clear model of a theoretical framework. The second is about the counsellor having undertaken a considerable amount of practice. The third is the counsellor's level of self-awareness to understand what they bring in the counselling relationship and last, training needs to cover professional and ethical issues such as confidentiality and supervision (McLeod & McLeod, 2011).

When people go for counselling they are confused and confusing, and thus clarity of communication becomes extremely important. Not having a clear understanding of concepts and techniques on the part of the counsellor, may cause further confusion to the client who is seeking help. Understanding the skills of counselling is differentiated from the skill itself, as understanding comes in a different learning context than the skill development, which is the result of practice. This learning process is rewarding as a whole, but there are several points where it can trigger discomfort. Lack of commitment on behalf of the trainee can make the whole process meaningless (McLeod & McLeod, 2011).

Additionally, offering help to someone in need is not a duty that can be taken lightly. Being in the role of the helper involves learning about and responding to areas that are painful, sensitive and confusing (McLeod & McLeod, 2011). This process brings up to the surface interpersonal aspects of the counsellor that in some cases may and in some other cases may not foster the creation of a trustful atmosphere and consequently the desirable change (Dryden & Reeves, 2008). Counsellors hold particular

views of counselling process that are influenced by the approach they have been trained and are reflected on the way they interact with clients. Clients in turn hold their own views about counselling. The counsellors' views should not clash with clients' views.

Setting goals in counselling is also another challenging task. Clients' goals are often expressed vaguely, they may involve other people or be outside the client's power, be based on disturbed feelings, or may change during the counselling process. Although goal setting in counselling may look simple, this simplicity is deceptive and it needs to be addressed in a accurate way (Dryden & Reeves, 2008). We describe below some examples of how we incorporate teaching, learning or assessment techniques to ensure that issues of similar significance are addressed in the curriculum.

In the taught part, we ask students to explore the basic principles of one of the main therapeutic approaches introduced in *'Current Paradigms in Counselling and Psychotherapy,* and among others they discuss the main goals, relationship style and techniques used in this approach. Another example is that they are also introduced to the main counselling skills and associated issues and are then asked to evaluate the quality of the sessions they run in '*Counselling Skills'* addressing the basic counselling skills being displayed during the sessions, e.g. listening, mirroring, paraphrasing, challenging, and the quality of the atmosphere that was created by the counsellor to facilitate the counselling process. Students' behaviour in class activities is also monitored, and where appropriate discussed in the *Fitness to Practice Committee*. Possible drawbacks are considered and individual interviews arranged after the end of the taught part to discuss solutions. Any misunderstandings about the counselling process are explored and suggestions are made if appropriate. The outcome of interviews is recorded and followed up before the *'Foundation Course'*.

5. Practical experience

Training programmes are often criticised for lacking an adequate empirical foundation. Practice alone is not adequate for high quality training; accurate assessment of competency is necessary within a programme aiming to create efficient counsellors; if it is apparent, it can significantly improve the trainees' skills of counseling. Anxiety management and use of basic skills also appear as significant aspects of a programme's quality. Practice creates the space for this anxiety to be triggered, but also to be managed through supervision and to control students' personal reactions in a counselling context (Williams, Judge, Hill & Hoffman, 1997). Other times, the emphasis is placed on the theoretical framework of a programme. However, lack of convergence on the effectiveness of some approaches over some others has resulted in the relevant research being diminished for years. Despite this lack of evidence, there is a growing interest in the practical part of relevant programmes although the relevant literature places the emphasis on: (a) the importance of supervision, (b) the clients' perception of their sessions, (c) trainees' self-care practices, (d) knowledge of relevant research, and others (Grafanaki, 2010). Gaining practical experience as a counselling trainee is a challenge not only for the trainees, but for the supervisors too. Students' competency needs to be monitored accurately, safely and confidently for the well-being of future clients. At the same time, it needs to be assessed in a real working environment, in which both the trainee and their clients can relate, feel and think well.

There are three different types of practical experience: (a) exchanging personal experiences with others, (b) practicing counselling with fellow trainees and (c) exercising counselling skills within a real helping context (McLeod & McLeod, 2011) and we gradually integrate all three parts in the programme as the course develops, as described below.

Initially, our trainees should meet the *entry criteria* for the *Practicum* such as: basic counselling and communication skills, ability to look at how and why things are working or not working with fellow students and tutors, ability/tolerance to receive personal feedback, etc. If they do, then they enter the second year of study, which starts with the '*Foundation Course'.* This is an intensive experiential module aiming to enrich students with the basic theoretical and practical implications that underpin the counselling framework and to equip them with some of the professional skills related to their counselling practice. In this module, students are videotaped and provided with feedback primarily on their listening skills. Candidates attend individual meetings with their supervisors and readiness and fitness to practice issues are discussed before they start seeing clients. Relative strengths and weaknesses are underlined and where appropriate, actions are taken or suggestions are given.

Trainees who meet the *completion criteria*, such as appropriate motivation for training and practice that goes beyond personal development, ability to cope academically and emotionally with this level of training, etc., proceed to their next stage of practicum which is 200 hours of practice and 80 hours of supervision. Training takes place mainly in the Community Counselling Center of the Department. There are individual arrangements for International trainees. Upon successful progress, trainees submit three assessment components: (a) a portfolio with a reflective report evaluating the whole process

(b) a case study with a reflective commentary and c) a recorded counselling session. Assessment criteria include self-awareness, counselling skills and the dynamics displayed as they are documented through these components. The average mark is counterbalanced with the marks from the taught part.

6. Conclusions

Several issues, among others in teaching, learning and assessment methods, make professional programmes in counselling the focus of empirical inquiry. Effective counselling depends on various factors relating to the client, the counsellor and the counselling process. Training programmes need to be designed and delivered in a way that they address the arising issues. Self-awareness is one key component of successful training, but exploring it is not always easy. Trainees need to develop qualities that would make them efficient as professionals, ethics need to be made explicit, the process of counselling should be understood with clarity and the practical experience should be gained through as many safe forms as necessary. Assessment of all these core factors needs to reflect all aspects of the learning process from the beginning of the taught part until completion of the practical component.

There are several challenges associated with the accuracy of the final outcome of assessment and how representative it is of the students' real potential for the quality of their future practice. Graduates will need to be licensed as practitioners and an essential amount of responsibility lies on the institution of their training. We have referred to relevant sources indicating quality criteria before designing our counselling programme, but measuring students' counselling skills upon entrance and completion of this course would make its effectiveness more explicit. Feedback from relevant reviews and external examiners is evidently positive, but we intend to support it with statistical findings confirming students' development throughout our course. Finally, we believe that the proposed approach can be tailored to fit any University programme irrespectively of the discipline, as long as the aim is to infuse students with suitable skills needed to exercise in their profession.

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PLACE-BASED PEDAGOGY: A NEW DEVELOPMENT AT THE UNIVERSITY OF HAWAII

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Abstract

An international education new development involves the creation of culturally responsive curriculum to engage marginalized learners across the Pacific Islands in academic standards. A multicultural approach to curriculum, instruction, and assessment that focuses on the importance of culture in schooling is understood as culturally responsive pedagogy. The U.S. Department of Education's equity assistance centers, such as the Equity Alliance, helps schools to establish the conditions for equitable educational outcomes for all students, and using cultural responsiveness is one of the measures of the needed capabilities of teachers, principals and school communities as a whole (Equity Alliance, 2015). Cultural integration seemed a socially just and developmentally appropriate qualitative research-based instructional intervention to address the problem of low academic performance and identity crisis for students in Pacific classrooms. Researchers support that culturally-responsive curriculum can make a difference in student achievement by understanding the student's home-community culture, and integrating these cultural experiences, values, and understandings into the teaching and learning environment (Au, 2007; Banks, 2004; Brown-Jeffy & Cooper, 2011; Gay, 2002; Ladson-Billings, 1995; Maina, 1997; Montgomery, 2001; & Rhodes, 2013). Mandated instruction plus tests and curriculum imported from the mainland are not proving to be effective in Hawai'i schools (Deering, 2006). Pacific Island students face a dual identity crisis of sorting through blended Pacific and United States cultural and national identities while navigating individual developmental identity formation (Erikson, 1968). Identity formation is especially challenging in a diverse multicultural environment like Hawaii, which is home to a tremendously diverse population, comprised of approximately 20% each of persons of Native Hawaiian, Japanese, Filipino and European/Caucasian ancestry, along with Chinese, Korean, Vietnamese, Samoan, Tongan, Marshallese, Micronesian, African American, Native American, Latin American and other Asian and Pacific Islander ethnic/racial groups. Examples of multicultural curriculum and place-based lesson plans that have been created and facilitated in Hawaii will be presented. Graduate level case studies of teacher candidates utilizing culturally-responsive pedagogy as their action research instructional interventions revealed the following types of emergent themes: a) students' engagement increased, b) cooperative learning increased, c) parent/community involvement increased, d) the quality of student work increased, and e) student and teacher understanding of cultural identity deepened.

Keywords: *Culturally-responsive, indigenous, place-based, pedagogy, teacher development.*

1. Introduction

In the past twenty years, massive changes have taken place in the global economy. Production-based economies have been shifting to those that require a more knowledge-based skill set, and to ensure their competitiveness, nearly all countries in the Asia Pacific region have been engaged in some type of educational reform movement in an effort to restructure schools to provide students with the tools necessary to be successful (Cheng, 2001; Cheng & Townsend, 2000).

The first, most important contributor in helping students develop the skills required to be successful in meeting the demands of the new global economy is the teacher. In fact,

An effective teacher is the single most important factor affecting student learning. It's more important than standards, more important than class size, more important than how much money is spent. Each of these is significant, but the quality of teaching dwarfs them all (Education Commission of the States, 2000, p.1).

Teachers, however, do not work in a vacuum. While it is undeniable that effective, high quality teachers are necessary, the environment they teach in and the strategies that they use are also important. For example, in the Pacific, specifically in places like Hawaii, instruction, assessments and curriculum that are mandated and imported from the mainland U.S. have not proved to be effective in Hawai'i schools (Deering, 2006). This disconnect between content and pedagogy is primarily due to the fact that students face the dual identity crisis of sorting through blended Pacific and United States cultural and national identities while navigating their own individual identity formation (Erikson, 1968).

Hawaii is a unique environment to teach in because it is so diverse and multicultural. It is comprised of approximately 20% each of persons of Native Hawaiian, Japanese, Filipino, and European/Caucasian ancestry, along with Chinese, Korean, Vietnamese, Samoan, Tongan, Marshallese, Micronesian, African American, Native American, Latin American and other Asian and Pacific Islander ethnic/racial groups. This distribution of ethnicities makes identity formation for students in Hawaii Department of Education (HiDOE) schools, where approximately 20,000 students speak over 53 different languages, especially challenging.

2. Literature review

In teaching Hawaii's students, it is clear that the 'where' is as important as the 'what.' Place is an essential component of all island life and given the unique needs of Hawaii's students, a multicultural approach to teaching like that described by Ladson-Billings (1995) where culturally relevant teaching, or as it is now referred to, culturally responsive teaching will likely be the most successful method. This emphasis on incorporating culture in the educational process is something that the U.S. Department of Education's equity assistance centers, such as the Equity Alliance, strongly believe in. These centers help schools establish the conditions for equitable educational outcomes for all students, and use cultural responsiveness as one of the measures of the needed capabilities of teachers, principals and school communities as a whole (Equity Alliance, 2015). The use of culturally relevant pedagogy offers the additional benefit of being a pathway for students to maintain their cultural identity while succeeding academically (Ogbu, 2003).

At the University of Hawaii at Manoa (UHM), graduate teacher candidates and their professors in the College of Education (COE) view cultural integration as a socially just and developmentally appropriate action research instructional intervention to address the problem of low academic performance and identity crisis for students in their classrooms. Numerous researchers have confirmed that culturally-responsive curriculum that factors in an understanding of the student's home-community culture and integrates those cultural experiences, values and understandings into the teaching and learning environment, can make a difference in student achievement (Au, 2007; Banks, 2004; Brown-Jeffy & Cooper, 2011; Gay, 2002; Ladson-Billings, 1995; Maina, 1997; Montgomery, 2001; Rhodes, 2013)

3. Methods: how action research contributed to place-based education

UHM teacher candidates utilized a qualitative action research cycle of observation, culturally-responsive curriculum design, instruction, data analysis, and reflections and observations as their exploratory research design. Instructional methods were designed to be place-based, tailored to suit the setting, students, and the subject in order to support a culturally responsive classroom for all members of the learning community. In the UHM's Master of Education in Teaching (MEdT) Program, graduate teacher candidates created multicultural lessons and integrated curriculum units including ethnomathematics problem-based projects and place-based science explorations.

3.1. An ethnomathematics problem-based project

In general, finding educators who understand and who can teach mathematics can be hard to come by. Finding someone who is able to also weave culturally-relevant components into the lessons can be even more difficult. This is especially true in the Pacific Islands. In order to help solve this problem, an innovative project was developed using ethnomathematics as its core. Because it combines both math and culture in a clearly understandable way, ethnomathematics challenges the assumption that math can only be taught in a classroom and empowers people to explore mathematical processes that take place with everyday real life activities (Rosa & Orey, 2011).

One of UHM's most successful forays into using ethnomathematics as a basis for teaching about the importance of both mathematics and culture was when UHM and the Pacific Resources for Education and Learning (PREL) partnered on a National Science Foundation grant to bring Pacific ethnomathematics to the classroom. The project, known as Mathematics and Culture in Micronesia: Integrating Societal Experiences (MACIMISE) was a federally funded grant that allowed 22 Pacific

Island teachers from 10 Pacific Islands or island groups (Hawaii, Pohnpei, the Republic of the Marshall Islands, American Samoa, Kosrae, Chuuk, Guam, Saipan, Yap and Palau) and 30 University teacher educators and researchers in the field of mathematics to design and explore the effects of culturally responsive curriculum on a variety of participants. The aim of the project was three-fold: to a) examine the cultural practices of each participating island, work with the island's elders or other experts to rediscover and/or uncover indigenous mathematics in each of the participating island; b) use knowledge gained from what was found in step "a" to design, implement and assess mathematics a variety of curricular units for grades one, four and seven; and c) build local capacity within and among the participating islands by offering advanced degree opportunities to the participants. During project MACIMISE, the Pacific Island participants completed graduate coursework in mathematics and educational research to fulfill either masters or doctoral level degree requirements.

UHM COE currently runs a summer Ethnomathematics Institute that celebrates the local culture by acknowledging the wisdom of the island's elders that know and practice mathematics. Students travel to different islands to learn from their elders how the mathematics, culture and place are seamlessly intertwined. This indigenous knowledge has been and is currently gained through apprentice-like relationships across the generations and unfortunately is not always documented or taught in schools.

3.2. Place-based science in action: the imu

Is there a better way to learn about place-based science than by having your teacher show you how to cook different types of food in a traditional manner – and then eating and sharing the tasty meal with all those who helped in the process? Probably not, and that is exactly what one teacher candidate did - utilizing culturally-responsive pedagogy by using his knowledge of how to create an imu (traditional underground oven) and teaching the students and faculty at his school how to do it.

The short description of what he did is as follows. The imu is an ancient Hawaiian way of cooking that involves digging a large pit, filling it with kindling, then wood and covering the wood with stones. The kindling is set on fire and as the wood burns it heats the stones, which become the heat source for the oven. Once the stones are heated, different types of green vegetation (like ti or banana leaves or banana stumps) are placed on top of the stones, to prevent the food from burning. Next, the food to be cooked is placed on top of the green vegetation, and a covering material like burlap bags and/or green leaves are layered on top. Dirt is then used to cover the imu. The food, depending on the type and amount, then cooks by steaming over the course of the next 6-8 hours.

While this process does not seem to be too involved, everything from the size of rock (roughly the size of a person's fist) to the choices of type of rock (porous rocks retain heat well and should be used, whereas rocks that retain moisture should not because they tend to explode) to the type of wood used (typically hardwood, but nothing that will impart unpleasant flavors to the food) are chosen and used based on generations upon generations of experience. This event was so successful and so many people wanted to learn how to do it, that the teacher candidate has done it three more times over the course of the two years he has been at the school. It has become something that involves not only the students in the class but their parents and community members as well.

3.3. Ethnomathematics and place-based science in action: wayfinding

Integrating Ethnomathematics and Place-based Science in the classroom has become easier with the advent of new technologies. One way this is taking place at UHM is tying the experiences of the crew of the Hokulea and Hikianalia, two traditional Polynesian voyaging canoes, as they travel across the world celebrating the idea of Malama Honua – or caring for everything that makes up the world to the work done in our COE classrooms. As the crew attempts to bring people around the world together and set a course for a sustainable future, their travels are being documented on the website http://www.hokulea.com/.

It is not unusual to sail around the world, but this journey is significantly different than those that have come before it. The crew of the two canoes sail as their Hawaiian ancestors did for thousands of years before the invention of the technology we use today. The Polynesian Voyaging Society (2015) describes the process and how their global initiative ties in to place-based culturally relevant experiences below.

> On board, there is no compass, sextant, or cellphone, watch, or GPS for direction. In *wayfinding*, the sun, moon, and stars are a map that surrounds the navigators. When clouds and storms make it impossible to see that map, wave patterns, currents, and animal behavior give a navigator directional clues to find tiny islands in the vast ocean. Hokulea has sailed using *wayfinding* for 40 years, and her navigators are taking that knowledge to find a new destination – a healthy ocean and island earth. The planet that sustains all is facing huge challenges, and every step in the right direction will make a positive difference. Everyone can be the navigator our earth

needs. Every person on earth can help navigate us to a healthy future where our Island Earth is safe and thriving again. Stories of hope and local solutions that blend indigenous wisdom with other best practices can be found all over the world. If we find and share those stories with each other, we can help chart a positive course for our planet.

Several UHM faculty are members of the crew and provide us with a direct link to the voyage. Classes of students have been able to connect with and talk to the crew in real time and when the members return, they share their experiences with many of our classes. These rich discussions definitely spur students, teachers and community members to learn more about and contribute to the idea of sustainability and Malama Honua.

4. Discussion

As evidenced by the examples mentioned above, there are a variety of ways to incorporate culturally-relevant pedagogy in the classroom. Faculty members at UHM are and have been doing these types of things on a regular basis and continue to innovate new ways of creating these opportunities for their students. What has become apparent from graduate level case studies of teacher candidates utilizing culturally-responsive pedagogy as their action research instructional interventions are the following types of emergent themes: a) students' engagement increased, b) cooperative learning increased, c) parent/community involvement increased, d) the quality of student work increased, and e) students' and teachers' understanding of culture deepened.

5. Conclusion

These five themes indicate that the work currently being done at UHM benefits not only the students, but the teachers as well. We also believe that by incorporating a more culturally-responsive curriculum, there has been a positive effect on both the students' and teachers' overall attitudes toward themselves and toward their learning. They learn about not only the subject but the cultural relevance as well. The place-based culturally responsive curriculum integration helped both students and teachers make connections between the school's academic foci and the real world around them. Graduate teachers/researchers created classroom environments where students could see themselves in the curriculum, find their identities and develop a true sense of belonging. Both the students' and teachers' respect for themselves and others grew as they learned to respect the value of indigenous knowledge and the multitude of skills inherent in their cultural practices. As a result of all of these factors, student academic achievement was positively impacted through cultural integration, which resulted in increased student engagement, increased cooperative learning, increased parent/community involvement, and an increased connection to the culture.

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BUILDING A THREE DIMENSIONAL UNIVERSE FROM THE CLASSROOM: MULTIPERSPECTIVE VISUALIZATION FOR NON-SCIENCE UNDERGRADUATES

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Abstract

We develop three-dimensional mental models of our physical environs from two dimensional imagery we collect with our eyes. This is possible only because we move through that environment, viewing it from multiple perspectives, and construct a model consistent with a collection of two-dimensional views. The technique works well for structures whose sizes are comparable to the magnitude of our movements, such as rooms, buildings, and even cities; but for much larger structures, we are effectively limited to a single perspective, and therefore must create mental models from indirect measures.

The astronomical realm is almost always in this latter category, and student understanding of the structure of the universe is limited by their inability to use multi-perspective techniques to generate an accurate mental image of astronomical structure. Without an accurate model, students tend to underestimate the distances to and between astronomical objects, leading to inaccurate assumptions regarding the overall size of the universe, the interactions between celestial objects, and our location within and among these structures.

To improve student understanding of the size, scale, and structure of our universe, we have developed hybrid laboratory activities based on a mix of hands-on discovery with physical models and multi-perspective visualization using the WorldWide Telescope (WWT) virtual environment. WWT, developed by Microsoft Research, managed and supported by the American Astronomical Society, and freely available to the world community, represents real astronomical data in a three-dimensional environment that students can investigate from a variety of physical perspectives. They can virtually "fly through" astronomical structures and thus use the same techniques they use in their local everyday environment to develop an accurate mental model on an astronomical scale.

These new lab activities connect indirect measurements of distance and structure (based on real astronomical data) to visualizations of those same structures, so that students understand the techniques by which structure is measured, and create accurate mental models of those structures. This not only improves their understanding of their astronomical environs, but also improves their understanding of the physical processes that occur in our universe.

We will present examples of these activities, and assessment data measuring the improvement in student understanding of astronomical size, scale, and structure, as a result of their interactions with these materials.

Keywords: *Undergraduate science education, STEM, visualization, laboratory activities.*

1. Introduction

Three dimensional spatial visualization and reasoning are crucial for success both in the academic environment (Titus and Horsman 2009) and in careers in engineering, physical sciences, and the arts (Humphreys, Lubinski, and Yai 1993), yet many students struggle with manipulations and interpretations of three-dimensional objects (Sutton, Heathcote, and Bore 2007). The visualization process involves many steps, ranging from visual perception of an object, to the creation of a mental image of that object, and the imagined manipulation of that object in three dimensions (Mathewson 1999).

In astronomy, spatial visualization skills are absolutely essential, and study in this subject offers many opportunities to practice and hone these skills. Our universe is inherently three dimensional,

but most astronomical measurements access directly only two spatial dimensions. From our single vantage point, astronomers must infer the third dimension (distance) from interpretations of observational data. We never “see" the three dimensional universe directly, but instead construct and visualize a geometrical model of it based on indirect evidence. It's perhaps not surprising then that students of astronomy have great difficulty constructing an accurate internal model for the universe and its contents. They are particularly challenged with issues of scale. Several studies have shown that very often they underestimate the distances to astronomical objects such as the Sun and the next nearest star (Sadler 1992; Trumper 2001). In a recent study, Miller and Brewer (2010) find that the median response for the distance to the Sun is about a factor of three smaller than the real value, and the median response for the distance to the nearest star is smaller than the real value by a factor of 250,000.

There are numerous reasons why many scientific concepts are challenging for learners. Some concepts encompass multi-level content: the “macro" level or that which can actually be observed, the “submicro" or particulate level, and a “representational" or symbolic/mathematical level (Johnstone, 1993). While experts can simultaneously work at all levels, skillfully shifting between them, novices are unable to do so. They have difficulty knowing where to focus their attention and as such, have a problem distinguishing “signal" from “noise" (Johnstone, 1991). This can result in partial or incorrect understandings of concepts. Since many scientific concepts are unobservable and cannot be understood through direct experimentation, students must deal with the non-visible as well as the concrete levels (Thiele and Treagust, 1995). “Non-observable entities” (Byrnes, 2001, p. 261) have been identified as a key reason why students might hold what have been labeled misconceptions.

2. Hybrid hands-on and virtual environment laboratory activities

To respond to this challenge in undergraduate astronomy teaching, we have developed a series of hybrid laboratory activities that combine a hands-on exploratory component with computer-aided visualization component. Students can vastly improve their three dimensional spatial reasoning skills with practice manipulating three-dimensional objects, particularly when changes in perspective are involved (see e.g., Duesbury and O’Neil 1996), so we re-create astronomical geometries in the form of models that can be interrogated on human scales. So, for example, students investigate the geometry of our Milky Way’s galactic disk with CDs and pizza pie tins, contemplate the expansion of the universe with a stretching spring, and gain a perspective on astronomical parallax by measuring the distances to lampposts on campus. Because students can move around the objects of study, they develop more durable mental models of the geometries they encounter.

It is difficult, however, to transfer this geometric understanding to the astronomical realm, largely because of the tremendous change in scale, as well as our inability to interrogate the astronomical geometries from multiple perspectives. Multiperspective visualization software, such as the WorldWide Telescope (WWT), can overcome these problems in a virtual environment. WWT is a visualization environment that enables a computer to function as more than a virtual telescope; it combines archival data from the world’s best ground-and space-based telescopes into a three dimensional universe that can be viewed not only from an Earthbound perspective, but from any other perspective in the universe. Within this environment, students can “fly though” an astronomically-accurate universe in the same way they move around and through the human-scale model environments they encounter earlier in each laboratory activity.

WWT was recognized in the 2010 U.S. National Academy of Science Decadal Survey of Astronomy (Blandford, 2010) as “a significant contribution to the public understanding of Astronomy,” calling it “a corporate version of previously under-funded efforts of astronomers to accomplish similar ends, [that] coordinates the world’s public-domain cosmic imagery into one resource, allowing people on home PCs to explore the cosmos as if they were at the helm of the finest ground and space-based telescopes.” WWT is an ideal platform for widely-usable and engaging labs because it is a free resource available to any school or any member of the public, with the potential to reach an ever-broadening and diverse audience, including populations that are traditionally underserved in STEM education. WWT was originally a free Windows-only program which has now expanded to include an HTML5 (web-based, platform-independent) version. Today, the user base of WWT is in the tens of millions, and all versions of the software are freely accessed at worldwidetelesope.org.

In partnership with WWT (now administered and supported by the American Astronomical Society), we have developed three hybrid hands-on and virtual laboratory activities for the undergraduate introductory astronomy classroom. For many non-science students, a general education astronomy course may be their only opportunity to develop spatial reasoning skills, even though these skills have been shown to be useful in both science-based and non-science careers (Uttal, Miller, and Newcombe 2013, Humphreys, Lubinski, and Yai 1993). Below we detail one example activity.

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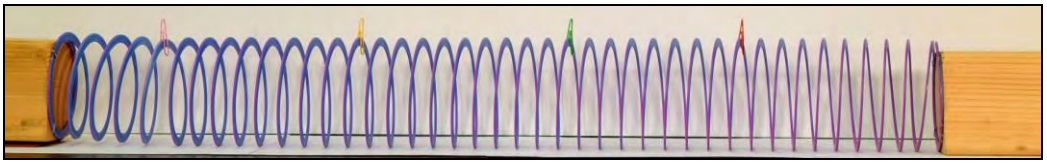
3. An example: modeling the large-scale structure of the universe

The structure of our universe on the very largest scales – that of galaxies and the large distances between them – can be understood as one of AUTHOR'S "non-observable entities." Only a handful of galaxies can be seen with the naked eye, and even for those objects, no direct observation can show that they are many orders of magnitude farther from Earth than the stars that appear beside them in the night sky. Distance determination on this size scale is entirely based on inference, using non-intuitive relationships based on chains of scientific observation and reasoning. Perhaps the most successful of these relationships involves levering the homologous expansion of the universe, and the concomitant linear relationship between recession velocity and distance, to determine the distances to individual galaxies and reveal their large-scale distribution in our universe. This relationship is called the Hubble Law, and it is the primary tool with which astronomers chart the universe.

We have developed a hybrid hands-on and virtual laboratory activity designed to help students address the large scale structure of the universe, and construct a model of this universe that allows them to draw accurate conclusions regarding the physical processes that occur on this scale. In both the hands-on and virtual components of the activity, we ask students to investigate the geometry from both an *in-situ* (i.e., Earthbound) perspective, and from a detached, or "bird's-eye," view, with emphasis on how the structure revealed more clearly in the detached view can be inferred from measurements made from the *in-situ* perspective.

To build an understanding of the large-scale structure of the universe, students must first grapple with one non-intuitive concept – the Hubble Law relationship – before they can use it as a tool for their cosmic cartography. This relationship is an inextricable consequence of a homologous expansion, and so students first investigate this effect in a non-astronomical and more intuitive tabletop environment with a "Slinky" spring and paper clips. The spring represents an entire universe, while the paper clips attached to individual coils on the spring represent galaxies in that universe. By taking measurements of the distances between "galaxies" with the spring stretched to various lengths, students construct the velocity-distance Hubble relationship, and determine that it holds for all observers, regardless of which galaxy they inhabit. The universality of this relationship reinforces the idea that large-scale galaxy motions are a consequence of a single process – the expansion of the universe – which they can clearly see from the detached perspective as they stand over their "universe."

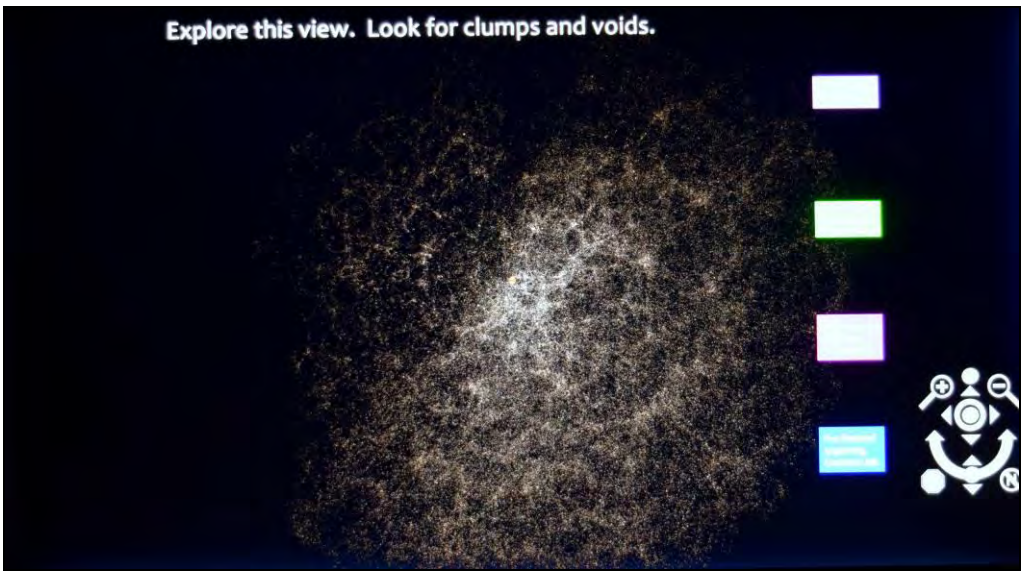
Figure 1. The tabletop expanding universe used by students to construct and explore the Hubble Law relationship Note the colored paper clip "galaxies" attached to several coils on the spring



The idea that galaxies are merely particles trapped in the flow of a universal expansion is key to the students' subsequent attempts to map the spatial distribution of these objects. By inverting the Hubble relationship, they can determine the distances to galaxies using measurements of their recession velocities – measurements that can be obtained from our *in-situ*, Earthbound perspective. Students perform these measurements on real astronomical data, using WWT's data retrieval capability, and build, from the concepts introduced previously in this activity, *their own* three-dimensional map of a small piece of the universe.

WWT then allows them to interrogate their construct visually. They can leave their Earthbound perspective and "fly though" their universe to see the distribution of galaxies in three-dimensional space. The two dimensional celestial sphere is shattered, and replaced with a rich space of depth. With the addition of data from large astronomical surveys (most notably the Sloan Digital Sky Survey; Abazajian et al. 2009), students see the structure of the extragalactic universe from multiple in-situ perspectives, and perhaps most importantly, from a detached perspective as well. It's from this last perspective that the fundamental character of the distribution of galaxies is most apparent. The frothy, cobweb-like structure delineated by the galaxies informs the physical processes that take place on the universe's largest scales – the potential for interactions between galaxies, and the competition between gravity and the expansion of the universe as manifested in galaxy clustering and the overall inhomogeneity of the distribution. Indeed, even the history of the universe is encoded in its current structure, as well as clues for its subsequent evolution.

Figure 2. WWT display of the galaxies in the Sloan Digital Sky Survey Each white dot in this display corresponds to an individual galaxy. The frothy spatial distribution of galaxies is observed from an external perspective some one billion light years from Earth. Earth's position is signified by the large dot at the center of the view



3.1. Implementation and initial assessment

The laboratory activity described above was implemented in a small liberal arts college environment in two instances: in beta test mode to a small (N=10) group of volunteer undergraduate students in the summer of 2015, and in a larger (N=37) laboratory classroom associated with a fall semester introductory astronomy course designed for non-science undergraduate students. In this paper, we report on the student response to the summer beta testing; a report on the fall 2015 administration is forthcoming.

Students completed the hybrid lab activity and associated diagnostic follow-up in a single three hour period in July 2015. The primary purpose was to test the procedures with real students, and to identify process and content issues that produced misinterpretation or confusion. Students were observed by a trained laboratory instructor as they performed the lab activities, and interacted with this instructor throughout the activity. At the conclusion of the lab, students completed a four-question "Lab Quiz" designed to test their understanding of the lab content, and a seven-question "Feedback Form" designed to gauge their engagement in the lab, interest in the presented material, and satisfaction with the lab activity.

Based on the expert observation and the students' responses to the Lab Quiz, we conclude that students were able to articulate the purpose of the lab very well; for example, they were all able to describe the Hubble Law as a consequence of the expansion of the universe. Nine of ten students could explain why all distant galaxies appears to be moving away from Earth, and seven of ten correctly described the spatial distribution of galaxies in the local universe.

Student affective responses also indicated a high level of engagement and interest in the lab activity. Most found the experience enjoyable, and commented on the activities as "interesting" and "informative." When asked which part of the lab activity they found most helpful for their understanding, the group split nearly in two, with nearly half identifying the WWT multimedia interaction, and the other half noting the hands-on activity with the Slinky spring.

4. Summary and conclusions

We have developed several hybrid hands-on and virtual laboratory activities designed to help students address the concepts of size, scale, and structure in the astronomical environment. Initial results suggest that students find the hybrid approach engaging and helpful in their efforts to build an understanding of astronomical size, scale, and structure. Further research is necessary to determine whether persistent improvement in student understanding is obtained with these methods, and whether these activities lead to an improvement in more general spatial reasoning skills.

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A CRITICAL POSTCOLONIAL DISCOURSE: A CASE FOR SUSTAINABLE LEARNING ENVIRONMENT IN SOUTH AFRICA

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Abstract

This scholarly piece propose to offer a lucid prose on discourses around postcoloniality, teaching - learning in Higher Education institutions in South Africa. The paper gives a solid theoretical standing from related literature that proposes finest educational practices that could restore equity, social justice, democracy, respect and hope. The aim is to position Sustainable Learning Environments (SuLE) which pronounces fluently matters of curriculum; teaching - learning; and governance as a possible elucidation towards educational contests in South Africa. In this scholarly piece neocolonial and postcolonial discourses will be understood as a multifaceted interfaces arising from the socio-cultural and socio-economic dynamics. The objective of this scholarly work is not to return to the past, but to reposition ourselves as Africans and renegotiate our paths to greater heights in new education developments. This intellectual piece understand SuLE as a vehicle that could assist is disrupting the neocolonial and neoliberal discourses and give us new gaze into the future to be able to answer educational challenges and new developments.

Keywords: *Sustainable learning environments, Postcolonialism, social justice, teaching and learning, higher education*.

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DEVELOPING POSTGRADUATE MATHEMATICS TEACHER KNOWLEDGE FOR TEACHING: A META-EPISTEMOLOGICAL PERSPECTIVE OF TEACHER KNOWLEDGE

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Abstract

This paper describes theoretically how to develop a postgraduate mathematics knowledge for teaching from a meta-epistemological perspective of knowledge needed for teaching mathematics. The historical development of teacher knowledge captures a search for a kind of knowledge needed to best create spaces for learning to take place. However, the challenges of teaching and therefore learning are imbedded within cornucopia of both epistemological and social variables. Thus, these multiplicity of variables within different spaces of learning makes it difficult to unravel the multi-layers of both the challenges of learning and developing pedagogies needed for teaching within such complex context. In an attempt to operationalize the aim of this study, I trace the historical development of teacher knowledge for teaching since 1986. In order to make sense of this complex knowledge needed for teaching, I used the analytical lens of meta-epistemology as theoretical bases to describe different types of knowledge from empirical, experiential, normative, critical, ontological, and reflective-synthetic domains as coined by Kencheloe. Guided by the preceding knowledge domains, I demonstrated how critical complex epistemology could be developed in postgraduate mathematics teacher education. Furthermore, using meta-epistemology knowledge domains I challenged the dominant discourses that conceptualize knowledge for teaching mathematics as set of skills for teaching general laws and rules. Through this lens I further argued that the knowledge for teaching is grounded in a critical complex epistemology.

Keywords: *Teacher knowledge, meta-epistemology.*

HOMOSEXUALITY AND HOMOPHOBIA IN SCHOOL AN EXPLORATIVE SURVEY ON THE ITALIAN PRE-SERVICE AND IN-SERVICE TEACHERS' PERCEPTIONS

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Abstract

In the school context, homophobic behaviors and attitudes are expressed more easily (Kosciw and Diaz, 2006), while the homosexuality is still a taboo and a controversial issue (Fiorucci, 2014). In the Italian schools, sexual identity and fighting homophobia are an "unjustified absence" (Batini, 2011; 2014). Scientific literature (Batini and Santoni, 2009; Lasser and Tharinger, 2003) shows that teachers' preparation is completely inadequate (Batini, 2014) and that the most common attitude is still the heteronormativity: denial and de-legitimization of non-heterosexual behaviors.
The paper presents a qualitative research conducted between 2013 and 2015 and aimed to explore and to describe Italian pre-service e in-service teachers' perceptions about homosexuality and homophobia.
The study shows that the issue of homosexuality and the contrast of homophobia in Italian schools is still absent: the most common attitude is that of the "don't ask, don't tell". In addition, the teachers' perceptions show to big knowledge gap and their total unpreparedness and inexperience about this theme.

Keywords: *Homosexuality, homophobia, school, Italian teachers.*

1. Literature review

The scientific literature clearly shows the main consequences for students subject to homophobic harassment: truancy, school dropouts, self-invalidation, eating and psychological disorders, least satisfactory educational achievement, isolation, lower levels of personal well-being, increased risk of suicide (Takács, 2006; FRA, 2012). At school issues about sexual orientation and homophobia are little present, if not completely absent. This cultural silence produces a lack of positive patterns that encourage exclusion, isolation and feeling for the homosexual person to feel the only one on Earth (Graglia, 2012).

Schools should be a safe place for all students, regardless of their sexual orientation or their gender identity. According to UNESCO (2012) schools are among the social places with the highest rates of homophobia. It heavily undermines the "educational and learning opportunities" (p. 20).

Teachers are not immune to prejudices and stereotypes about diversity and, especially, homosexual orientation: they are bearers of cultural patterns that influence the students' perception. Teachers and education staff play an important role in establishing a positive and safe school setting. (Kasen et al., 2011), while their silence and their indifference can legitimate in the students the homophobic behaviors (Holt, Keyes, e Koenig, 2011; Poteat e Rivers, 2010).

The European Union lesbian, gay, bisexual and transgender survey (FRA, 2012) shows that educational authorities across the EU don't pay little attention to homophobia and bullying against LGBT people. Teachers do not have the knowledge, motivation, skills and tools to recognize and to address these issues.

The scientific literature shows that the training and refresher courses for teachers about this topic generate to greater acceptance (Riggs, Rosenthal and Smith-Bonahue, 2011) and help to eradicate stereotypes.

Although worldwide there is still homophobic bullying, in the international arena there are several initiatives aimed at promoting the differences in school. We think of the position taken by clear and unequivocal condemnation of homophobia made explicit by the American Psychological Association and the National Association of School Psychologists (2015) in the recent *Resolution on gender and sexual orientation diversity in children and adolescents in schools*. In this regard, UNESCO (2012) has developed a specific IDAHO Lesson Plan to help teachers of both levels - primary and secondary - to design a school intervention in support of the promotion of difference and contrast homophobia.

Likewise, they did the Safe School Coalition Victoria (Australia), the Gay, Lesbian and Straight Education Network (GSLEN, USA) and Irish LGBT organization (Ireland). In contrast to many other countries, Italy has not of laws that safeguard the different sexual orientations and that condemn homophobia. This happens in reference to society and, even more, to school.

Therefore, the first aspect that be noted is that all school initiatives are the best practices and they are not expressions of political will.

Not even the recent Law n. 107 (July 2015) about school reform has paid serious attention to this specific topic. In the 212 paragraphs of Law the theme of the fight against homophobia never appears. It speaks of respect for differences (paragraph 7d) and prevention of all forms of discrimination and bullying (paragraph 7l).

In the Italian schools, the initiatives aimed at countering homophobia and related forms of bullying are an indefinite archipelago of projects and best practices without any institutional coordination. Often they are European projects or initiatives aimed at promoting gender equality in which some friendly school administrator decides (discretionary aspect) to include the "insights" on this issue.

This political disinterest hides a barely concealed institutional homophobia that, unfortunately, it collides with the educational emergency that the italian school is going through.

Unfortunately, teachers are unable to stem the spreading phenomenon of homophobic bullying. Often they feel alone and unprepared to take on this new challenges (Batini, 2011). They do not know what to do and, especially, if they can or want to do it.

Often they are afraid of the students' families and they are afraid of being labeled as suspected homosexuals or friendly. According to many teachers, homosexuality is important, but thorny issue, so "delicate" that it not have any say in the matter.

In the school context, as claimed by Saraceno (2003), heterosexuality is both taken for granted and actively promoted by three main forms: social control by the peer group, teachers' attitudes and teaching programs and contents.

However, researches conducted in Italian school settings show that even short training actions are sufficient to change students' opinions, perceptions and beliefs towards homosexuality and homophobia (Batini, 2009, 2011). Similarly, short training courses and refresher courses for teachers, have similar levels of effectiveness (Batini, 2011; 2014).

Unfortunately, because of the institutional silence that characterizes this issue, training is not prominent or it considered as a homosexual propaganda rather than as a valuable tool to combat homophobia.

In addition, training on this issue has no disciplinary autonomy: some educational interventions against LGBT discrimination are included in the human rights area, in other cases in the inclusion area, while in some other part in the equal opportunities area (D'Ippoliti and Schuster, 2011).

Often these training activities are promoted by the LGBT associations, rather than by the Ministry of Education or by the appropriate agencies. This aspect produces different reactions:

- courses are not authorized, because considered as associative activities;
- courses are not considered as training activities, but as propaganda of the homosexual movement;
- the presence of openly homosexuals people helps to make more concrete educational activity, because stories of life help to empathize and understand the homosexual persons' feelings and needs.

According to the researchers Prati, Pietrantoni and Norcini Pala (2009) there are three educational models about this subject:

1) model of silence: homosexuality is still a thorny and unspeakable issue. The approach is heteronormative;

2) model of equality/diversity in which the intervention about homophobia intersects with other projects designed to increase social inclusion and equity;

3) model of security/legality in which the intervention about homophobia intersects with those designed to combat violence and bullying and to safeguard the personal safety and legality.

If the first model is related to a homophobic and heterosexist perspective, the second and third have strengths and critical points. Educational interventions geared towards model of the diversity/equality could be problematic because it aimed at "normalizing", while interventions that are inspired by the model of the safety/legality could represent homosexuals exclusively as victims.

Unfortunately, in Italy the most constant model is the first. However, although slowly and here and there, several schools are moving in the direction of training as a tool to fight against homophobia. For example the project *Including* by Arcigay Emilia Romagna or the European project *Rainbow (Rights Against Intolerance Building an Open-minded World)* coordinated by Arcigay Milan. In addition to these projects, in recent years several researchers and associations have developed activities and operational exercises (Montano and Andriola, 2011), theoretical and practical manuals (Meadows et al. 2010),

analysis tools (Graglia, 2012) and planning routes and pedagogical action (Batini, 2011, 2014) against homophobia at school and support the promotion of differences and diversity. In 2014 Amnesty International Italy has started an extremely interesting project called *Schools active against homophobia and transphobia*. Unfortunately, these projects are sporadic initiatives, as stated by Lingiardi (2012), homophobia is in the DNA of our social, religious and political traditions. The entire cultural context appears plagued by an "homophobic epidemic": the cultural silence and blindness of educational institutions produce a fertile ground in which proliferate harassment, bullying and negative attitudes towards homosexuals.

2. Research objectives and methodology

The field researches (Batini and Santoni, 2009; Lasser and Tharinger, 2003) show that teacher preparation is completely inadequate (Batini, 2014) and that the most widespread attitude is still heteronormativity: denial and delegitimization of not heterosexual behaviors (Wyatt et al., 2008; Saraceno, 2003). Following the scientific literature analysis relating to these issues, here we present a qualitative research conducted between 2013 and 2015 and aimed to explore and describe the apulian pre-service and in service teacher' perceptions.

Specifically, the research used the focus group technique, while methodological approach, due to theoretical matrix, is the interpretative-phenomenological one.

2.1. Sampling

The sample size was 186 apulian subjects aged between 25 and 56 years (M: 37.83, SD: 7.67), in most cases of the female gender (77.42% F; 22.58% M). Specifically, 108 individuals are pre-service teachers, while 78 are teachers already in service. Pre-service teachers sub-group consists of 108 subjects aged between 25 and 46 years (M: 34.02, SD: 5.69), the majority of the female gender (69.44% F; 30.56 % M), while in service teachers sub-group consists of 78 subjects aged between 36 and 56 years (M: 43.51, SD: 6.59) and significant length of service (M: 15.46, SD: 6.46). Even they are women (84.62% F 15.38% M). Regarding the kind of school, teachers are a slight majority of primary order (56.25%) compared to the secondary one (43,75%), while, concerning the role, general teachers are more (25,93% secondary, primary 33.33%) compared to the special ones (18.52% secondary 22,22% primary).

2.2. Instruments and qualitative analysis

For research were organized 16 focus groups (about 12 people per group): 10 focus groups (5 concerning primary order, 5 the secondary one) have involved pre-service teachers, while 6 focus groups (3 concerning primary order, 3 the secondary one) have involved the pre-service ones. The material was recorded through a voice recorder and, later, transcribed. On the vast textual corpus it was applied a qualitative analysis.

The hermeneutic-qualitative analysis has allowed through specific grids aimed to examine the dialogical flow identifying key issues (macro-narrative categories). On the textual corpus was performed a qualitative analysis aimed at identifying some cultural repertoires, i.e. clusters of meaning: categories based on of the recurrence/co-occurrence and meaningfulness of discursive production.

In order to synthesize the massive discursive production we have use Mindomo, an application designed to create mind maps. Hereinafter we analyze just one narrative category.

3. Results: perceptions emerged

Perceptions emerged from the focus groups are strongly influenced by the order of school, instead of from the service role. Therefore, it will proceed with two independent analyzes: the one related to the primary order and the one related to the secondary order.

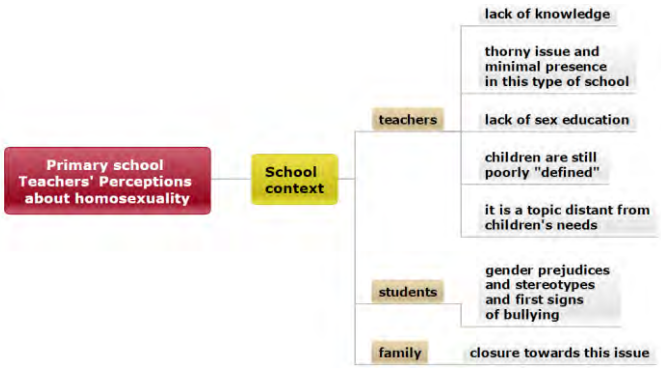
Primary school (pre-in service) teachers (Fig. 1) perceive this issue as too complex and, especially, distant from children's educational needs because they are building their psychosexual identity.

The sentence that summarizes the participants' perceptions is: "it is still too early to talk about it." The pupils are still perceived as "indefinite." In addition, participants often describe this issue as contradictory and dangerous: the contradiction has to do with the absence of laws against homophobia; while the danger has to do with the idea that when this issue is associated with the world of childhood, it generates concerns, mainly expressed by families or by other colleagues. They are afraid to obstruction of the most conservative families who are closed and, therefore, they are not very welcoming.

In addition, participants show an extremely low preparation on this issue. Do not exist training and refresher courses and the little information available that teachers have in this area are the result of a

personal culture or representations, often, highly stereotyped. Participants say that in school is above all else absent the sex education. They track down in the children the first "signs" of intolerance and bullying that refer to the internalization of gender stereotypes. Children use, often without knowing its real meaning, stigmatizing and offensive epithets and they act exclusionary behaviors towards peers perceived as different. Such behaviors if they are not properly held back risk of be sedimented and culminate, into the secondary school, in homophobic and hetero-sexist behaviors.

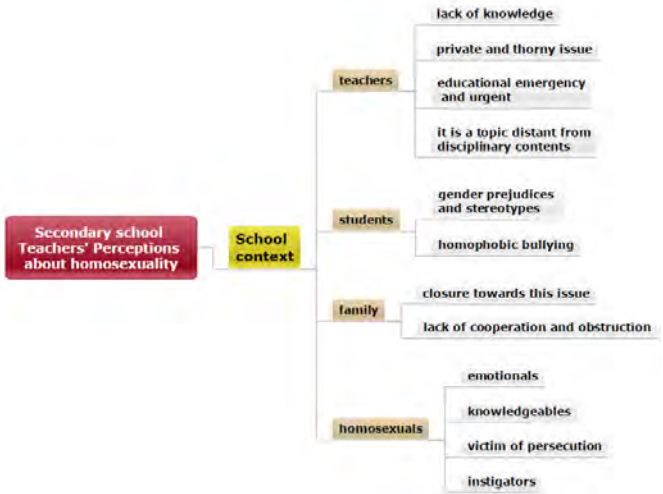
Figure 1.Primary school Teachers



Shifting the focus of the analysis on the perceptions related secondary school order; you may notice that the participants share many ideas and representations of the colleagues of the primary order (Figure 2).

They reiterated that their homosexuality is a topic in school: it is contradictory and thorny; private and it linked to personal sexuality and life; absent in refresher courses and training; ostracized and contrasted by students' families. In addition, according to some participants, that topic does not fit in the learning objectives and, therefore, teachers are not required to address it. Conversely, rather, many teachers report that in school this topic is an educational urgency and emergency. The homophobic bullying phenomenon takes over more and more involving, well, the whole school setting. Teachers are afraid; they do not know how to intervene. Feel they are unprepared and, sometimes, do not intervene because they have beliefs not entirely welcoming to the different sexual orientations. Moreover, when they act, use repressive attitudes and behaviours aimed at extinguish the "fires", without to pay attention to the reasons that have determined them. Rarely they accompany their repression with clarifications and, especially, with educational interventions aimed to contrast homophobia.

Figure 2. Secondary school Teachers



Participants represent to the homosexual (or suspicious) student:

- a very sensitive, taciturn and introverted person with a vast inner world where, often, takes refuge;
- a very prepared person that seeks to focus on the study and to defend himself, so, with the culture;
- a persecuted person who lives in fear of not being accepted;

- a person who instigates with its sui generis behaviors disapproval of peers and, in general, the school context.

Participants' perceptions essentially testify a knowledge gap, but also express the teachers' unpreparedness and inexperience about this topic, as well as, a high level of indifference and institutional homophobia, which, unfortunately, characterizes yet the Italian school institutions.

4. Conclusions

The issue of homosexuality and homophobia is completely absent in the teaching training and educational settings, unfortunately it still relegated to the person's life: the most common attitude is that of the "do not ask, do not tell". Teachers' perceptions show a knowledge gap and their total unpreparedness and inexperience about theme. Educational interventions are placed, however, in sexuality education resolving often in episodic actions and hardly achievable, since it is strongly hindered by the resistance expressed by families and by the school.

However, the total misinformation on this issue is stark contrast with the homophobic bullying events and "extreme" acts, which, more and more, offer a snapshot of school as a context in the throes of a real educational emergency.

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THE IMPACT OF STRESS AND COPING STYLE ON EDUCATIONAL INVOLVEMENT AMONG MOTHERS OF CHILDREN WITH SPECIAL NEEDS INTEGRATED IN REGULAR EDUCATION[1]

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Abstract

The purpose of this study was to examine the effects of stress and coping style with stress among mothers of children with special needs on their involvement in the school. The findings indicate that emotional coping style predicts a high level of stress among all mothers. Comparing mothers of children with special needs with mothers of normally-developing children, higher levels of stress were found among mothers to children with special needs. However, this difference was not reflected in the involvement at the school which did not differ between the two groups. Moreover, it was found that mothers of children with special needs make more use of social support coping style. The findings contribute to the investigation of predictive factors of parental stress and parental involvement in their children's education.

Keywords: *Education, children with special needs, mothers, stress, coping style, involvement.*

1. Introduction

A child with special needs is a child with disabilities preventing him/her from utilizing regular educational services provided to his/her peers in his residential region (Meijer, 1999). These disabilities include: "physical, mental, emotional-behavioral, sensory, and cognitive or language disabilities or comprehensive developmental disabilities" (Public Commission on Special Education System in Israel, 2009). Moreover, in most western European countries and in Israel, there is a tendency to integrate children with special needs in regular education (Naon, Milstein & Marom, 2011).

Parents of children with special needs experience chronic stress resulting from the burdens inherent in the raising of their child (Lessenberry & Rehfeldt, 2004). Mothers in particular are affected, most of whom are forced to give up careers and social activities (Rentinck, Ketelaar, Jongmans. & Gorter, 2006). For example, it was found that mothers of ASD (Autism Spectrum Disorder) teenagers devote more time to caring for the child and to housework, and less on leisure activities, in comparison with mothers of children who are not ASD (Smith, Hong, Seltzer, Greenberg, Almeida & Bishop, 2010). Studies found higher stress levels among mothers of children with special needs than for mothers with normally-developing children (Noh, Dumas, Wolf & Fisman, 1989).

Hypothesis No. 1: Mothers of children with special needs will exhibit higher levels of stress than mothers of normally-developing children.

Parents differ in the manners in which they perceive stressful situations, such as a child's illness or disability, and in the manner in which they cope with and adapt to these situations (Tak & McCubbin, 2002). Mainly, a link was found between the mother's coping and the child's coping and ability to adapt (Sales, Fivush & Teague, 2007). This research shall use Lazarus's and Folkman's model according to which coping includes an individual's cognitive and behavioral efforts to cope with stress and methods of coping vary in accordance with circumstances (Folkman & Lazarus, 1985). The resources for coping are characterized by task-oriented coping methods and problem-solving, and by emotional coping via the moderation of feelings of distress from a stressful situation. Individuals use these coping styles in all stressful situations (Folkman & Lazarus, 1985). In addition, two specific coping styles – task-oriented and emotion-oriented – enable an effort in evaluation and coping, and the nature of the coping is determined

[1]This paper is based on the first author's dissertation.

by relativity in the use of the former or latter style (Folkman & Lazarus, 1985). Moreover, in comparison to the task-oriented coping style, the emotion-oriented coping style has been found to be more linked to stress and emotional difficulties among parents (Hastings et al., 2005). In addition, research undertaken in Israel has found that mothers of sick children more often used the emotional coping style than mothers of healthy children (Bar-ami, 1990). Furthermore, among mothers who tended to use an emotional coping style, eg. avoiding action and denial, their parental roles were compromised (Folkman & Moskowitz, 2004). Along with this, other research has found that mothers of children with special needs use a task-oriented coping style such as requesting social support and emotional expression more than mothers of normally-developing children (e.g. Thoits, 1995).

Hypothesis No. 2: Mothers of children with special needs will make more use of emotional coping styles and social support coping style coping styles than mothers of normally-developing children.

Raising a child with special needs affects parental involvement in their child's education. The relationships between parents and schools can be described in a variety of ways, with different models to evaluate parental involvement (Fisher, 2009). The model used in this research (2003), describes the factors encouraging parents to want to be involved in their children's education. This model presents two components for parental involvement: first, the parents' identification with the educational objectives and their awareness of what occurs at school, and second, the triggering of willingness for involvement, or actual involvement, in the attaining of these objectives (Fisher, 2009). The relationships between parents and the special education staff may be ambivalent mainly, due to inefficient co-operations among professionals and parents of children with special needs (Hardman, Drew & Egan, 2002). Often, difficulties may arise on a personal level, expressed in a judgmental attitude towards the families and disregarding their needs. However, when the dialogue between the therapeutic-educational staff and parents is based on mutual trust and shared decisions, the bond can be very efficient (Morrow & Malin, 2004). In research undertaken in Israel, it was found that parents of children with special needs maintain contact with a variety of professionals treating their child, and therefore their involvement is frequent and includes meetings with therapeutic-educational teams (Schreiber & Dibun, 2011). These meetings serve several purposes: partnership in preparing IEP (Individual Education Plan); evaluation and follow-up from different aspects on the child's progress, and participation in a Special Education Placement Committee (Reiter, 1989).

Hypothesis No. 3: The level of involvement of mothers of children with special needs will be higher than for mothers of normally-developing children.

2. Method

2.1. Sample

Mothers of special needs children (N=72) and mothers of normally-developing children (N=75) volunteered to participate in the study. Mothers age range 27-67 (M=39.94, SD=6.15). All mothers are married. All of the children attend regular state-run elementary schools (Grades 1-6) in the Jewish sector of northern Israel. Special needs children include children that have the following disabilities: physical, mental, emotional-behavioral, sensory, and cognitive or language disabilities or comprehensive developmental disabilities. (Public Commission on Special Education System in Israel, 2009). Normally-developing children are children at the same age as the special needs children, and the same parents' economic status.

2.2. Procedure and tools

Class teachers were provided with letters of invitation for the mothers of their children, regarding participation in the research. Mothers who agreed to participate in the research signed the invitation letter and were then forwarded four questionnaires. The completed questionnaires were returned to the class teachers by the children within approximately two weeks. A number of mothers requested that the questionnaires be returned directly to the researcher.

Parental Involvement was measured using the Friedman-Fisher scale (2003) for parental involvement. The objective of the questionnaire is to evaluate the parents' potential (or actual) involvement at school. The parental involvement scale includes four sub-scales to measure the following: level of parental awareness of the school as an organization, of school pedagogy and interpersonal relationships at school (α = 0.89); level of parental identification with school as general or abstract concept and with the specific school their child attends (α = 0.89); the level of school trust in the parent and child (α = 0.86); and the level of passive parental involvement (α = 0.87) and active involvement

(α = 0.90). The level of parental identification with educational objectives and with the school and the measure of their awareness of what goes on there will determine the potential (or actual) parental involvement at school. Participant is asked to rank his answer on Likert Scale of 5 levels, with questions ranging from 1 (never) to 5 (always). The parental involvement questionnaire comprised 50 questions, and the credibility level was revealed to be high (α = 0.94).

Parenting Stress Index was measured via a questionnaire evaluating the level of parental stress [Parenting Stress Index Form/Short (Abidin, 1983) (PSI-SF)]. The objective of the questionnaire was to evaluate parental stress in parent-child interactions. The questionnaire identifies parental characteristics for mothers expressing parental stress, as well as theories on the children's difficulties. The questionnaire includes details related to parental stress and lack of satisfaction regarding parental roles. When response is given at range of 1-5, from "Agree" to "Do not agree". The questionnaire comprised three components: Parental Distress (α = 0.80); Difficult Child (α = 0.78); Dysfunctional Parent-Child Interaction (α = 0.72). The general grade is composed of the sum of grades from each measure. The stress questionnaire comprised 44 questions, and the credibility level had an internal consistency that was revealed to be high (α = 0.85).

Coping styles questionnaire (Folkman & Lazarus, 1985) includes details describing various strategies people use to cope with stressful events. The participant is asked to state how much she tends to use each of the strategies when she is faced with a stressful event. Answers range from 1-never to 4-often. Questionnaire items were categorized into 3 coping styles: task-oriented (α = 0.68); emotional (included denial) (α = 0.74); and social support (α = 0.80).

3. Results

In order to investigate the differences between mothers of special needs children (N = 72) and mothers of normally-developing children (N = 75), regarding: stress, coping styles (from a selection of social support, task-oriented and emotion-oriented styles), and educational involvement, a multi-variant analysis of variants (MANOVA) was undertaken. The model suggests clear statistical differences between the groups of mothers ($F(5,141) = 2.515$, $p<0.05$, $\eta^2=0.082$). This model revealed a clear difference in the sense of stress ($F= (1,145) =6.657$, $p<0.01$, $\eta^2 =0.044$), such that the sense of stress among special needs children ($M = 2.39$, $SD = 0.54$) was found to be higher than the sense of stress among mothers of normally-developing children. Another clear effect was detected in the social support coping style, ($F(1,145) =4.690$, $p<0.05$, $\eta^2 =0.036$) , such that mothers of special needs children clearly utilize the social support coping style ($M = 3.42$, $SD = 0.60$) more than mothers with normally-developing children.

In order to investigate stress and the three coping styles (social support, task-oriented and emotion-oriented) as predictors of mothers' educational involvement, a step-wise linear regression analysis was conducted for each of the groups of mothers. With both models, the predictors of educational involvement entered were a sense of stress and each of the three coping styles mentioned above. Among mothers of special needs children, the model explains 8% of the difference in the variable of educational involvement ($F(1,70)=6.224$, $p<0.05$). Of the variables entered, there was a clear statistical contribution in explaining the difference in emotion-oriented coping style ($t = 4.044$, $Sig<0.001$), in that the higher the level of this coping style, the more the mothers were educationally involved. No clear statistical contribution was found with the other predictors to predict educational involvement.

In addition, regarding mothers of normally-developing children, the model explains 18% of the difference in the variable of educational involvement ($F(1,73)=16.251$, $Sig<0.001$). Of the variables entered, a clear statistical contribution was found with the task-oriented coping style for the explanation of the difference in the variable of educational involvement ($t = 4.031$, $Sig<0.001$), in that the more the mother uses this coping style, the more her educational involvement. The other predictors did not reveal any clear statistical contribution in the prediction of educational involvement.

In order to study the link between coping styles and the sense of stress in both groups of mothers, the Pearson Correlation was calculated, revealing a clear link between the emotional support coping style and stress. Among mothers of special needs children ($r = 0.49$, $Sig<0.001$) and mothers of normally-developing children ($r = 0.48$, $Sig<0.001$), it was found that the more a mother used the emotion-oriented coping style, the stronger the feeling of stress.

4. Discussion

This research examined the effect of stress and coping styles on the level of educational involvement of mothers of normally-developing children and mothers of special needs children who are integrated in regular elementary schools. Similar to previous studies (Singer et al., 2007), we found that

mothers of special needs children experience more stress than mothers of normally-developing children. Moreover, the findings confirm the hypothesis that mothers of special needs children utilize a social support coping style more than mothers of normally-developing children. The task-oriented coping style was found to be a predictor of educational involvement only among mothers of normally-developing children. No differences were detected in the level of educational involvement of the mothers.

Regarding the coping styles, previous studies have demonstrated that social support coping style is popular in situations of stress among parents (Folkman & Moskowitz, 2004) as a consequence, one can expect this style to be more popular among mothers of special needs children than among mothers of normally-developing children, as the former experiences more isolation and stress than the latter (Glidden, Billings & Jobe, 2006). Moreover, we did not find difference between the two groups of mothers in emotion-oriented coping style, even though mothers of special needs children experience higher levels of stress and tend to utilize an emotion-oriented coping style due to conflicts with school staff (Folkman & Lazarus, 1985). Yet, in the prediction examination, the emotion-oriented coping style was found to be a predictor of educational involvement among mothers of children with special needs, while among mothers of normally-developing children a task-oriented coping style was found to be a predictor. These findings can be explained via studies which found that families of special needs children tend to use emotional coping alongside with a variety of coping styles (e.g. Nixon & Cummings, 1999).

In consistency with studies that has not detected a difference in the level of educational involvement at school between the two groups of mothers (McKinney & Hocutt, 1982), we did not find differences in educational involvement between mothers of special needs children copmared to mothers of normally-developing children. Indeed, research has found a low level of educational involvement among parents of special needs children (McKinney & Hocutt, 1982; Reiter, 1989), and that these parents do not always seek a full partnership with the school (Sandow & Safford, 1986). In addition, it should be pointed out that educational involvement comprises a number of components, such as vigilance, identification and display of trust in the school (Friedman & Fisher, 2003). Hence, there is a need to examine the differences among both groups of mothers in each of these components separately.

The main limitation of this study is that mothers' involvement was examined from the point of view of the mothers only. Data should be collected from other important factors at the school (e.g.: principal, educational and therapeutic staff members). In light of the change presented in research literature regarding the new perception of paternal roles (Tamis-LeMonda et al., 2004), fathers' attitudes should have been examined as well. From a methodological aspect, instead of measuring the mothers' educational involvement in self report questionnaires, an empirical measure should be made (e.g. arriving at the school, participating in meetings, etc).

In conclusion, this research focuses on the variables predicting educational involvement of mothers of special needs. Emotion-oriented coping style has been found to increase the mother's educational involvement. In addition, it appears that these mothers tend to utilize a coping style that seeks social support. From practical viewpoint and in light of the growing trend to integrate special needs children into a regular school, these research findings should contribute in the development of involvement programs for the increase and encouragement of educational involvement among parents of special needs children integrated into the regular educational framework.

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A CASE STUDY: TEACHERS' CONCEPTUALIZATIONS ABOUT PROFESSIONAL DEVELOPMENT

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Abstract

This study aimed to investigate the two primary school teachers' conceptions of professional development, their perceptions of self-improvement and the factors influencing their professional development. In this investigation, a case study approach was adopted. The participant teachers were given a semi-structured interview and the data collected was qualitatively analyzed. After individual case analysis, cross- case analysis was carried out to compare the participants' conceptions of professional development, their perceptions of self-improvement and the factors influencing their professional development. The findings of the study revealed that the two teachers viewed professional development as an individual process rather than collaborative. They perceived their professional development locally practiced and self-renewed, gained with the help of self critical reflection. They also emphasized that the in-service training courses offered to them by the Ministry of Education do not respond to their needs. Thus, they cannot get the maximum benefit from them. The findings of this study has a significant contribution in drawing a clearer picture of the professional development endeavours the teachers get engaged into and the nature of the professional development in Northern Cyprus context.

Keywords: *Collaborative environment, reflective practice, professional development, work context.*

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1. Introduction

1.1. Professional development

Teacher professional development has been considered as one of the most important factors to influence teacher learning and student learning. Engaging in effective professional development practices can help teachers to reshape not only their beliefs, ideas, and assumptions but also their practices regarding learning and teaching. Particularly, when professional development practices are effective and meaningful for teachers and can address their professional needs, they are more likely to contribute to teachers' professional development.

Teacher professional development is a lifelong process in which, ideally, teachers are expected to engage in learning endeavors to improve themselves. Hunzicker (2010) defines effective professional development as "anything that engages teachers in learning activities that are supportive, job-embedded, instructionally focused, collaborative, and ongoing" (p.177). It is also defined as the main route to achieve quality teaching" (Guskey, 1986, Guskey and Huberman, 1995, Borko, 2010, Eun, 2010) and it targets to help teachers to become better professionals in their daily practices (Eun, 2014).

1.2. Traditional professional development: training model

In centralized educational systems in which educational planning and decisions, as well as policies, syllabi, curricula and textbooks are responsibility of the Ministry, current Northern Cyprus context is no exception to this, training model of professional development has been adopted. Guskey (2000) asserts that training model "typically involves a presenter or theme of presenters that shares its ideas and expertise through a variety of group-based activities" (p.22). In this model, there is "a high degree of central control, often veiled as quality assurance, where the focus is firmly on coherence and standardization. It is powerful in maintaining a narrow view of teaching and education whereby the standardisation of training opportunities overshadows the need for teachers to be proactive in identifying and meeting their own development needs"(Kennedy, 2014, p.338).

The training model considers teachers as passive agents. It "provides an effective way for dominant stakeholders to control and limit the agenda, and places teachers in a passive role as recipients of specific knowledge" (Kennedy, 2014, p. 339). In other words, this model does not give teachers any

professional autonomy. “It is generally ‘delivered’ to the teacher by an ‘expert’, with the agenda determined by the deliverer, and the participant placed in a passive role. While the training can take place within the institution in which the participant works, it is most commonly delivered off-site and is often subject to criticism about its lack of connection to the current classroom context in which participants work” (Kennedy, 2014, p.338). Today’s educational contexts require teachers to be well equipped to respond to the learners’ needs and thus the society’s needs. However, training model of professional development can offer limited learning opportunities to the teachers since they do not take into account the participant teachers’ needs. Besides, these training programs are not usually situated in teacher’s own learning context, which is basically his/her work context where most of the learning for a teacher takes place. Moreover, these training programmes do not have a room for reflective practice. Yet, it is a widely accepted view that teachers develop professionally more when they go through continuous experiential learning and self-reflection processes.

1.3. Professional development based on reflective practice and social interaction

It is believed that teachers’ professional development can be enhanced when they can get into reflective practice as well as collaborative sharing. According to Farrell (2008) “Teachers who engage in reflective practice can develop a deeper understanding of their teaching, assess their professional growth, develop informed decision-making skills, and become proactive and confident in their teaching” (p.4).

Reflection helps internalizing what has been learnt since it is an individualized process. However, Vygotsky’s (1978) developmental theory suggests social interaction is a must for individuals to develop. Reflection in isolation can hardly influence professional development because learning is socially and culturally constructed, (Morris and Stew 2007). Thus, for professional development “reflective dialogue and social interaction with peers are significant” (Karagiorgi, 2012, p.80). Collaboration among teachers allow for various types of expertise to be shared and internalized” (Eun 2010) since “each participating teacher in the ollaboration process is an expert in some aspects and a novice in others” (Eun, 2010,p. 325).

Therefore, creating a collaborative learning environment can facilitate teachers’ professional development since colleagues can nurture each other. “Empowering teachers to collaborate over sustained periods of time leads to highly positive outcomes such as professional interactions, leadership and improved attitudes, as well as improving the quality of teaching” (Luchoomun, 2007, p.216).

2. Methodology

This study aimed to explore the two government primary school teachers’ conceptions of professional development, their perceptions of self-improvement and the factors influencing their professional development. For this purpose, the following key research questions were adopted in this investigation:

1) What are the teachers’ conceptions regarding professional development?
2) How do the teachers perceive their own professional development?
3) What are the factors influencing their professional development?

In this investigation, for the purpose of exploring the participants’ perceptions and conceptualizations from their own perspectives phenomenological paradigm was adopted since it puts emphasis on the participants’ subjective realities. Case study method, which is a method of phenomenological paradigm, “provides tools for researchers to study complex phenomena within their contexts” (Baxter and Jack, 2008, p. 544). Therefore, in this study case study method was employed to gain in-depth information about the phenomenon under investigation and to understand the participants’ perspectives especially in their work context.

In order to explore the teachers’ perceptions, conceptualizations and factors influencing their professional development semi-structured interviews were conducted to collect data. The interview questions were derived from the research questions. The interviews were semi-structured to help the researcher probe whenever needed. They were also carried out in the participants’ native language (Turkish) since the participant teachers were not proficient enough to express themselves in English. Each interview was carried out individually and took about 20-25 minutes. The place and time of the interviews were scheduled at the participants’ convenience. They were audio-recorded for the purpose of detailed analysis by the researcher and by a colleague.

The participants were purposively selected by criterion sampling strategy, which is “an approach commonly used within case studies” (Robson, 1993, p.142). Since the aim of the investigation was to explore the conceptions of the teachers’ professional development and their perceptions of self-improvement, experienced teachers were believed to yield richer data compared to the novice teachers.

3. Findings and discussion

The participants were two female primary school teachers who were classroom teachers. One of them was with 12 years of teaching experience of which was one year in a different primary school as her first year teaching. The other respondent had 13 years of teaching experience. She also had one year teaching experiences in another primary school, which was in her first year of teaching. Both of the respondents teach in a primary school in a small town. For the purpose of anonymity the teachers were assigned pseudonyms as Joan and Susan.

3.1. Perceptions of professional development

When Joan was asked how she perceived 'professional development' she expressed her view as "theoretical and practical development of one's self". She emphasized the importance of practical knowledge in teaching:

Susan defined professional development differently putting more emphasis on personally developing oneself to be able to a better teacher and developing problem solving skills. She also stressed the importance of being a reflective practitioner for professional development:

> 'It is closely related with personally what we add to the knowledge we have gained through formal education we receive at teacher education programs we graduate from ... I should be able to solve the problems I encounter in teaching. I should ask myself whether I'm efficient or not and how I can overcome my weaknesses.'

Both of the teachers referred professional development as a personal endeavour. The process of professional development was seen as combining theoretical knowledge with practical knowledge and responding to learners' needs.

3.2. Perceptions of personal professional development

When asked about how they perceived their own professional development they emphasized the importance of experience in teaching. In explaining how Joan's teaching experiences have shaped her teaching, she clarified:

> I got more experienced in teaching. I've developed different ways in teaching in time. ..When you teach through practical and experiential learning, you can provide learners more permanent knowledge. This change has been gained with the help of practical knowledge I've gained through work and trial.

Regarding her own professional development, Susan put emphasis on reflection-in-action and reflection-on-action. Besides, she expressed the role of experience in teaching on her professional development .She also mentioned her interest in being innovative.

> I developed my practical knowledge about teaching by finding immediate solutions to the problems when they arise while teaching. When I first started teaching I had theoretical knowledge but I did not know how to transfer it to the practical knowledge.

Joan acknowledged her own professional development merely gained in the classroom context where her instructional behaviors were shaped by her learners' needs. Her self-explored teaching techniques regarding teaching materials, such as using visuals and connecting things with real life for more permanent and meaningful learning. However, Susan's conceptions for her personal professional development was based on reading publications (journals and books) and exploring the teaching practices of others in the area to benefit from as well as her own classroom practices.

3.3. Perceptions of the factors influencing professional development

When she was asked what factors influenced her professional development she put emphasis on personal qualities such as being innovative and open to changes and sharing knowledge:

> One's personal development is related with being innovative and open to changes. I mean developing oneself, sharing knowledge, being able to give and take knowledge. Sometimes you can learn from your students.

Joan also metioned three sources that contributed to her professional development. The positive characteristics of her work context, the in-service training courses organized by the Ministry of Education and her own interest for searching and learning.

She indicated how her work context nurtured her:

> In our school most of the teachers share knowledge, tell each other their experiences and classroom practices and guide each other.

In explaining the factors that influenced her personal professional development she referred to her personal interest for learning:

When Susan was asked to talk about the factors influencing her professional development she emphasized her intrinsic motivation for learning, experience in teaching and her collaboration with her colleagues. She also underlined the supportive environment created among some teachers in their work context and the negative attitude of the more experienced teachers towards the less experienced teachers:

> There is collaboration among the novice teachers. They give each other opinions, they share their experiences. There are some teachers with 25 year teaching experience who do not support the less experienced ones. Let alone not sharing their experiences or helping sometimes they even demotivate them.

Susan mentioned the influence of cooperative environment on her personal professional development:

> After the lesson I have discussions with my colleagues and this has helped me to develop creative thinking.

Susan expressed the positive impact of getting well-prepared for teaching in advance on her motivation for teaching and thus learning in teaching:

> I enjoy considering every single detail while planning and preparing my lessons. This motivates me a lot.

Both of the teachers mentioned the the top-down nature of in-service training courses and claimed that since the teachers are not involved in the decision making process of regarding the decision of the content of the courses, they do not really respond to the teachers' needs:

> The in-service training courses offered to us do not generally meet our needs. The topics are decided by the Ministry authorities. It is very rarely asked to the teachers to decide about the topics. (Joan)
>
> In-service courses are not quality, in general. Sometimes they are useful, yet sometimes they are not. I'm not sure whether these courses are designed considering the needs of the teachers or not, whether the topics were determined by some people who are close the Ministry, or by some people who are in need of collecting points to get a promotion. (Susan)

According to Joan, the in-service training courses do not improve teachers practically since they are more theoretical knowledge based:

> More than 50 % of the in-service training courses are theoretical today. I believe that if these courses were designed practical rather than theoretical, they would be more benefitial.

In conclusion, the participants views revealed professional development was seen as an individual practice rather than collaborative, in general. This might be seen as an obvious reflection of the common characteristic of existing work cultures in North Cyprus where individualism is favoured. Teachers in this investigation particularly defined their personal professional development locally practiced and as a self-renewed process with the help of critical reflection. The general characteristic of their professional development process was achieved by engaging in continuous experiential learning practices which provided limited informal learning opportunities to them. Their perceptions regarding the factors influencing their own professional development were self related. They underlined the influence and importance of interest in learning development as well as the role of intrinsic motivation for professional development. The respondent teachers regarded professional development self responsibility. It seems that the teachers cannot get the maximum benefit from the in-service training courses offered by the Ministry since the courses offered to them do not respond to the teachers' needs.

4. Conclusions

Despite the limitations involved in such a small study, the findings clearly indicate certain implications for the professional development of teachers. Since the respondent teachers in this study underlined the benefit received from informal learning rather than formal training, there is a need for designing schedules that engage teachers in formal as well as informal practices. Besides, it is of paramount importance to involve teachers in the decision making process of the content of the in-service training sessions in order to meet their pedagogical needs if the optimum benefit is targeted. Furthermore, it is highly essential to establish a collaborative culture where teachers can find opportunities to explore, discuss, learn and gain new perspectives regarding teaching.

In conclusion, in order to initiate and maintain a culture where there is continuous growth, it is essential to establish structures that foster professional development and redefine the role of the teachers in this new culture. Since this study was conducted with a limited number of teachers and their objective views were sought, the findings of it should not be generalized to all the teachers working in North Cyprus primary school contexts. For this reason, it would be helpful to conduct a similar study with larger group of teachers to explore their conceptualizations and draw conclusions.

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THE IMPACT OF INTELLECTUAL CREATIVITY SKILLS ON MATHEMATICS

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Abstract

The aim of the research is to identify the methods used by mathematics teachers for the formation and development of creative, analytical and probabilistic thinking skills of students by taking both student and teacher views. In this context, it has been conducted in order to reveal the environments prepared, the methods applied and the assessment made by the teachers. Research was conducted in 2015-2016 at two public schools (colleges) which students can enrol after passing entrance examinations. The study group of the research consists of 8 mathematics teachers and 8 college students randomly chosen from the public schools. Eight teachers and eight students determined by the convenience sampling method form the sample of the research. Interviews was preferred data were collected by semi-structured interview forms containing open-ended questions. In line with the results obtained from the research, it has been observed that the collected data support the views of teachers and students.

Keywords: *Creative or (intellectual creativity) thinking, analytic thinking, connective thinking ability, mathematics.*

1. Introduction

Considering the concept of creativity in a mathematical aspect, it is thought that it is necessary to pay attention for the concept put forward to be authentic, flexible and fluent. In this context, Sriraman, Haavold and Lee, (2013) highlight in their study that mathematics is important in terms of creativity about the change in ideas into different shapes in perceiving the universe they live in together with the perspectives of individuals.

It can be said that not only gaining the creative thinking skills is important but in fact teaching creative thinking is necessary. According to Dikici and Soh (2015), gaining and developing creative thinking skills must be considered as an aim for students in education. In this context, in order for students to learn creative thinking in mathematics lessons, teachers must also pay attention to their actions and behaviours in the classroom. For example, in parallel to this, Tahiroğlu**,** (2016) highlights in his study that they should provide opportunity for students to be creative by supporting them when necessary and at right times, encourage them by giving prizes, create environment for different ideas, enable cooperative studying and to be sensitive in similar issues. Teachers should aim to enable students to provide diversity by showing the the short and easy solutions. Moreover, their unique solutions should be appreciated by categorizing the ideas to be created. It is thought that teachers who have creative thinking skills in education will need to have sufficient background knowledge and new activities to transfer this in order to think critically (Sæbø, McCammon and O'Farrell, 2006). Therefore, aiming to raise teachers who can think critically and to have these teachers who can think critically transfer this to students during the educational process. Siswono and Novitasari (2006) pointed out that problem posing activities by "what's another way strategy" could improve students' abilities in creative thinking.

The aim of raising contemporary human beings is to have them gain problem solving skills, the ability to use the mathematics in daily life, analytical and probabilistic skills who keep the desire to learn continuously alive. Teachers have important duties in enabling students to gain these skills. In Cyprus, it has been seen that determining the cases dominating various situations within the curriculum based probabilistic learning category and co-probabilistic learning were included (Özreçberoğlu and Çağanağa, 2016).

Probabilistic thinking is the ability to think every possible probability at all stages from the beginning of a case or hypothesis until the end. In addition, it can be said that probabilistic thinking is at a further step than correlational thinking. If the students evaluate the cases in a probabilistic way, it means that the basis of combinational logic is developed. Individuals can eliminate the inappropriate probability

by relating the four probability in their mind. Moreover, one can be kept stable and the others can be kept variable. If-then the thinking style demonstrates the line separating that from the other periods easily. For example, the students are asked to think that they have 6 balloons in their hands and then are asked to think about how many different ways students can think to explode the balloons with a maximum of 3 shots will help the student to try all possible thinking methods.

Information offered in the form of problems has a positive effect on improving the relational, compositional and probabilistic thinking skills of students. Sternberg (2006) explains the analytical thinking skills as: Dividing a problem into parts and giving a meaning to these parts, explaining the functioning of a system, reasons of formation of something or the steps of solution of a problem, comparing two or more situations and assessing and criticising the properties of something. In this context, as it will be seen from this classification, it can be said that comparison is an integral part of analytical thinking.

One of the most important stages of expanding thinking skills in education is considered as teacher training. First of all, teachers need to gain thinking skills and apply this to their daily life. After gaining these skills, they can try to develop these skills of their students. Certain teacher behaviour affect the success, self-esteem, social relationship and thinking skills of students. In the study of Kentmen and Çağanağa, (2015) it has been put forward that creativity can be gained by the materials to be developed by teachers. Mathematics educators recognize the need to develop critical and analytical thinking through problem solving. This paper presented the various issues about problem solving that have been raised in the last two decades (Limjap, 2009).

In this context, what is intended in the research is to reveal what can be done for students and teachers in gaining creative thinking skills by taking both student and teacher views. In addition to this, the points of view of 8 mathematics teachers working under the MoE were taken in terms of the analytical thinking skills of mathematics teachers and their competency in developing the skills of students.

2. Method

Research was conducted in 2015-2016 at two public schools (colleges) which students can enrol after passing entrance examinations. The study group of the research consists of 8 mathematics teachers and 8 college students randomly chosen from the public schools. Gender of the participants was not considered as a variable because it is not in the scope of the study.

In the process of evaluation of views in the research, phenomenology pattern in qualitative research was used in order to benefit from experiences of teachers in terms of the creative, analytical and probabilistic thinking styles. The data sources in phenomenology research are the individuals or groups that live the phenomenon that the research focuses or that can reflect this phenomenon. "Snowball" or "criteria sampling method" can be used in sample selections. The size of sample must generally be around 10 (Yıldırım and Şimşek, 2008). Interviews was preferred as a data collection tool and data were collected by semi-structured interview forms containing open-ended questions.

2.1. Population

The population of the research is formed by the mathematics teachers working in public colleges and the students who study there.

2.2. Sample

Criteria sampling method was used in the research. This method is creating the sample by using individuals, events, objects or situations with the determined qualifications (Büyüköztürk, 2014). Convenience sampling is defined as including the mass number reached in the target audience considered to be investigated during the study in the research (Cohen, Manion and Morrison, 2006). Eight teachers and eight students determined by the convenience sampling method form the sample of the research.

2.3. Data collection tool

Semi-structured interview forms prepared by the researchers have been used as data collection tool in the study. The interview forms include the questions below regarding teachers:

1) What are your views regarding Analytical/Probabilistic/Creative thinking and teaching these thinking styles?

2) What are the methods to be used for Analytical/Probabilistic/Creative thinking?

3) What should be done to teach Analytical/Probabilistic/Creative thinking?

The interview forms include the questions below regarding students:

1) What are your views regarding Analytical/Probabilistic/Creative thinking and learning these thinking styles?

2) What are the methods to be used for Analytical/Probabilistic/Creative thinking?

3) What should be done to learn Analytical/Probabilistic/Creative thinking?

Moreover, one of these questions were prepared to gain Analytical/Probabilistic/Creative thinking and two were prepared regarding teaching aspects.

2.4. Analysis of data

In order to analyse the data obtained in the research, themes have been formed in line with the views of mathematics teachers by using content analysis. Content analysis has four stages as processing of qualitative research data obtained from the documents, coding of the data, finding themes, arranging of codes and themes and defining the findings and commenting on them (Yıldırım and Şimşek, 2008).

3. Findings and discussion

3.1. Findings regarding teachers

Three questions were asked to teachers in the conducted study. The answers obtained from the asked questions are as follows. Regarding the views of teachers on teaching creative/ probabilistic/ analytical thinking, it is observed that some of them claim that the educational programs studied at schools are restrained by the problems due to the basic education from the primary education and a problem in applying this to the student profiles is available. Some teachers who state that such an education is not included at schools and they expressed an opinion that visual materials can be used in order to provide students with them. It is seen that the majority of the teachers stated that this type of thinking skills are effective for the students in using the previously obtained information, creating more than one solution and determining strategies as well as contributing to teaching thinking skills when appropriate environment is created in classes to be free from memorization and mold information.

"*It is necessary to use the previously learnt knowledge to teach an individual to use thinking skills to systematically produce alternative solutions against a problem with unique solution suggestions*." (3rd Participant)

In order to perform creative/ probabilistic/ analytical thinking, teachers consider and implement question- answer method, brainstorming, mind maps, mathematical project and problem solving strategies.

"*Question- answer method, brainstorming, Gordon method, mind maps, group studies by using metaphorical thinking techniques must be the methods to be used as they will allow exchange of ideas*." (2nd Participant)

For teachers to reach creative/ probabilistic/ analytical thinking, it has been suggested that more up-to-date examples should be given by using the necessary materials during the class, discussions should be made by gathering contrasting ideas together, students should read more detective and criminal novels and games that require creative thinking should be played.

"*I believe that students should read detective and criminal novels which analyse different methods leading to solution in order to make them gain different perspectives and abstract thoughts which would also help them to develop themselves in real life outside the classroom.*" (7th Participant)

Moreover, it can be said that the first ones to gain thinking skills should be teachers. In this context, it can be stated that teachers do not have a detailed knowledge about the relevant methods in gaining thinking skills and what should be done to gain those skills.

3.2. Findings regarding students

Three questions were asked to students in the conducted study. The answers obtained from the asked questions are as follows.

In terms of learning creative/ probabilistic/ analytical thinking, students were observed to highlight that rendering these thoughts permanent would play an effective role in logical development by using different perspectives as well as it will allow them to analyse themselves and improve their commenting skills by considering their individual differences.

In this context, students, highlighting that practice is necessary in the classroom during teaching them, state that these thoughts allow them to find out the most accurate answer by using different ways of solution as well as being at a level to develop their characters.

Students stated that question-answer method can be implemented by group work for creative/ probabilistic/ analytical thinking and emphasized that it is necessary to teach them to find out the solution by using different methods by making them practice questioning. In this context, it is believed that students will adopt commenting and visualising by comparing solutions from different ways of solution.

"*Time must be given for the questions to be solved. We should be asked to question by being given hints regarding the solution steps and by commenting on them during this time period*." (8th Participant)

In order to learn these thinking strategies, all possible results need to be assessed, different question styles need be found and the steps used in the solution of questions should be explicable.

4. Results and recommendations

In line with the results obtained from the research, it has been observed that the collected data support the views of teachers and students. In this context, it has been revealed that teachers have partial information in gaining creative / probabilistic / analytical thinking skills but they do not have sufficient knowledge regarding teaching them and they have theoretical knowledge in teaching methods. Teachers stated their views that they intend to use the teaching methods in the class they mainly received from pedagogical formation. However, it has been observed that students asserted that learning these thinking skills will make great contributions and they will help them not only as lessons but also to develop themselves as good members of society.

The creative/ probabilistic/ analytical thinking skills must not only be useful during the lesson but primarily in the external life. In line with this aim, development and implementation of new methods and teaching techniques can be recommended. Teachers are also considered in sufficient in terms of implementation, thus the training regarding this subject should start from teachers and in-service seminars should be provided to teach the new methods to be developed.

In addition to these, teachers are recommended to design of materials in order to render the lesson interesting and to enable memorability. It is important to encourage not only students but also teachers to motivate them. Thus, teachers should not only be careful about their speech but also their behaviour. Communication must be supported by motivating speech and a clear and understandable language must be used. In addition to this, the analysis of teacher performances might be recommended. Visual presentations and technologies must be used when questions are explained. Moreover, the sitting patterns of students in the class must be changeable. Students must be invited to participate in class via games. It should be taught that ambition and taking risks are necessary rather than forcing. It should be expected from the students to develop solution methods by which they can solve the maximum number of questions by making them adopt the idea that a solution has more than one solution. Sufficient time must be given for this waiting period. Questions must be solved step-by-step, students must be provided with the opportunity to form the relationship among transitions and to develop their commenting skills. Router tips should be used in order to solve problems. Problems must be solved in class. Hypothesis must be developed and their discussions must be allowed. Students might be asked to write a new question and to solve it during an exam as they would think they are consulted. Therefore, the students must be expected to guess by thinking abstractly with the given key concepts.

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THE IMPACT OF TEACHING IDENTITY ON CLASSROOM MANAGEMENT SKILLS: RESIDUAL PROCESS OF CLASSROOM MANAGEMENT

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Abstract

This qualitative study aims to create a new criteria to help teachers being prepared to become more experienced practitioners. It also aims to find out the impact of their teaching identity on their classroom management skills. Multiple variables influence an individual teacher's behaviors and attitudes. These overlapping categories of identity include, but are not limited to, characteristics such as gender, region of origin, religion, and level of ability. Teaching identity, on the other hand, is a lifelong learning process which includes an individual teacher's character, learning and thinking skills, teaching strategy, methodology, experienced that is gained in time and so on. We need to be careful, of course, that generalizations about teachers' behavior or teaching identity do not substitute one set of assumptions for another. For this study, first teachers are required to keep a weekly journal in which they reflected their teaching identity. Using the new criteria (named residual process of classroom management) data were collected from a university with teachers who teach English as a foreign language. Empirical results from the study demonstrate that the participants realised the benefits of being consciously reflective; both for their own teaching identity and classroom management skills.This outcome highlights the impact of revealing teaching identities on classroom management skills.

Keywords: *Teaching identity, classroom management, residual process.*

1. Introduction

Teachers' teaching identity has increasingly come to be considered an important component of classroom management. It has long attracted the attention of the practitioner around the globe and has been high on the agenda in several countries including Cyprus. Teaching identity and teachers' identity are interrelated to each other and they are intersected in this article. A good starting point then would be to define the term – teacher identity first. Teacher identity is defined by different writers from different perspectives. Every individual is unique and every one of us has different backgrounds. The career paths or the learning journeys are varied and divergent. In addition, the identity which is formed in this journey is determined by variations and possibilities with respect to academic work and culture.

Identity formation is not only an individual process; it is also a social process which can be examined as belongingness. Wenger (1999) argues that interaction with the actors who participate in the community's social processes may help the teachers because they do share the community's knowing, beliefs and practices. Reconceptualising a career in teaching as "a journey" and not "a destination" requires us to focus on the practice because theoretical background may not be enough to become a proficient practitioner.

2. Residual process of classroom management

The rationale behind using the residual practice stems from the need to find alternative strategies to solve daily classroom problems, i.e. behavioural or disciplinary problems, which are finite. This is a growing concern, due to the increase in the changing demands. As Kaymakamoğlu & Çağanağa (2015) expresses "The residual practice is the experience or practice left over at the end of the teaching process. The primary benefit of residual practice for teachers is a deeper understanding of their own teaching style and its impact on their classroom management." An important reason for compiling our own residual practice or experiences is to achieve both positive educational outcomes for students and teacher retention.

3. Reflective journaling and the residual process of classroom management

Journaling can be used as a kind of window into how teachers are thinking about what they are teaching and learning. It seems likely that journaling will become a significant assessment tool in teacher development. A journal is a written record of your thoughts, experiences, and observations. Reflection plays a crucial role throughout the teaching life of the teacher and has an important effect on creating an effective learning environment. The aim of this paper is to show the reader how reflective journals were used in engaging with the notion of creating a residual practice, and how keeping a reflective journal can have concrete effects on the current teaching. Reflective journals help to make teachers' own practice, experience, and beliefs explicit. It also helps teachers to create learning environments. As Çağanağa (2014) suggests "teachers need to design educational experiences to produce desirable learning outcomes and provide opportunities for them to demonstrate their success in achieving their expectations".

4. Methodology

The aim of this paper is to explore how experienced university teachers' reflective journaling form their teaching identities during managing their classrooms in higher education effectively. We focused on Mary and Liz for this paper because they taught in different contexts that were representative of where our forthcoming students would teach after graduation.

The aim of this study is to use the qualitative constructivist theoretical perspective to examine 'what are the participants' reported perceptions, truths, explanations, beliefs, and worldview' (Patton, 2002, p.132). The participants of the study were selected through purposeful sampling to show the reflections of two exemplary university teachers. They were selected because their colleagues and students have described Mary and Liz as being effective teachers. They both started to teach 15 years ago and both of them have PhD degrees and openly talk about their views of classroom management.

5. Data collection and analysis

Reflective journals and interviews are the main data collection techniques in the study. Two university teachers from a higher educational institution participated in the study. Interview questions were designed in such a way that they gave room for further probing and prompting. All interview proceedings were planned to be audio taped and later transcribed by the researcher. The questions in the interview form; (a) what factors influence their teaching identity? And (b) how do these teachers describe their classroom management approach? In order to determine the underlying causes of the participants' answers, interview questions are arranged during the interview. Every opinion expressed by the participants is discussed in detail. To probe deeper into the main research questions, the participants were also given the opportunity to discuss the following sub-questions: Do you think you improved yourself in your profession? A healthy environment based on trust and empathy was tried to be created by the researcher in order for participants to express their opinion freely and reflect their feelings comfortably. Participants were informed that their personal and professional information would be kept secret, their ideas and suggestions would be used by giving a nickname.

Themes related to participants' definitions of their teaching identity were strengths and weaknesses in their profession. Cross-case analysis (Merriam, 1998; Patton, 2002) was used to examine and identify common themes between the cases. The findings of this study are the results of the cross-case analysis. The teachers' reflective discourse via interview transcripts were used to explore the participants' view of their teaching identity.

In this study, qualitative research reliability was used for the purpose of generating understanding of the value of teachers' responsibilities and reflective practice in classroom management. Validity was established by utilizing quality, rigor and trustworthiness, for the purpose of establishing confidence in the findings (Davies and Dodd, 2002; Stenbacka, 2001).

6. Findings

The findings of the study focused specifically on the participants' belief about their teaching identity and how they solve their disciplinary problems in their classrooms. In this study, qualitative data analysis involved breaking the information into manageable themes, patterns, trends, and relationships (Mouton, 2001:108). This section is organized according to the research questions guiding this study: (a) what factors influence their teaching identity? And (b) how do these teachers describe their classroom management approach?

Participants noted two factors that influenced their classroom management approach – their strengths and weaknesses of practitioners and being a reflective practitioner as a teacher. The following section will discuss how these two themes influenced participants' classroom management.

6.1. Strengths and weaknesses

Generally, the responses made by the participants indicated that they were aware of their skills and knowledge about classroom management and their teaching identity. One of the participants, Mary, stated that: "When you look at the definition of residual practice, to manage classroom efficiently, you see you may see different people give different emphasis to it. My main emphasis is getting the things that worked in my class before. So I see residual practice as considering time, context, students, system, curriculum and the school climate are as important as my individual lesson. In time my approaches, strategies and techniques have reshaped my teaching and made me enhance learning in my classes. This is my teaching identity I guess".

This response indicated that the participant is aware of the importance of residual practice and its impact on classroom management. Themes such as considering time, context, students, system, curriculum and the school climate are some examples that emerged from the data that demonstrated the importance of the residual practice.

Liz, as well as Mary, made a point of both focusing on her own strengths and weaknesses and getting to know the students. Liz emphasized that there is a close relationship between her strengths and weaknesses and teaching identity. "...instead of keeping away from new approaches or techniques, they prefer to apply new things based on their experience".

Both Mary and Liz combated classroom management issues by using their experience and content knowledge. They believed that their experience allowed them to meet the needs of their students and deal with classroom management issues, such as unexpected student behavior, that arise when students are confused or not interested.

Mary expressed that her vision of classroom management is related to the teacher's ability to focus on her own experience. It is essential in maintaining self -reflection. Her comments show that the academic side of the teachers cannot be the only parameter in understanding how good practitioners they are. Mary recognized the importance of developing a view which includes a deeper understanding of schools' principles and philosophies. She stated: "I don't want to face with problems in my school. Therefore try to obey the rules". Liz believed that it is both teachers' and the head masters' role to decide on the school rules and regulations. It was evident from the findings that both Mary and Liz were good with their head masters in their schools. The goal of their approach was to avoid public confrontation and provide opportunities for one-to-one conversations with their administrative. She pointed out that: "... new teachers think teaching identity as something that they will form by themselves in the classrooms but there are things that we cannot control or change.

Mary also added that the goal of her approach was to avoid public confrontation and provide opportunities for one-to-one conversations with both colleagues and head masters. She pointed out that: "Well, I try to talk with the head master or colleagues outside the school, not in front of the other colleagues or students; I try to understand what their expectations are". In order for teachers to be viewed as authority figures, Mary and Liz believed they needed to use certain strategies. According to Mary the starting point is talking to the students or teachers. As she stated: "... at the beginning of each term when I go into school I try to make myself understood by everyone. I tell them my expectations from them. And I ask them what else they would like to put into our agenda so I try to establish a positive atmosphere in the school and built that rapport between them and me so we don't have such a list but we understand each other". On the other hand, to draw a road map to herself at the beginning of the semester, Liz set up her rules. This is clearly captured from her comments: "... when I enter the school I talk to the head master first. I try to learn his expectations. I tell him mine. I do believe that teaching identity cannot be formed alone".

Even though their end goal is the same, Mary and Liz had different strategies to create a mutual relationship and a well-managed classroom. Their residual practice differed in the focus of their approach, whether it was strengths, weaknesses or both.

"... they want to feel that the teacher is authority in the classroom, when you tell them that you want to share the power in the classroom, it's something new for them so when you ask them to create classroom rules together in the classroom it's something new and they hesitate, they don't want to do it most of the time".

7. Being a reflective practitioner as teacher

Both Mary and Liz used an approach to classroom management that focused more on critical reflection. Critical reflection is held as a way of examining our own subjective thoughts about who we are, our identities, beliefs and so on (Wilson, 2002). Mary and Liz emphasized the importance of being a reflective practitioner. Both valued and wrote their reflective journals. As Mary stated, "I think, I think first of all, I try to write down every piece of things like writing down a personal diary. I try to understand every part of my lesson with its pace, activities, students etc. So, I try to draw a picture in my mind while I am reading the journal. So I try to criticize the lessons with its variables".

The following comment from many espouses the importance of reflective thinking in education. "I see. I mean. You're asking me whether I go into reflective thinking after I teach. I go into work reflective thinking actually while teaching as well. When I do something in the classroom, when I respond to a student's question or when I say something and when they respond to me- I try to understand why this is happening- why they are doing this- why am I doing this-is there another way of doing it so I try to go into the reflective thinking process because I realize that the more you do it the better you teach-and the better your relationship gets with them".

"Because sometimes it happens to the teachers and but I try to control myself all the time and ask these questions to myself whether I am doing what I believe in". It is clear from this quote that she perceives critical reflection as the cornerstone towards personal growth and continuous learning.

8. Discussion

The findings from this qualitative study revealed that although classroom management is not a new topic, there is still a need to dug deeper into the term due to the contemporary teaching principles, approaches, and strategies. In this study, the participants acknowledged the need for reflective journaling to better understand an individual teacher's teaching identity. However, they also strongly suggested in their interviews that reflective journaling is not the only variable which needs to be considered while forming teaching identity. It was found out that classroom management strategies should be further strengthened in order to develop students' learning and teachers' management skills. For example, Liz stated that: "When I started to teach, I used to have 15 students but last lecture, last semester there were more than 100 students in the classroom. Like 103, 104 or something. I control them more than I teach. My teaching identity is coping with the demands of time".

The participants confirmed that they needed to be empowered to a greater extend on how to implement the reflective thinking. Larrivee (2008) conceptualizes reflective practice in teaching as including four hierarchical levels of reflection: pre reflection, surface reflection, pedagogical reflection and critical reflection. Key elements which distinguish levels are the ability to systematically consider how personal and situational factors come to bear on interactions with students, and how student's personal and situational factors influence learning. By considering students as individuals and valuing them in the classroom, the teachers exhibited qualities of effective teachers in the creation of a respectful classroom environment (Stronge, Ward, & Grant, 2011).

Generally, the responses made by the participants indicated that they were aware of the importance of the positive strategies to manage student behavior by involving them in the classroom and individually discussing their behavior issues with students (Roache & Lewis, 2011). Mary and Liz adjusted their classroom to reduce negative reactions with students. Having a mutual relationship with the students, considering students as individuals and individual diversity are some of the examples to their classroom management strategies.

9. Conclusion

There are many variables which influence residual practice and classroom management. Although these themes have been widely recognized in the literature, the focus on the strengths and weaknesses of a teacher and being a reflective practitioner to better understand their teaching identity. To address this issue, this study aims at understanding the insights that can be gleaned from reflective journaling, in other words critical thinking. It focused on how teachers are influenced by different variables when forming their teaching identities. Based on the qualitative findings, this study confirms that teachers perceive reflective journaling as playing an important role in enhancing classroom management. The findings suggest that teachers' reflective journaling was the most influential factor that contributed to their ability to cope with any kind of problems. This paper therefore concludes that reflective journaling and residual practice could be of central relevance to classroom management. Research on teachers' beliefs and practices will help educators determine what teachers' development of

classroom management skills are and how they could be improved. Further research on the importance of reflective practice, such as residual practice noted in this study can provide an understanding of how teachers can deal with problems in classrooms. While the study has several strengths, it also has its limitations. The size of the sample was small due to access. The main aim of the study was exploratory too; hence, it does not claim to address all the nuances of residual practice and its impact on classroom management. The intention has been to focus on the issues that may improve the residual practice of teacher to improve their classroom management skills. The study indicated that teachers' responsibilities and their reflective journaling are fundamental to classroom management. It also provides a platform for further research that would expand our understanding of the impact of residual practice on classroom management beyond the boundaries of teaching.

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Posters

HOW IS THE STUDENTS' PERCEPTION OF THEIR ASSESSMENT IN HIGHER EDUCATION?

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Abstract

This study focuses on analyzing the current situation of student assessment practices and on students' experiences in relation to assessment of the learning process at university. The context of this study corresponds to the assessment of skills acquired by university undergraduates of different degrees at the University of the Basque Country (Spain), and aims to reflect upon the assessment practices currently used.

Methodologically the study is based on *survey methods*, by applying a student questionnaire, which is used to compile information about how they perceive the assessment process in subjects they are studying, and their viewpoints and attitudes towards this assessment.

The questionnaire consists of 55 Likert type items with 5 options arranged into 3 blocks (viewpoints, attitudes and experiences).

A stratified sampling was carried out of the five main areas of university teaching, ensuring the proportionality of students from each area. There were a total of 1012 students in the sample.

The analysis itself was carried out by descriptive and multivariate techniques.

Some conclusions:

- For university students, the essence of the assessment process lies in the verification and evaluation of learning.
- The object of the assessment is essentially the acquirement of theoretical knowledge, and less importance is given to the skills, abilities or attitudes developed by the students.
- The assessment is mainly based on the assignment of grades for written exams, which generally take place at the end of the teaching-learning process.

Keywords: *Higher Education, European Higher Education Area, Survey methods, Likert type scale, Learning-orientated assessment.*

1. Introduction

Traditionally, in higher education assessment has mainly been accumulative, in other words, aimed at the verification of results and the measurement of learning on completion of the teaching process. However, over the past few decades emphasis has been placed on integrating assessment into the learning process, and on its role in helping to develop this process in a formative sense (Knight, 1995; Bryan and Clegg, 2006; Irons, 2008; Perez et al., 2008, Gil, 2011).

Changes in the assessment process have also occurred in response to a demand derived from the construction of the European Higher Education Area (EHEA). Faced with the challenge of having to train citizens and professionals to be able to integrate and function effectively in continuously changing social and work environments, new teaching and assessment approaches are required, which the European convergence process aims to promote, to replace the traditional models of higher education.

In this innovative approach, the concept of learning-orientated assessment has been gaining strength, which has been addressed in works like those by Brodie and Irving (2007), Carless, Joughin and Wok (2006), Carless, Joughin and Liu (2007), Gibbs and Simpson (2004), Wilson and Scalise (2006). According to this concept, students must act upon the information they receive and use it to make progress in their work and learning (*feedforward)*, and to become involved in the assessment of their own work (Padilla and Gil, 2008).

The following recommendations can help encourage students' participation in the assessment process:

- The use of self-assessment or co-assessment strategies.

- Assessment should be presented as part of the learning activity.
- The students' autonomy will increase as they advance through their degree and as their assessment skills develop.
- The assessment criteria should be established at the start of the learning activities.
- Students should be given the appropriate instruments and methodologies to be able to participate in the assessment process.
- The assessment system used should be given maximum transparency.

Starting with the idea of assessment based on these premises, this study focuses on analyzing the current situation of student assessment practices and on students' experiences in relation to assessment of the learning process at university. The context of this study corresponds to the assessment of skills acquired by university undergraduates of different degrees at the University of the Basque Country (Spain), and aims to reflect upon the assessment practices currently used.

Since the student is the main source through which we can determine the way in which assessment is really implemented, in this study we have placed ourselves in the role of the student, who knows and interprets the assessment systems used by teachers of the subjects he is studying.

The ultimate goal of the work presented here is to identify how students perceive the assessment processes put into practice in the teaching-learning processes taking place in the University of the Basque Country (Spain). We can then go on to identify the viewpoints and attitudes that undergraduate university students have of the learning assessment process.

2. Methodology

Methodologically the study is based on *survey methods*, by applying a student questionnaire, which is used to compile information about how they perceive the assessment process in subjects they are studying, and their viewpoints and attitudes towards this assessment.

The instrument used to compile data for the survey corresponds to a written questionnaire. This questionnaire was validated in a previous study (Gil, 2011) and consists of 55 Likert type items with 5 options arranged into 3 blocks (viewpoints, attitudes and experiences) that cover 9 dimensions: the concept of assessment, intended purpose, attitudes, the target of the assessment, agents/student's participation, assessment time points, techniques, assessment criteria and grade, feedback/forward.

Questionnaires were handed out over the months of November and December of 2014. This period was chosen with the intention of timing the survey to take place before the assessment periods at the end of the first term of the academic year.

The study population was composed of students matriculated in the third year, or above, during the academic year 2014-2015, in undergraduate degrees at the University of the Basque Country. Given that the study objective was to compile students' opinions about the assessment process, it was important that the subjects completing the questionnaires had sufficient experience of the procedures used to assess learning at the university.

A stratified sampling was carried out of the five main areas of university teaching, ensuring the proportionality of students from each area. There were a total of 1012 students in the sample.

The analysis itself was carried out by descriptive techniques. A frequency distribution was constructed for the responses to each of the items included in the questionnaire. Basic statistical data of central tendency and dispersion were calculated, such as the mean and standard error, respectively.

Moreover, multivariate techniques were used to reduce the number of questionnaire items to obtain fewer dimensions. This was done by applying factorial analysis, by the principal component method followed by varimax rotation using a polychoric correlation matrix. These factors were used to identify dimensions, estimate the mean scores in each of them, and compare them among university teaching areas.

3. Conclusions

- For university students, the essence of the assessment process lies in the verification and evaluation of learning. The student regards assessment as useful in that it creates an awareness of the level of learning achieved, as a motivational factor, and also to help improve the teaching-learning process. It, therefore, can help teachers to make decisions based on whether students pass or fail a subject.
- The object of the assessment is essentially the acquirement of theoretical knowledge, and less importance is given to the skills, abilities or attitudes developed by the students.
- Assessment is mainly the teachers' responsibility, with little participation by the students in defining criteria, techniques, timing or procedures, and limited opportunity to choose between different

assessment systems. There is also very little use of self-assessment or peer assessment, which gives the student a role as an evaluating agent.

- The assessment is mainly based on the assignment of grades for written exams, which generally take place at the end of the teaching-learning process. Besides the grades, the students are given insufficient feedback, and are not usually asked to reflect upon the results obtained or given recommendations to help them overcome the possible learning deficits identified.
- The students know the assessment procedure used and are presented the assessment criteria and procedures established at the start of the teaching activity. Even so, the assessment process still tends to generate a degree of anxiety in students. Moreover, they do not always believe in the virtue of the process and consider that the results do not always reflect what the student has learnt, and that the assessment process does not treat all students equally.

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EVALUATION OF PEDAGOGUES JOB SATISFACTION USING THE QUESTIONNAIRE JOB SATISFACTION SURVEY

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Abstract

Currently there is a trend to monitor the satisfaction of stakeholders in many types of organizations, including schools and other organizations employing pedagogues. This trend is based on the philosophy of TQM (total quality management) and considers the satisfaction of all stakeholders as a fundamental aspect of quality. Many researches are focused on evaluating the work of pedagogues (form the view of their managers, inspectors, but also from the view of students, parents, clients). However, we should also monitor the situation from the other side, from the perspective of pedagogues and their job satisfaction. The study focuses on the Czech version of the Job Satisfaction Survey questionnaire (P. E. Spector). The questionnaire has 36 scale items divided into 9 factors (Pay and remuneration; Promotion opportunities; Immediate supervisor; Monetary and nonmonetary fringe benefits; Appreciation, recognition and rewards for good work; Operating policies and procedures; People you work with; Job tasks themselves; Communication within the organization). It seems to be generally applicable in any organization. The main aim of this research is to test this tool in the environment of schools and social services which employ pedagogues, validate it in terms of construct validity and estimate its reliability. The intention is to discuss its usability in Czech educational environment. The secondary objective is to present selected results of the investigation, which can be obtained with this tool.

Keywords: *evaluation, pedagogue, job satisfaction, questionnaire*

1. Introduction

Pedagogical evaluation often focuses on evaluating the work of teachers, but less attention has been paid to their own perspective on the work of teachers and their satisfaction in this job. Educators can express their satisfaction at the organization using different methods - discussions with colleagues and superiors, various forms of surveys (e.g. SERVQUAL or TIMSS). In this paper we focus on the questionnaire Job Satisfaction Survey (JSS, P.E. Spector, 1997, 2011), which can be applied to the evaluation of selected aspects of job satisfaction in a wide spectra of jobs (Auerbach et al, 2010).

2. Design and objectives

Survey design is based on the Czech version of the questionnaire JSS (Franěk, Večeřa, 2008), which was applied to a set of 288 pedagogues (177 of them works as social pedagogues in the field of social services and 111 on the position of teachers at schools). The questionnaire has not been validated in the Czech educational environment yet. Our intention is to test whether it has a similar layout of items, such as in its original version. It is originally divided (in terms of construct validity) to 9 following factors: Pay and remuneration (items No. 1, 10, 19, 28); Promotion opportunities (2, 11, 20, 33); Immediate supervisor (3, 12, 21, 30); Monetary and nonmonetary fringe benefits (4, 13, 22, 29); Appreciation, recognition and rewards for good work (5, 14, 23, 32); Operating policies and procedures (6, 15, 24, 31); People you work with (7, 16, 25, 34); Job tasks themselves (8, 17, 27, 35); Communication within the organization (9, 18, 26, 36). We anticipate changes in the factor structure of the questionnaire, because it is the Czech adaptation, and it is applied to a specific group of workers - on pedagogues.

Our main aim is to test this tool in the environment of Czech schools and social services which employ pedagogues, validate it in terms of construct validity and estimate its reliability in terms of internal consistency. Our intention is to discuss its usability in Czech educational environment. The secondary objective is to present selected results of the investigation, which can be obtained with this tool.

3. Findings

First of all we present the result of factor analysis of the questionnaire. Data fulfilled the basic conditions for its realization (KMO = 0,766, highly significant Bartlett's Test of Sphericity). Our effort was to extract the smallest number of factors while maintaining as many of the questionnaire items as possible. Original 36 items of the questionnaire were reduced to 27. The original items No. 1, 3, 4, 5, 7, 9, 15, 30, 32 were removed. The remaining items were clustered into five factors (F1: Working conditions F2: Management, F3: Motivation, F4: Salary, F5: Attitude towards work). It is interesting that in factors F1, F2 and F4 are only negative (reverse) items while in the factors F3 and F5 are strictly positive items. The questionnaire has acceptable reliability, but all the different factors cannot be considered sufficiently reliable (they should not be applied separately). Their low reliability is partly caused by a low number of items in each factor.

Table 1. Rotated component matrix and estimated reliability of the tool JSS in the Czech version

	Component				
	F1	**F2**	**F3**	**F4**	**F5**
31. I have too much paperwork.	,780				
24. I have too much to do at work.	,756				
29. There are benefits we do not have which we should have.	,722				
2. There is really too little chance for promotion on my job.	,610				
10. Raises are too few and far between.	,536				
6. Many of our rules and procedures make doing a good job difficult.	,500				
18. The goals of this organization are not clear to me.		,732			
26. I often feel that I do not know what is going on with the organization.		,726			
16. I find I have to work harder at my job because of the incompetence of people I work with.		,592			
21. My supervisor shows too little interest in the feelings of subordinates.		,574			
36. Work assignments are not fully explained.		,528			
8. I sometimes feel my job is meaningless.		,512			
34. There is too much bickering and fighting at work.		,505			
12. My supervisor is unfair to me.		,495			
28. I feel satisfied with my chances for salary increases.			,652		
11. Those who do well on the job stand a fair chance of being promoted.			,636		
13. The benefits we receive are as good as most other organizations offer.			,619		
22. The benefit package we have is equitable.			,614		
33. I am satisfied with my chances for promotion.			,560		
20. People get ahead as fast here as they do in other places.			,555		
19. I feel unappreciated by the organization when I think about what they pay me.				,694	
14. I do not feel that the work I do is appreciated.				,632	
23. There are few rewards for those who work here.				,584	
27. I feel a sense of pride in doing my job.					,711
35. My job is enjoyable.					,681
17. I like doing the things I do at work.					,643
25. I enjoy my coworkers.					,639
Variance explained (%)	**12,994**	**11,492**	**10,254**	**7,696**	**7,468**
Cumulative variance explained (%)	**12,994**	**24,486**	**34,740**	**42,436**	**49,904**
Reliability (Cronbach´s alpha)	**,798**	**,751**	**,739**	**,611**	**,626**
	,753				

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 7 iterations.

Additionally we present basic descriptive results of the survey. We do not apply the standards set by the author of the questionnaire, because we work with different factors (F1 - F5). Respondents rated their job satisfaction on a six-point scale. The higher the value, the greater their satisfaction. As we can see, the results are slightly negative in factors F1, F3 and F4. Czech pedagogues are less satisfied with

their working conditions, motivation for work and salary. On the contrary, they are mostly satisfied with the factors F2 and F5. Their rating is therefore better in the area of the management of their work and they have a positive attitude towards their work.

Table 2. Overal results

Factor	N	Minimum	Maximum	Mean	Std. Deviation
F1	288	1,00	5,50	3,149	0,986
F2	288	1,00	5,50	3,799	0,873
F3	288	1,00	5,83	3,166	0,898
F4	288	1,00	6,00	3,351	1,024
F5	288	1,25	6,00	4,616	0,759
Total	288	2,26	5,19	3,586	0,486

In the next table we can see a comparison of the results between the 2 groups of pedagogues. Significant differences are within the 4 factors, twice in behalf of social pedagogues (F2, F5) and twice in behalf of teachers (F1, F4). The difference was not confirmed in factor F3 and in the overall results. More information could be obtained from the data using descriptive and inductive statistics, but it is not possible to present details due to the permitted extent of the text.

Table 3. Comparison of groups

Factor / Work position		N	Mean	Std. Deviation	Stat. significance of the difference
F1	Social Pedagogues	177	2,541	0,528	0,001
	Teachers	111	4,117	0,742	
F2	Social Pedagogues	177	4,025	0,707	0,004
	Teachers	111	3,438	0,988	
F3	Social Pedagogues	177	2,897	0,831	0,789
	Teachers	111	3,595	0,833	
F4	Social Pedagogues	177	3,118	1,057	0,002
	Teachers	111	3,722	0,848	
F5	Social Pedagogues	177	4,709	0,646	0,000
	Teachers	111	4,468	0,895	
Total	Social Pedagogues	177	3,445	0,474	0,793
	Teachers	111	3,811	0,419	

4. Conclusions

The validation of the questionnaire can not be considered definitive because the study is based on a small sample of respondents that do not meet requirements for representativeness in the Czech context. Even though the construct validity of the questionnaire showed other factors than its original version, we consider this questionnaire as applicable in the Czech educational environment. We plan further testing of the original version of the questionnaire on a broader sample of respondents and later validation using confirmatory factor analysis.

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TRAINERS AS KEY ACTORS IN SENSITIZATION SESSIONS TOWARD TRANSFORMATIVE ACTIVITIES

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Abstract

The worldwide rise in obesity makes it the first non-infectious epidemic in human history (Froguel et al., 2000). This rapid increase is influenced more by environment than by biology (Hill et al., 2003). In an effort to halt the trend, Quebec has launched a major awareness-raising campaign that focuses on healthy environments and targets stakeholders in schools, municipalities, communities and health sectors. The purpose of the study, then, was to determine how this campaign can promote action towards building and fostering healthy environments. The theoretical framework is based on planned change (Hall, 1973; in Savoie-Zajc, 1993). Objectives were to 1) identify key roles played by trainers in the sensitization session process; 2) describe and evaluate animation methods used by trainers, and 3) examine the impacts of the sessions. A qualitative approach research was prioritized, consisting in two focus groups conducted with 17 trainers. Findings revealed that, as an agent of change, the trainer plays a key role in implementing the sensitization sessions and this role was expanded to many other ones during the national sensitization process. A multi-method approach during sensitization sessions expanded networking, provided a common frame of reference and a transversal viewpoint, and drove coherent actions for stakeholders involved. The trainers managed to offer conditions which encouraged the transition from awareness to information, thereby generating significant results in terms of action. A sensitization session is thus a prerequisite for training transformation activities aimed at innovation. These results can be related to other contexts, especially educational activities.

Keywords: *Trainers, sensitization sessions, educational activities, healthy environments.*

1. Introduction and context

The World Health Organization (WHO) has alerted governments about the development of the first non-infectious epidemic in human history: obesity (Froguel, Guy-Grand, & Clement, 2000). Many experts believe that the rapid rise in obesity is a result of environment rather than biology (Hill, Wyatt, Reed, & Peters, 2003). Significant research highlights the contribution of four environments - physical, sociocultural, economic and political - that are likely to promote an active lifestyle and healthy food choices (Booth et al., 2001) aimed at countering obesity.

To date, numerous initiatives to promote healthy environments have been implemented to induce influential stakeholders to facilitate environments more conducive to healthy lifestyles (Cohen, Scribner, & Farley, 2000). In Québec, a recent training program was launched for sensitizing stakeholders in various sectors addressing needs and ways to build healthy environments and promote regular physical activity and healthy food choices. This large-scale program was led by thirty trainers previously trained to conduct 'sensitization sessions'. Between September 2012 and June 2015, over 900 sessions (~ 3 hours/session) were held across Québec, reaching more than 14 000 stakeholders in schools, municipalities, communities and health sectors.

2. Issue and conceptual framework

The stakeholders' potential to act is based on planned educational changes (Savoie-Zajc, 1993). Extensive research has attempted to pinpoint the factors governing the effectiveness of change (Cros, 2004), especially the resistance factors divided into three categories: 1) nature of the system, often overly complex with hard-to-measure objectives, 2) absence of sensitization to the very notion of change,

and 3) deficient communication networks (Savoie-Zajc, 1993). Relatively few documented but promising training method concerns the inception phase of training, also called the connection phase (Hourst, 2008) or sensitization stage (Lamoureux, 2002). This sensitization stage concerns relationship and involves the creation of an optimal state of receptivity for teaching and learning, and is used to foster learning and motivate action.

Few studies have examined the sensitization stage of training-transformation with a view on planned change. From the perspective of planned change, two interdependent systems must be considered, *the user system*, which aims to implement an innovation, and *the resource system*, which supports the former in meeting the objectives for change. In this regard, Hall's 1973 model remains highly regarded in education because it allows to capture the essence of the dimensions leading to innovation and their underlying interactions (Savoie-Zajc, 1993). In Hall's model (1973), the role of the user system involves 1) analyzing needs to respond to a real-life problem, 2) considering change and 3) establishing the limitations of the approach planned. The resource system, for its part, is responsible of proposing appropriate conditions to achieve afore-fixed objectives. Toward these ends, the agent of change acts as an intermediary between the two systems. In sensitization sessions, the goal is to stimulate the transition from an awareness level to an information level, based on the possible guidelines for change needed to facilitate environments conducive to healthy lifestyles.

The objectives of the present study were to: 1) identify key roles played by trainers in sensitization session process; 2) describe and evaluate animation methods used by trainers, and 3) examine the impacts of the sessions.

3. Methods

Our qualitative study used a descriptive and interpretative approach aimed at meeting our research objectives (Poupart, 2011). Participants were 17 trainers representing 15 of the 16 regions of Québec. They took part in two focus groups, as follows: Group A, n=8, Group B, n=9. The focus group promotes in-depth understanding of the study topic; it offers a flexible interrogation method and generates a wealth of data making it possible to introduce new topics and lead discussion in various directions (Geoffrion, 2003). The focus groups lasted approximately 90 minutes each and covered 11 questions divided into two major themes: effectiveness and impacts of the sessions. The analysis strategy was inspired by Boutin (2007). Use of the NVivo 10 software facilitated the delineation, coding and grouping of units of meaning, the emergence of sub-categories and the analysis of similarities and differences noted in the comments of the various participants.

4. Results

Findings are presented according to the objectives of the study. First, regarding key roles played by trainers in the sensitization session process, the mastery of content appeared to be crucial in order to teach a common frame of reference and vision about healthy environments. In addition to expert content, many unexpected roles emerged during sessions, such as being a planner, recruiter, organizer, accompanier, and even salesperson.

Second, a 'multi-method' or diversified approach during sensitization sessions was preferred by trainers. For example, trainers pointed out that to motivate participants, sensitization content must be adjusted to regional or local concerns and concrete examples used must be inspired from the various contexts. Also, trainers preferred three-hour sessions - in contrast to longer sessions- because this format was easier to set up and to stimulate and maintain interest among stakeholders.

Third, the connection with targeted aim's during sensitization session was appreciated, in particular the information and effects of the environments on lifestyles. These two main objectives of the sensitization session were in line with the content taught and necessary actions leading to healthy environments. Also, the sensitization sessions developed multisectorial network, fostering sustainable and concerted actions between stakeholders. In practical terms, the stakeholders started recommending the session to other colleagues, promoting the sensitization sessions in all areas.

5. Discussion

Savoie-Zajc (1993) highlights the importance of a shared vision for sustaining and perpetuating innovation. The agent of change becomes a crucial leader for introducing this vision and persuading stakeholders to adhere to it (Kouzes & Posner, 1993). Accordingly, trainers have also allowed sensitized stakeholders to adopt a shared terminology and vision in relation with healthy environments, indicating that new actions and partnerships for building such environments can now be expected (Cohen et al.,

2000). Then, trainers assumed numerous roles including those of liaison, change and mobilization agent to conduct the sensitization sessions (Higgins, Douglas, & Muirie, 2005).

Moreover, the level of commitment is demonstrated throughout the trainers' session adaptation, which they tailored to the needs of stakeholders and their environments. This is consistent with the conclusions of Knowles and colleagues (2005), who recall the importance of these two elements for effective change.

This study reveals that the objectives targeted with the sessions were deemed adequate and realistic, which suggests less resistance to change in the future (Savoie-Zajc, 1993). The findings show that the sessions had an impact beyond awareness-raising so that effective actions were implemented in various sectors. With reference to Hall's model (1973), this reflects the transition from agent of change to 'resource system', which involves owning and sharing the vision and the knowledge dispensed.

6. Conclusion and acknowledgement

In conclusion, these findings highlight the effectiveness of conditions offered during sensitization sessions since they can potentially motivate stakeholders to take action and bring about more health-friendly environments. A sensitization session is thus a prerequisite for training transformation activities aimed in innovation, regardless the educational context.

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STUDENT EVALUATION OF THE QUALITY OF UNIVERSITY EDUCATION WITH THE USE OF SEMANTIC DIFFERENTIAL

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Abstract

The staff of universities in the Czech Republic have an obligation to regularly monitor the quality of education they provide to students. Different scale questionnaires are most often used for these purposes. However, the questionnaires do not allow to detect hidden inner meanings that students subjectively attach to rated aspects of university education. In the context of pedagogical evaluation we consider it appropriate to apply various techniques that contribute to triangulate our findings. For this reason, we have decided to apply semantic differential in the evaluation of quality at our university department. We have applied the tool ATER (Attitudes towards Educational Reality by M. Chráska), which has been validated and proved its permanent reliability in the Czech educational environment. This tool allows us to assess selected constructs in terms of two factors, namely Factor of assessment and Factor of energy. With its use, we are able to determine how students perceive selected conceptual indicators in terms of positivity - negativity, and also in terms of simplicity - difficulty. The aim of this study is to highlight the possibilities of semantic differential in the area of student evaluation of the quality of university education. Semantic differential seems an appropriate evaluation method. With its use, we are able to capture another dimensions of quality in comparison with a questionnaire.

Keywords: *Evaluation, education, student, semantic differential.*

1. Introduction

Questionnaires, observations and interviews are commonly used as methods for educational evaluation in the university environment. However, in some cases, we can apply specific methods that will bring new insight into the evaluation of the quality of higher education. Semantic differential (Osgood, 1957) belongs among them. It is used to measure individualized meanings of concepts (mostly conceptual indicators, statements related to a specific issue). This method is based on a system of antonym pairs that fall under broader factors (Chráska, Kočvarová, 2015). Validated battery of antonym pairs is then applied to the evaluation of chosen conceptual indicators. Semantic differential was originally developed on the basis of three factors (evaluation, potency, activity), but it has currently been used in various forms based on two factors. Its advantage is a deeper insight into the meanings of the evaluated concepts from the perspective of respondents.

2. Design and objectives

Our intention was to test the tool ATER (Attitudes towards Educational Reality by M. Chráska) as a part of educational evaluation at our faculty department. This tool was developed on the basis of semantic differential in the 90s of the 20th century (Chráska, 1984, 1995). Since then it has been successfully applied in many modifications and in various areas in the Czech educational context (e.g. Vala, 2003; Vašťatková, Chvál, 2010; Kocourková, Šafránková, 2013; Machů, Kočvarová, Kopřivová, 2016). Its construct validity has been confirmed using confirmatory factor analysis (Chráska, Kočvarová, 2015).

47 students of the third year of undergraduate study program Kindergarten Teacher Training formed a sample of respondents of our survey. The research sample was chosen intentionally. This study program represents the focus of our institute and 3rd year students have a broad overview of studies in our department.

The aim was to test the tool ATER within the educational evaluation in the university environment in terms of its validity, reliability and basic outputs of its application to students.

3. Findings

The tool was validated using exploratory factor analysis on a sample of 282 applications (each of the 47 respondents assessed 6 conceptual indicators). Data fulfilled the basic conditions for the realization of factor analysis (KMO = 0,891; strongly significant Bartlett's Test of Sphericity). Reliability in the concept of internal consistency was estimated for both the extracted factors and instrument as a whole. The results of the factor analysis and the reliability estimation are shown in Table 1.

Table 1. Rotated component matrix and estimated reliability of the tool ATER

Items of ATER	**Components**	
	1. Factor of assessment	**2. Factor of energy**
beautiful – ugly	0,823	
sour – sweet (r)	-0,812	
unpleasant – pleasant (r)	-0,771	
light – dark	0,757	
good – bad	0,613	
easy – difficult		0,842
simple – tricky		0,809
light – heavy		0,745
strict – gentle (r)		-0,689
problematic - smooth (r)		-0,548
Variance explained (%)	**33,565**	**29,818**
Cummulative variance explained (%)	**33,565**	**63,384**
Reliability (Cronbach´s alpha)	**0,878**	**0,798**
	0,895	

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 3 iterations. (r) - reversible items

6 conceptual indicators (namely in Table 2) were included in the evaluation. We consider all of them key attributes for the active participation of students of selected field within university education at our department. Conceptual indicators were assessed using the tool ATER in terms of two fakctors (1. Factor of assessment and 2. Factor of energy). Factor of assessment expresses how well or poorly students perceive rated indicators, Factor od energy expresses how large degree of effort students connect with each indicator. Both factors were measured on a scale of 1-7 (the higher the value, the better the assessment; the higher the value, the higher degree of energy – also valid for reversible items).

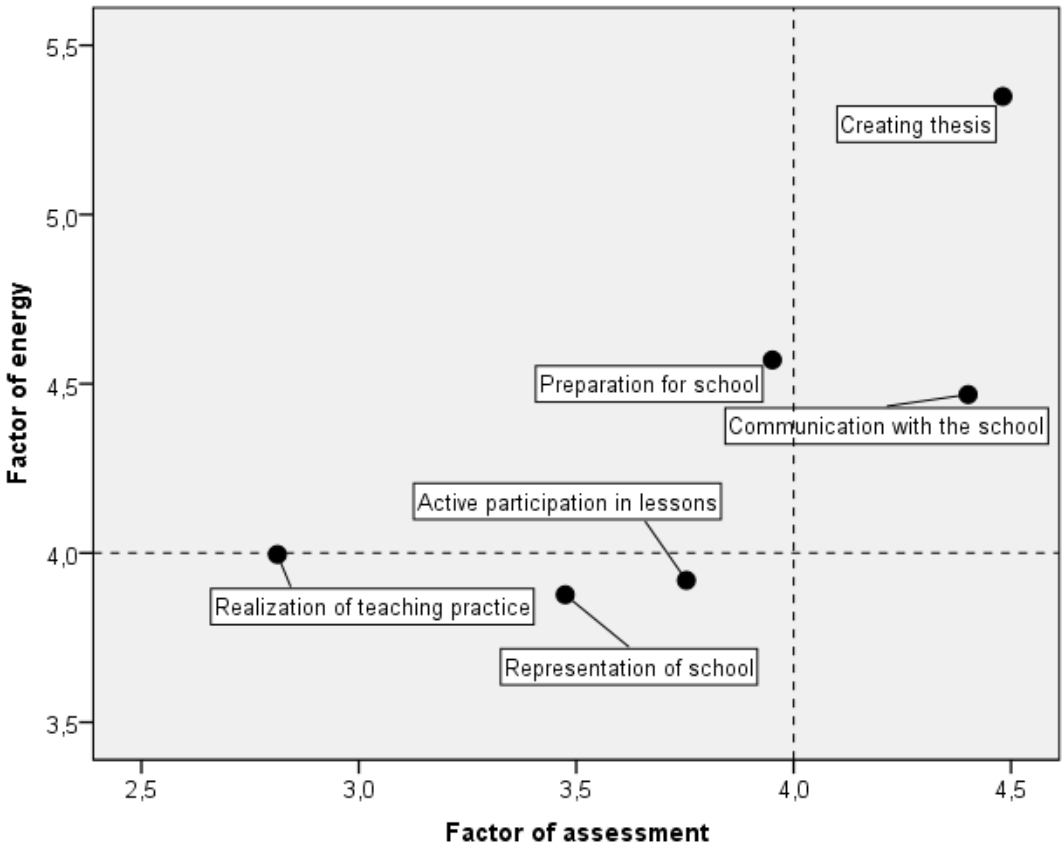
Our overall results show, that students evaluate most positively Creating thesis, but associate this activity with the greatest amount of energy (it is the most difficult for them). Conceptual indicator Communication with the school is also evaluated very positively. Students evaluate most negatively Realization of teaching practice. On the other hand, this activity is the easiest for them. It is interesting that students rate positively activities, which are simultaneously associated with high energy (intensity), and vice versa (r_p = 0,484; R^2 Linear = 0,234). Detailed descriptive information can be read from the table.

Table 2. Basic results of descriptive analysis

Evaluated conceptual indicators	**1. Factor of assessment**	**2. Factor of energy**
Preparation for school	3,951	4,570
Active participation in lessons	3,753	3,919
Creating theses	4,481	5,349
Realization of teaching practice	2,813	3,996
Communication with the school	4,401	4,468
Representation of school	3,475	3,877

The most interesting results of the analysis are shown in a two-dimensional semantic space (Figure 1). Dashed lines indicate the central value on both axes. Points in the graph show the results of the evaluated indicators in terms of two factors. Students declare the biggest difference between conceptual indicators Creating thesis and Realization of teaching practice. We believe that students express a significant mismatch between the theoretical and the practical component of their university studies. Creating thesis is assessed as highly valuable and also the most difficult component of the study, on the other hand Realization of teaching practice is the most negative, while the easiest component of the study.

Figure 1. Graphical display of the analysis results



4. Conclusions

Semantic differential is not suitable for the same purposes as a standard scale questionnaire. It is useful when we want to capture the individual meanings of evaluated conceptual indicators. ATER tool appears to be applicable in the context of educational evaluation in the university environment. With its use, we are able to determine how students perceive selected conceptual indicators in terms of positivity - negativity, and also in terms of simplicity - difficulty. Its application is simple and suitable for monitoring a large number of respondents. It allows use of a wide range of statistical methods. It is suitable for triangulation or completion of evaluation techniques.

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COGNITIVE DIAGNOSTIC ASSESSMENT USING THE TRAPEZOID TO EVALUATE 5TH GRADE STUDENTS IN TAIWAN

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Abstract

Traditional test designs do not properly reveal a student's mastery of skills. Thus, many test results help neither students nor teachers gain a better understanding of the meaning represented by scores to make learning more efficient. This study used a trapezoid as test content. The dimensions of the framework included the Van Hiele theory and mathematical content as the vertical axes. The horizontal axes had three levels: concept comprehension, procedure execution and reasoning. The test items' designs were reviewed by mathematics teachers and experts based on the framework, and the test was administered to 811 students in the 5th grade at 11 schools in Taiwan. The study analysed the response data of students via the CTT, IRT, OT and DINA models of cognitive diagnostic assessment to investigate the test items' analyses, assess students' ability estimation and knowledge framework and determine error patterns.

Keywords: *Trapezoid, CDA, DINA, Q matrix, OT.*

1. Research background and motivation

Some scholars advocate integrating cognitive science as well as psychometrics and developing new diagnostic assessment methods to help achieve teaching objectives. A new diagnostic evaluation method, called the Cognitive Diagnostic Assessment (CDA), focuses on the relationship between the latent knowledge structure and the response process of students.

Only a model that is capable of integrating different cognitive variables and parameters can estimate accurately enough to quantify the analysis of various cognitive variables and understand the cognitive structure of the subject. This study used the trapezoid structure of knowledge as the basis for building items and designing a Q matrix. After collecting students' responses, the study used OT (order theory) algorithms to analyse the correlation matrix of selection strategies to establish students' knowledge structure, which was based on the teaching process and reintegration of logical concepts and expert knowledge, to develop suitable structural teaching remedies.

2. Research purposes

The purposes of this study were to build knowledge structure, write items, and design a Q matrix. In order to understand the learning effectiveness of students within the teaching model of the interactive dynamic geometry learning environment, the students were administered a test designed in advance. The study analysed the response data of students via the DINA model of cognitive diagnostic assessment to determine the degrees of difference in cognitive attributes (concept or skills) among different levels of students within different teaching models.

3. Research questions

The study analysed the data via the DINA model of CDA to diagnose the degrees of difference for different levels of cognitive concepts or skills. The research questions included:

What error types are encountered in the 5th grade trapezoid unit?

What are the students' knowledge structures of the trapezoid unit?

4. Methodology

Assessment Framework:

- The vertical axes of the double specification table were constructed using the Van Hiele theory, APOS theory and mathematical content including review (A_0), change shape (A_1), change term (A_2), change formula (A_3), practice (A_4) and relationship (A_5).
- The horizontal axes of the double specification table were constructed using the concept of Bloom's cognitive domain including conceptual understanding, procedural knowledge and problem solving.

The items of mathematical complexity were designed by NAEP including low, moderate and high complexity. Norm samples included purposive sampling from students located in northern (209), central (481) and southern (121) regions. The samples included 811 students from the 5th grade of 11 schools in Taiwan. The distracters of items were designed by error type including common pitfalls in and misconceptions of the trapezoid unit.

After finishing the design, the study built a Q matrix corresponding to the attributes (concepts or skills) of every item that students answered correctly. The study used the Deterministic Input, Noisy "And" (DINA) Gate model to analyse responses and thus diagnose students' mastery of attributes. The DINA model assumes that students can answer an item correctly if they possess all the attributes of the item. However, the model can be influenced by a slip or a guess of an item's parameter.

5. Results and discussion

The results found the averages of IRT item discrimination, difficulty and guess parameters were 1.21, .46 and .18, respectively. The averages of CTT item discrimination (point biserial) and difficulty were .46 and .41, respectively. The Cronbach's reliability test resulted in a .77. There were three items in the slip and guess parameters of DINA over .5, which require further investigation.

As for the 19 attributes of mastery of the trapezoid, the statistics resulted from .12 to .91. With the study set at .6 as the criteria, there were eight attributes of mastery. In terms of student error patterns, the following were found:

a. The abstract concept of variance between two bases and height for determining a trapezoid's area formula was difficult.

b. More than 50% of students had the misconception that the lower base increased to two times the trapezoid area.

c. The concept of equidistant spaces between parallel lines in the height of a trapezoid should be strengthened.

d. It was difficult for students to solve items written by the narrative concept with no graphs.

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INTERDISCIPLINARY PROJECTS IMPLEMENTED IN THE ENTREPRENEURIAL SCHOOL: A NEW TREND IN TEACHING

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Abstract

The new ministerial guidelines for education in Quebec involve, among others, diversification or even a redefinition of educational approaches that focus on the opening up of disciplines and interdisciplinary activities (MEQ, 2006). This interdisciplinary educational trend allows for the exploration of academic knowledge and promotes reinvestment in current and concrete practices (Hasni et al., 2008; LeDoux, 2003). Currently there is an entrepreneurial spirit amongst young people in Quebec. However it appears that school-based entrepreneurship is mainly supported within an advantaged context. There is very little documented research that supports interdisciplinary projects for improving academic success and perseverance in this advantaged entrepreneurial context (Pépin, 2011). The school staff is also recognized as key actors. This research uses a qualitative case study methodology where the main objective is to describe the implementation process of interdisciplinary projects in the school-based entrepreneurial context. Rogers' (2003) and Proulx's (2004) research works serve as theoretical foundations. Two main instruments are employed to collect data from school staff, a focus group (n =6) and individual interviews (n=8). Preliminary results indicate that the majority of interdisciplinary projects include more than two disciplines and a formative assessment for the students. Teacher motivation and commitment is obvious, but little collaboration between them is observed. This study proposes to develop a structured approach for interdisciplinary projects within the school-based entrepreneurial context to include collaboration among the school staff, as well as to ensure the sustainability of these projects.

Keywords: *Interdisciplinary projects, entrepreneurial school, perception of school staff, qualitative methodology, case study.*

1. Introduction and context

The ministerial guidelines for education in Quebec involve diversification or even a redefinition educational approaches that focus on the opening up of disciplines and interdisciplinary activities (MEQ, 2006). A first interdisciplinary educational trend allows for the exploration of academic knowledge and promotes reinvestment in current and concrete practices that concern both, young people and society (Hasni et al., 2008; LeDoux, 2003). Favoring interdiscipline in school context facilitates broad and overlapping learning (MELS, 2006) and it's also a motivating teaching method for students (Samson, Hasni, & Ducharme-Rivard, 2012). A second trend aims to promote an entrepreneurial spirit amongst young people in Quebec, especially throughout the Youth Entrepreneurship Challenge (Secrétariat à la jeunesse, 2004) and Youth Action Strategy (Secrétariat à la jeunesse, 2006), two initiatives from the government of Quebec. In this situation, it appears that school-based entrepreneurship is mainly supported within an advantaged context. There is very little documented research that supports interdisciplinary projects for improving academic success and perseverance in this advantaged entrepreneurial context at school (Pépin, 2011). Thus, the main objective of the present study aims to describe the implementation process of interdisciplinary projects in the school-based entrepreneurial context.

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2. Conceptual framework

The diffusion of innovations of Rogers (2003) and steps for project implementation developed by Proulx (2004) serve as theoretical and methodological foundations for this study. First of all, the model of five stages in the *innovation-decision process* (Rogers, 2003) is presented as follow: 1: Knowledge, 2: Persuasion, 3: Decision, 4: Implementation, 5: Confirmation. This *process* involves that the individual, in this case the school, must first be aware of the innovation in order to adopt a positive or negative attitude towards it. Subsequently, the school must either decide to adopt or reject the innovation. If the school decides to support it, the next step of Rogers theory (2003) will be the implementation of this innovation and the final one, confirmation in time. The second theoretical framework (Proulx, 2004) consists of 4 steps related to the implementation of educational projects: 1: Preparation, 2: Implementation, 3: Evaluation, 4: Disposition. These steps consist, firstly, to clarify the educational intention, choose the theme of the project and to structure the major stages of it. Subsequently, when the project is deployed, it's necessary to form student teams to be able to collect all the information and resources available. At this stage, an emphasis is placed on project coordination. During the third step, evaluation processes are also implemented by the types and the evaluation methods used. The project concludes with the disposition and presentation of the project to the class, to the school and/or to the community.

3. Methods

This research prioritizes a qualitative case study methodology that allows to thoroughly investigating a phenomenon, a group, an individual unit or a group of individuals in order to have an accurate and complete description and interpretation (Gagnon, 2005; Meriam, 1998). An entrepreneurial school was chosen where many interdisciplinary projects have been deployed for many years. Two main instruments are employed to collect data from school staff, a focus group (n=6) and individual interviews (n=8). The focus group was privileged to examine how the ideas, representations are expressed and articulated socially (Geoffrion, 2003) while the individual interviews gathers the opinions and views of participants to facilitate understanding and interpretation of realities (Poupart et al., 1997). The focus group (approximately 50 minutes) covered 15 questions divided into Rogers' steps (2003) and the individual interviews (approximately 40 minutes) included 20 questions according to Proulx's steps (2004). All completed interviews were transcribed and the qualitative data were analyzed using strategy of L'Écuyer (1990). The NVivo 10 software was used as a support to conduct these analyzes.

4. Results

Preliminary results, from the focus group and individual interviews, indicate that the majority of interdisciplinary projects include more than two disciplines, especially related to the disciplines of mathematics and French language, the students' mother tongue. They are implemented to meet specific needs from the community; in turn, the community gives back personal and financial support for the implementation of the project. However, it's important that projects also take into consideration the interests and needs of students in order to raise their motivation throughout the interdisciplinary project. In addition, the projects represent formative assessment for the students and allow the reinforcement of learning.

School staff motivation and commitment is obvious when projects are deployed, but little collaboration between them is reported. The results also highlight that the school principals have a key role to play in this process, from the preparation to the completion of interdisciplinary projects. This type of project allows teacher and school principals to create new types of relationships with students.

Finally, the interdisciplinary projects help to develop a sense of belonging among students and help to increase entrepreneurial skills, including teamwork and cooperation. These projects provide a sense of pride to the school and contribute to enhance motivation among students.

5. Discussion and conclusion

Our results are in line with other studies revealing that interdisciplinary projects allow learning reinforcement in concrete practices (Hasni et al., 2008; LeDoux, 2003). Furthermore, this project allows the transfer of skills from an academic discipline to another one, which leads to greater integration of knowledge (Hammond & McCallum, 2009; Samson et al., 2012). In this context, it would be interesting

to develop a clear evaluation framework for assessing student learning throughout the project deployment.

In light of our results, little collaboration occurs between teachers during the deployment of interdisciplinary projects. However, we know by now that it's important to have a close collaboration between teachers and to have support from the school staff during interdisciplinary experience (Hammond & McCallum, 2009). This collaboration has many advantages including reduced isolation and uncertainty (Pompson, 2005) and sharing ideas on teaching strategies and material resources (Erickson, 1996).

Our results agree with those of the literature (LeDoux, 2003; Proulx, 2004) that interdisciplinary projects are motivating teaching method for students. This project is chosen according to their interests and needs and allows them to participate in decision-making related to the objectives and to the resources to achieve it.

In conclusion, this study highlights several important elements to be considered during the implementation and deployment of interdisciplinary projects and the potential effects of these projects among students and teachers. This study suggests to develop a structured approach for interdisciplinary projects within the school-based entrepreneurial context. This approach includes collaboration among the school staff and the development of a clear framework for the evaluation of target competencies in the disciplines involved in the interdisciplinary projects, as well as to ensure the sustainability of these projects.

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DEVELOPMENT AND PRELIMINARY RESULTS OF THE MULTICULTURAL AWARENESS SKILLS AND KNOWLEDGE SURVEY

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Abstract

Based on data from the National Center for Education Statistics in the United States, the public school student population is becoming more diverse (2011). As a result of this, teachers need to be culturally competent so they can meet the unique needs of the diverse student body they will be teaching. This quantitative study offers an examination into the creation of an instrument, the Multicultural Awareness, Skills, and Knowledge Survey (MASKS), used to measure the cultural competency of pre-service teachers, as well as a preliminary analysis of the data findings.
This poster presentation provides a comparison of four cultural competency survey instruments used to design the MASK, the steps used to create the survey, and results of the pilot and a final field test of the instrument. The study yielded 446 usable responses. Exploratory factor analysis was used to narrow the number of survey items and determine internal validity, whereas Chronbach's alpha was used to determine reliability. The outcome of this study was a valid and reliable survey instrument which can be used to measure the cultural competency of pre-service teachers.

Keywords: *Teacher education, multicultural, diversity, cultural competency.*

1. Introduction

This quantitative study offers a preliminary examination into the creation of a survey instrument used to measure the cultural competency of pre-service teachers. Using Sue and Sue's (2003) conceptual model, the domains of *awareness, skills*, and *knowledge,* were adopted as the scales for this survey development. While Sue and Sue's model was originally designed for counseling, some educators have adapted it to education related surveys (D'Andrea, Daniels, & Noonan, 2003; Prieto, 2012; Spanierman, et al., 2010).

I used the following definitions for this research: (1) *Awareness* – Extent to which pre-service teachers understand "(a) self and others as cultural beings, (b) their attitudes and biases, and (c) the need to create culturally sensitive learning environments for all students" (Spanierman et al., 2010, p. 445). (2) *Skills* – Extent to which pre-service teachers engage in behaviors that are culturally congruent and sensitive with diverse cultures; use culturally relevant resources; and seek to eradicate "oppressive, stereotypical and prejudicial attitudes and behaviors" (Prieto, 2012, p. 50). (3) *Knowledge* – Extent to which the pre-service teachers understand "culturally responsive pedagogy and instructional strategies related to diverse populations, major sociohistorical and current sociopolitical realities, and cultural dynamics that may affect between- and within-group differences" (Spanierman, et al., 2010, p. 445).

2. Design

Based on previous survey development research (Fraser, 1986; Walker, 2003), this investigation follows clearly defined steps to create the survey, a review of the pilot by both experts in the field and pre-service teachers, and a final field test of the instrument with a larger population of pre-service teachers. The results of the survey field test are examined, which includes analyzing all survey items as a whole and the individual scales to determine validity and reliability.

Four surveys served as a guide to designing the Multicultural Awareness, Skills, and Knowledge Survey (MASKS). These instruments were Henry's (1986) Cultural Diversity Awareness Inventory (CDAI); D'Andrea, Daniels, and Noonan's (2003) Multicultural Awareness-Knowledge-Skills Survey – Teacher (MAKSS-T); Spainerman et al.'s (2010) the Multicultural Teaching Competency Scale (MTCS); and Prieto's (2012) Multicultural Teaching Competencies Inventory (MTCI). I chose not to use any of these previously created instruments because only one of them, the MAKSS-T, had valid and reliable scales for *awareness, skills*, and *knowledge*. However, the MAKSS-T did not use the most rigorous guidelines with designing their instrument.

3. Methods

This investigation included survey development and data analysis with exploratory factor analysis. The development of this survey followed three stages (1) identifying and reviewing salient scales for other instruments; (2) adapting previously developed scales, creating new ones as needed, and writing individual items; and (3) field testing the instrument and analyzing the data. The study employed a nonprobability sample of convenience of pre-service teachers taking one of two education related courses. The MASKS instrument had items grouped initially in three scales - *awareness*, *skills*, and *knowledge* - and utilizes a 5-point Likert-type response scale to gather participant's answers: 1 – not at all, 2 – to a very small extent, 3 – to a moderate extent, 4 – to a great extent, and 5 – to a very great extent.

4. Discussion

4.1. Validity and reliability

The validity of the MASKS was determined in two ways: using experts to establish content validity (Rea & Parker, 2005; Vogt, King, & King, 2004) and using factor analysis to explore internal construct validity (DeVellis, 2012). Construct validity "is the extent to which a measure 'behaves' the way that the construct it purports to measure should behave" (DeVellis, 2012, p. 64). I analyzed the 446 usable responses to the the 64-item MASKS field test for validity through exploratory factor analysis. Factor analysis "is a statistical analysis that can assess which variables 'hang together' and how different this group of variables is from other sets" (Streiner, 2013, p. 111).

Using 0.60 factor loading as the cut-off, 54 items remained with two a posteriori subscales for *knowledge* and *skills* and three a posteriori subscales for *awareness*. For the *knowledge* scale (K), the two a posteriori subscales became (K1) "knowledge of institutional barriers and teaching strategies" and (K2) "knowledge of gay, lesbian, bisexual, and transgendered issues" (GLBT) as they relate to education. One a posteriori subscale for *skills* became (S1) "skills and ability to teach and assess diverse populations" and the other being (S2) "skills to comfortably communicate with diverse populations." The first a posteriori subscale for *awareness* was that of (A1) "awareness of the cultural biases and stereotypes that the pre-service teacher brings to the classroom." The second subscale became (A2) "awareness of the how the pre-service teachers' cultural background influences their teaching," and the third was (A3) "awareness that the academic difficulties that students have are not the fault of the student."

I used Cronbach's Alpha (α) to determine reliability which measures the internal consistency of a survey instrument. DeVellis (2012) states that 0.70 to 0.80 is respectable, 0.80 to 0.90 is very good, and George and Mallery (2001) suggest the closer the alpha is to 1 the greater the internal consistency. As depicted in Table 1, the subscales of K1, K2, S1, S2, and A1, A2, A3 all resulted in alpha scores of 0.90 or higher, with A2 - Awareness of Cultural Background and Influence - having the highest alpha at 0.97. The subscales K2 - Knowledge of Gay, Lesbian, Bisexual and Transgendered issues related to education - and the sub-scale S2 - Skills of Comfortable Communicating with diverse populations - measured the lowest alpha score at 0.90 each. However, these are still very high alpha scores. The scales of *knowledge*, *skills*, and *awareness* also produced high alpha scores with the *awareness* scale being the highest at 0.97.

Table 1. Cronbach's Alpha Coefficient for the MASKS Scales and a Posteriori Subscales

Scale	A Posteriori Subscale	Number of Items	α Reliability
Knowledge		**12**	**.93**
	(K1) Institutional Barriers Teaching Strategies	7	.91
	(K2) Gay, Lesbian, Bisexual, Transgender	5	.90
Skills		**14**	**.95**
	(S1) Ability to Teach and Assess	10	.95
	(S2) Comfortable Communicating	4	.90
Awareness		**28**	**.97**
	(A1) Cultural Biases and Stereotypes	9	.96
	(A2) Cultural Background Influence	12	.97
	(A3) Academic Difficulties	6	.94
MASKS Survey Overall		**54**	**.97**

4.2. First study using the MASKS

The first study using the MASKS was a snap-shot look at 446 pre-service teachers' levels of *knowledge*, *skills,* and *awareness* related to a variety of educational issues. The major findings in Table 2

show that students had limited knowledge when asked about their knowledge of gay, lesbian, bisexual, or transgender (GLBT) issues as they relate to education; conversely, students responded to a great extent that they have the skills and are comfortable communicating with diverse populations.

Table 2. Mean and Standard Deviation of MASKS

	K1	K2	S1	S2	A1	A2	A3
Mean	3.30	2.87	3.94	4.35	3.62	3.89	3.95
Std. Deviation	1.10	1.23	1.01	.913	1.18	1.14	1.07

5. Conclusion

The results of this investigation were the creation of the MASKS, which is a valid and reliable 54-item survey instrument that measures the cultural competency of pre-service teachers. The survey started with the three scales of *awareness, skills*, and *knowledge*. The final survey has seven a posteriori sub-scales; two for both *knowledge* and *skills*, and three for *awareness*.

A preliminary analysis of the data comparing means for each of the sub-scales demonstrates that pre-service teachers have limited knowledge of education issues about GLBT population; on the contrary, the results suggests that pre-service teachers are comfortable communicating with diverse populations. With this knowledge it appears that educator preparation programs need to provide pre-service teachers more experiences learning about GLBT issues in education.

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PEDAGOGICAL PARADIGM SHIFT IN HISTORY TEACHING AND TEACHER TRAINING IN HUNGARY

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Abstract

The principal aim of the presentation is to show the general characteristics of the new pedagogical culture of the 21st century, the changed methods of teaching and learning with particular focus on history teaching. In the first part of the presentation the characteristics of the new pedagogical thinking and practice will be introduced, which will be followed by the trends in teacher training in international practice and in Hungary. After having listed the most important issues and questions of the topic, the presentation outlines the new expectations of history teaching and history teachers in international and Hungarian practices. The section is followed by a short review on the main trends in history teacher training both in international and Hungarian practices, also referring to how much present teacher training in Hungary meets the new expectations. Finally, a list of trends, long- and short-term tasks of the issue is given.

Keywords: *History, teaching, teacher training, methodology, pedagogy.*

1. Introduction

European educational systems face a serious challenge due to the social changes on the turn of the 20th and 21st century. In developed, knowledge-based societies knowledge has changed its meaning and connection to the world of economics. The digital revolution of the millennium and the socio-economic and cultural changes redefined the concept of knowledge, therefore, these societies and the demands of the labour market need a competence-based definition. The earlier concept of knowledge based on subject-specific skills is replaced by a new idea, which is characterised by literacy, expertise and competence.

The changing approach to results in learning also influenced the process of teaching learning methods because it modified the roles and functions of teachers: it resulted in a new pedagogical approach in which – instead of the mere knowledge-sharing role – teachers became knowledge-supporters.

Based on this, teachers must stand their ground in a different educational system with new characteristics. At the same time, the increasing value of knowledge, the direct connection between education and economics makes it utmost important for teachers to succeed in their work.

2. The new pedagogical culture

The evolving pedagogical culture has new general characteristics. It introduces a brand new idea of knowledge which shows the changing role of teachers. Teachers are no longer just transferring or sharing knowledge, they should become supporters of the learning process. Their role of informal and non-formal learning is expanded due to the different expectations from the job market. The main focus of learning are the key competences, basic skills (literacy, numeracy) and the 4Cs model (critical thinking, communication, collaboration, creativity).

3. International trends in teacher education

At international level, pedagogy turned into an acknowledged profession and became field of interest (OECD research, McKinsey research), therefore, the quality of teacher education became a priority of the EU. The key trends are based on international documents of the EU's teacher education policy which aims at getting the most talented students take part in teacher training. The most important

elements of international teacher training policy is to grant the opportunity for continuous professional development and provide a high level of training methods. The training must emphasise the role of practical training with good and best practices, keeping the paradigm of LLL (lifelong learning) and LWL (life-wide learning) in focus.

4. Changes in teacher education in Hungary

In the last 10 years, major changes in teacher education has been implemented in Hungary. In the Bologna process (introduced in 2006), teacher training begins only after BA level and it had a unified MA training for primary and secondary school teachers. During the first three years, only disciplinary subjects were in focus, which made it difficult to study the main components of teaching (disciplinary, didactic and pedagogical fields) in context. This system – despite the significance of pedagogical subjects – made it impossible for teachers to prepare for problematic cases or differentiated teaching.

In 2013, teacher education returned to the pre-Bologna system: although the first three years are unified as it was in the Bologna system, during the training years, the course of study is different for primary and secondary school teachers, and practical training receives more emphasis. In contrast with the earlier system, the longer training (5-6 years) gives opportunity for a thorough education with a balanced content of the fundamental disciplinary subjects and general pedagogical theory. The structure of the training is undivided in the first three years and dual according to the teaching level (primary, secondary).

5. New paradigm for history teaching in the 21st century

In the 21st century, history teachers have to fulfil new requirements. As facilitators and supporters of the learning process, teachers should develop key competences and key concepts, critical thinking and communication, improving historical thinking and subject-specific skills, such as orientation in time and space, interpretation of different documents, facts and data, understanding of causality, identifying different scripts and templates. They should also implement new pedagogical methods in order to make learning enjoyable: their methodological repertoire should comprise a wide range of new pedagogical practices (such as interactive learning, solving different development tasks, theatre-pedagogy and storyline methods, projects, portfolio, presentation, gamification, group work, field work, etc.) which can support children in self-sufficient learning.

6. Characteristics of today's history teaching in Hungary

In contrast to the demands towards history teaching, practice shows that teacher and knowledge are still in focus. Large amount of data, facts, events and concepts are learned in lessons. The chronological perspective dominates – thematic and cross-curricular approach is not typical. There is not enough time for exercises developing historical thinking. The use of new pedagogical practices is not common, however, a methodological renewal would give scope for enjoyable learning.

7. New expectations for history teachers in Hungary

As opposed to the present situation of history teaching in Hungary, there are new pedagogical expectations towards teachers. It would be crucial to follow current international and EU trends, to adapt EU key competences (such as active citizenship) and key concepts.

During the class, children should be able to develop critical thinking and communication, they should study history in its depth instead of learning a huge amount of data and facts. More focus should be put on modern and contemporary history. Besides cross-curricular elements in textbooks and classroom activities, problem-solving tasks and inquiry-based teaching should be put into practice. The purposes of the National Core Curriculum and framework curricula (implemented in 2010), which specifies the fundamental goals of public education, should also be substantiated.

8. Perspectives, trends

As for the future, goals and challenges arise considering history teacher education and in-service training. The education of history teachers must ensure that the ideas of lifelong learning (LLL) and life-wide learning (LWL) appear in the curricula, international and EU key competences, key ideas are realized and practice-oriented education are subject matters of teacher training. We also have to adapt to

the changed role of teachers, support learning with new pedagogical methods and also IT-skills (digital literacy), with complex knowledge of history theory and methodology. These long-term tasks can guarantee the sustainability of democracies.

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RESULTS OF PRACTICE ORIENTATED PROJECT WORK IN INTERDISCIPLINARY TERM-OVERLAPPING STRUCTURES

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Abstract

At the HTW Berlin (a University of Applied Science) we offer our students a new kind of elective courses starting a few semesters ago. This involves two consecutive courses; both arose within the context of natural science and of technology problems. These courses are open to all students in all terms. The students work in small interdisciplinary and term-overlapping project teams (2 to 6 students) and realize a project idea of their own. The practical results are widely spread.
This work presents a selection of these results. Some practical results are very impressive considering to the scheduled workload for the course (100 hours) and the very small budget (50 €) for the students (using own funds or fundraising are allowed).
Another idea of the Project Laboratory courses is that the students should present their projects to the public.

Keywords: *Practice-orientated project work, interdisciplinary term-overlapping structures, multiple benefits.*

1. Introduction

To join learning in elective courses with practice orientated project work in interdisciplinary term-overlapping structures is an effective teaching method. It is characterized by very active participation by the students in the teaching process. Students exert fundamental influence on the contents in the courses, because they usually create and realize their own project ideas. Most of them are highly motivated during a whole course [1] (Bailleu, Kröger, Menge, & Münchow-Carus, 2015).

Often project work in the teaching process is considered to be inefficient due to necessary communication between and varying interest of group members. Sometimes this leads in a mandatory course to frustration of the students and bad project results. In our courses this problem is reduced because only students with similar interest level create a group. Also these courses are open to all terms in Bachelor's and Master's degree programs. So the project work is done in interdisciplinary term-overlapping structures, in which the participants of the courses can learn from each other.

The number of participants of these elective courses is continuously high and the rate of drop out is only round about 5% in contrast to other courses with 15 to 20%. This shows that the concept of elective practice orientated project work is hugely successful for students and teachers alike.

2. Methods and goals of the courses

At the beginning of the courses students introduce themselves and present their project ideas. The members of the teaching staff list additional project proposals, too. The realization effort of the ideas is discussed with the all course members and the teaching team. Ideas meeting the time, budget and scientific contents requirements of the course get accepted. While the discussion the students build the project groups. At the end of the course each participant has to present its part of the group work to the public; practical project results are presented for example during an "open day" at our university, in schools or on the "Long Night of Sciences".

Each group gets a direct mentor from the teaching team which is chosen by the project content. Even so the main focus of the course is not to teach technical or scientific knowledge but to teach skills required in groups (e.g. resolving conflicts, time management, presenting results and more). This prepares the students for a realistic working environment after their studies.

Another goal is to provide a different learning opportunity instead of classical lectures and exercises. Many students gladly accept this practical orientated work during their studies. Furthermore some groups provide results which can be used in others courses for demonstrations.

3. Examples for project results

The results of the projects are widely spread [2] (Kröger, 2016). Often problems of energy generation are in the focus of interests and practical projects of our students. For instance a project group build inspired by existing concentrated solar power plants a working model of such power plant. A concentrated solar power plant (CSP) version vs the realized model is shown in Figure 1. A field of mirrors concentrates sunlight onto a solar power tower. Other selected examples for project results in this content were a self-made wind generator, a Tesla coil and an electrostatic generator based on a Kelvin water dropper. Such practical results are impressive considering to the scheduled workload for a course (100 hours) and the small budget (50 €) for a project group [1] (Bailleu et al., 2015). The results are used as demonstrators in the physics lesson of several Bachelor's degree programs.

Figure 1. CSP-Concentrated solar power plant

(a) Inspiration of the project idea:
A concentrated solar power plant (CSP) in Nevada (USA)

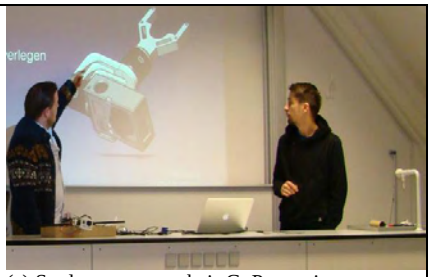
(b) Model of a concentrated solar power plant (CSP) [1]

Even industrial products are results of these courses, for example the two camera gimbal projects (Figure 2). The left one camera-gimbal was realized for manual use in helicopters. It could be developed and prototyped because an industrial sponsor has been found. It became an industrial duplicate part by now. The other one was realized for automatic use of a GoPro-action-cam.

Figure 2. Camera gimbals

(a) Handheld gimbal [1]

(b) Automatic GoPro-version [1]



(c) Students present their GoPro-action-cam-gimbal project

Figure 3. Driving information for bikers

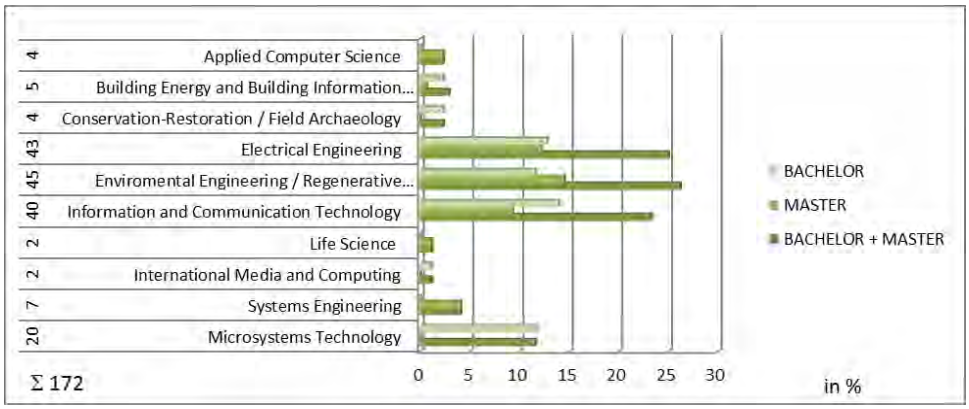
Also a group developed additional bike displays during two consecutive courses. A group of only two students developed hardware for bikes and an App for Windows Mobil which provides driving information of a motorcycle (Figure 3). A smart phone is used additionally to the normal bike display. The result of this project appears almost like a professional development.

So, multiple benefits derive from the presented practice orientated project work in interdisciplinary term-overlapping structures in more than one case.

4. The course in some data

172 participants took place on these elective courses during the last seven semesters. They came from different programs (Bachelor´s and Master´s degree programs (Figure 4)). The majority of participants are enrolled in a Bachelor's program with 56% and the remaining 44% participants are Master's students.

Figure 4. Programs where the participants came from



The number of participants of these elective courses is continuously high with 20 to 25 students per semester. This is limited only by the financial resources. The drop out rate is only around 5%, this is significant better than classical lectures with 15 to 20% drop out. The main reason for drop outs in this project courses is high workload through the amount of parallel lectures during the semester. Also each one of these elective courses adds further workload, since many students underestimate the time needed to complete such projects. Most students invest significant more time than scheduled. This shows a great acceptance of our participants.

5. Results and discussion

We noticed that small groups of 2 to 3 members get in general better practical results than bigger groups of 4 to 6 members. This is in contrast to what we expected. But since the main goal of the course is to teach to work in groups, bigger groups also reach the objective of the course. As consequents of this observation the teaching team has to supervise bigger groups in another way than smaller groups (e.g. more milestones).

This course concept is a huge success, which is recognized by the university by adding the course to the international program.

The acceptance by the students and the group project result which can increase the visibility of the university shows that this teaching method is also recommendable to other educational institutions.

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THE EFFECT OF PROBLEM BASED LEARNING ON ORAL COMMUNICATION COMPETENCY FOR AN UNDERGRADUATE KINESIOLOGY COURSE

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Abstract

Purpose: The aim of this study was to ascertain the effect of Problem Based Learning (PBL) on student oral communication competency gains and to determine how student goal orientation influenced this skill acquisition.
Methods: Eighty students from two consecutive undergraduate Kinesiology courses (Spring 2014 & 2015) formed into 29 small groups and were studied. Oral communication competency was assessed using a customized rubric and digital recordings of student presentations. Individual student goal orientation for their PBL learning activity was quantified via a ranking survey and then aggregated for each group. Changes to oral communication competency across time were tested using a dependent t-test; a linear regression equation assessed the relationship between oral communication change score and aggregated group goal orientation; $\alpha < .05$.
Results: Significant inter-rater agreement was found at both time points for oral communication rating, and student groups demonstrated significant oral communication gains across time. However, aggregated rankings of student goal orientation did not predict these gains.
Conclusions: Collaborative learning was shown to improve students' oral communication competency. Future study is required to determine the influence of student motivation and goal orientation, in relation to the various phases of knowledge creation occurring within student groups, on oral communication competency.

Keywords: *Cooperative groups, communication skills.*

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1. Introduction

A paucity of evidence exists to support the use of traditional lecture for the simultaneous achievement of educational goals, while the literature supporting alternative collaborative learning approaches is conclusive (Felder & Brent, 2004; Prince & Felder, 2006). Therefore, to achieve sustained content mastery, enhanced intellectual development, and professional competency growth, collaborative learning paradigms such as Problem Based Learning (PBL) are needed for undergraduate Kinesiology education.

Although the findings are equivocal for a positive effect of PBL on exam scores, content mastery is theorized to be improved in the PBL setting as authentic problems develop a need to know the core content which can then be integrated into existing cognitive structures (Mandeville & Stoner, 2015). PBL has been shown to promote deep learning (Dods, 1997) in which students take agency for their education and question expert opinion. Students engaged in this method are iteratively brought to a more advanced state of intellectual development (Biggs, 1999; Blumberg et al., 2002; Felder & Brent, 2005; Norman et al., 1992; Prince & Felder, 2006). For students entering healthcare careers, the value added of PBL is the promotion of transferable and enduring professional competencies which students may be able to avoid in the traditional lecture setting, but which they will need as effective professionals. These professional skills include: teamwork, problem solving, critical thinking, oral communication and evidence-based practice.

We hypothesize that oral communication gains will be present at follow-up testing and that groups composed of students with socially-oriented "we" goals would show greater oral communication competency development.

2. Methods

Eighty students from two consecutive undergraduate Kinesiology courses (Spring 2014 & 2015) formed into small groups (n = 29) and were studied at a comprehensive public University. The

Kinesiology courses lasted 15 weeks and included two 50-minute class sessions and a 2.5-hour laboratory session/week. The same professor (D.S.M.), using a student-centered, collaborative learning teaching strategy called Problem Based Learning (PBL), taught students using identical course content and learning goals. The PBL teaching strategy required students to self-select into small groups (3-5 students per group) based on shared career goals. Each group completed a problem solving sequence (evaluated using a rubric) in order to develop a case report addressing an open-ended, real world human movement problem (Figure 1). During the first 60 minutes of laboratory, the groups' findings were orally presented (12-minute maximum time limit) as PowerPoint presentations in which the group determined the content with minimal professor supervision.

A customized oral communication rubric was used to measure student group competency This rubric was designed using the constraint that oral communication competency was demonstrable across four criteria: delivery, use of terminology, supporting material, and audience engagement. The delivery criterion evaluated each group member's use of nonverbal communication cues and techniques (e.g., hand gestures, bodily posture, eye contact, vocal expressiveness) to coherently communicate messages to the audience. The terminology criterion measured the extent to which clinical terminology appropriate to the course content was used, in addition to providing layman explanations to enhance the audience's comprehension of the topic. The supporting material criterion assessed the use of demonstrations, illustrations, and models to help explain details in the presentation. The audience engagement criterion measured the ability to demonstrate use of various presentation techniques (e.g., demonstrating therapeutic exercises, posing thought-provoking questions to the audience, using humor or games to elicit positive responses from the audience) to interact with and engage the audience. Collectively, these four criteria were selected to provide direct and observable evidence to be used for a blinded rating oral communication competency during digital recordings of student group presentations.

Student goal orientation was anonymously assessed using a ranking scheme in which individuals prioritized their most important goal during laboratory learning activities. Students ranked (1 - 4) a list of four possible goal orientations based on a simplified matrix previously described by Wosnitza and Volet (2009). Students chose a goal based on the outcome (performance or learning) and the direction (self or social). After selecting their first goal priority, students then completed their descending order ranking for the remaining goal orientations. Each student's goal orientation ranking was then aggregated with those from all members in his/her group.

Oral communication was assessed during week 3 (P1) and week 12 (P2) of the 15-week semester. At each time point, student case report presentations were digitally recorded and uploaded to a server for a future blind rating using the customized oral communication rubric. In between data collections, students engaged in the PBL operations of oral presentations, peer review, and formative assessment using the same rubric. Prior to oral communication assessments, the study raters (C.A.G; T.K.H; L.A.V) conducted pilot sessions using the rubric to improve the reliability and validity of the instrument. Following the final presentations at P2, students were asked to rank their goal orientation during the laboratory activity. Student goal orientation rankings were double blinded from the professor and averaged for each group. A dependent t-test was used to assess changes to oral communication competency across time; a linear regression equation was used to assess the relationship between oral communication change score and aggregated student goal orientation; $\alpha < .05$.

3. Results

Thirty-two groups totaling one hundred percent of the students began the study as part of their course work, however three groups did not complete the semester together and their data were removed from future analysis. These groups disbanded via a mechanism by which groups were able to anonymously rate their colleagues' weekly contribution, and these ratings were used to remove malingering students who did not respond to feedback. Malingering students then completed the weekly laboratory case reports as individuals.

The inter-rater reliability of the oral communication rating was shown to be significant and of moderate strength at both P1 ($r = .629$, $p < .0001$) and P2 ($r = .518$, $p = .004$); thus, the evaluator scores were averaged at both time points. A significant increase across time was found for the mean group oral communication rating ($t = -3.20$, $p = .003$) between P1 (9.40 ± 2.70) and P2 (10.66 ± 2.23. The prediction model for oral communication change score, including the beta coefficients for each combination of aggregated student goal orientation, was not significant.

4. Discussion

Our belief that higher education is not just the acquisition of content information and G.P.A., but also achieves competency development led to the purpose of this study which was to quantify student gains in the professional competency of oral communication for a Problem Based Learning (PBL)

Kinesiology course. Additionally, we aimed to describe the association between student goal orientation and these competency gains. Our results indicate that students engaged in a PBL Kinesiology course demonstrated significant gains in oral communication competency across a 15-week semester. However, our results did not support our secondary hypothesis that student groups having an aggregated, socially-oriented goal prioritization would demonstrate increased group oral communication competency gains.

The students' oral communication competency gains may have been attributed to weekly exposure to the PBL operations of oral presentations and peer review formative assessments. Previous studies report equivocal results for the effect of PBL on oral communication competency gains. When studying the effect of PBL on oral communication for undergraduate Geography students, students self-reported no gain for their perceived oral communication competency, with students relying on group members with already-established oral communication skills during group presentations (Spronken-Smith, 2005). Differences between this report and our finding of oral communication competency gains may be the result of methodological differences.

While this study reports oral competency gains for PBL Kinesiology course work, further work is required to more sensitively quantify the various goal orientations which students encounter in collaborative learning. Several factors limit the ability of this study to reveal how oral communication competency was socially constructed. The measure of student goal orientation was limited by the sensitivity of the rank order instrument utilized. Additionally, the well-being, or student affect, goal orientation may be a better discriminator of group goal profile than the performance goal orientation. The social aspect of motivation requires a measure of group member interactions. Lastly, based on Nonaka's model of knowledge creation, student goal orientation may require separate assessments for the various phases and environments in which students learn collaboratively. Future efforts are needed in order to describe the role of student goal orientation in the collaborative learning environment. This information could be used to organize student groups to optimize social motivation underlying professional competency development.

5. Conclusions

The results of this study indicate that the Problem Based Learning (PBL) environment promotes students' development of oral communication competency so as to prepare them for 21st century careers. While this study did not find the prediction model for student goal orientation to be significant, future work is required in order to elucidate the role that student motivation plays in the development of the metacognitive skills needed for health care professionals. Specifically, the social component of motivation should be given further scrutiny as well as the examination of goal orientation across the various phases of knowledge creation in the collaborative learning environment.

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THE PRACTICAL TRAINING OF STUDENT TEACHERS THROUGH UNIVERSITY NURSERY SCHOOL

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Abstract

For the realization of the practical part of the nursery teachers training Faculty of Humanities of Tomas Bata University (TBU) in Zlín uses its own University Nursery School (UNS). UNS is used in priority by the staff of the University which is its founder. At UNS there is realized longitudinal research study which will result in a case study about this institution. Within the set research strategy we do survey, interview the staff of UNS, parents, students and the representatives of the founder and also do observation and analysis of the content of the students´ written reflection from their practical training at UNS. The aim of the research study with the students has revealed how they reflect the conditions for the development of their professional skills and which of the characteristics of UNS they consider specific in relation to acquire relevant experience for their future profession. The result of this analysis contains three basic conclusions. Students perceive a tight binding of UNS to the University that establishes it and participates in its specialized supervision. They also evaluate the specificity of parents who are in the most cases academics and students of the TBU what significantly determines the cooperation with them. At last but not least they expressed strong belief in the fact that the age group of children (around two years old) is similarly specific since pre-school education at nursery schools in the Czech Republic is primary for children from the age of three to six. All of these characteristics of UNS put increased demands on the preparation, organization of work and teaching at UNS.

Keywords: *Research, student, parents, university, practical training.*

1. Introduction

FHS UTB in Zlín (Czech Republic) trains future nursery school teachers whithin the Bachelor's and Master's degree in university education. For the realization of the practical part of their university training it also uses its own University Nursery School (UNS). Its founder is the University and its concept meets the criteria of the corporate parent nursery school. It allows even according to legislative to accept primary children of the university staff according to the decision of the University so as to prevent discrimination against children. Companies with its own corporate parent nursery school are interesting to new potential employees, primarily they provide option to coordinate parental and work roles and early return from parental leave but also loyalty and reduced turnover of their staff.

UNS has status of teaching nursery school. It means that the UNS is an important partner of the University in the field of the student teaching practice and training as well as of its options for the realization of educational research. There is also ensured professional supervision and cooperation with the workplace and academic staff of the University who educate future teachers. At UNS students have the option for the development of professional competencies in an environment that is continuously connected with the parent faculty.

Teaching practice of students in nursery schools has according to the concept of the University culminating character. At first the student during sitting in on the class watches the environment of nursery school, then during continuous pedagogical practice gets acquainted with the profession and duties of nursery school teacher, at the end runs its own educational outputs. These practical trainings are strictly supervised by the university teacher of didactics. At the end of the study student will undergo continuous pedagogical practice that is accompained by the creation of the portfolio of practical trainings and personal reflections from the whole practice. This takes 4 weeks. Student forms her/his professional competences especially subject, didactic and psychodidactic and general pedagogical competences as well as diagnostic and intervention competences. During the practical training there is also space for the further development of social, psycho-social, communicative and managerial competences as well as for personal competences. Student in his final part of the practice gradually uses knowledge from previous practical trainings as well as from the completed subjects of the early study.

2. Research design

In order to explore and understand UNS we realize longitudinal research investigation in the academic year 2015/2016. We have chosen a qualitative research design. As a research strategy it is used the case study. Within this concept we combine the interpretation of the data obtained from different sources and different research methods. In the creation of case study is thus used several research methods. As for a questionnaire survey with parents, there we even search for degree of self-efficacy of teachers for the cooperation with parents. In the survey we have used own validated research tool (more Majerčíková, & Gavora, 2013). Then we interview UNS teachers and selected parents, students and representatives of the founder, do the observation of teaching and the content analysis of written reflection of students from practice at UNS.

Partial data used as a basis in the case studies are the responses and statements of students. For the purposes of this text we choose the results obtained from the students who in this academic year have undergone continuous practice at UNS which takes place in the final part of the Bachelor studies.

3. Objectives

Survey with students who undergo their practice at UNS is part of a larger research project. The main objective of this research is to explore, describe and characterize the specific type of nursery school-UNS with an emphasis on its relation with the founder. We also have the ambition to understand the uniqueness of the UNS and its interactions with the outside world, especially with the parents of the children and students. We defined the partial objectives:

To map and analyze the key events in the present development of UNS in the context of its relations with the founder.

- To reveal what impact has the character of the relationship of UNS with its founder and parents on the functioning of the UNS with regard to education.
- To understand the process of education at UNS (such as teaching nursery school), which is determined by the presence of student teachers during their teaching practice at the UNS.
- To reveal how students reflect the conditions for the development of their professional competences.
- To reveal which specifics the UNS has in relation to the acquisition of relevant experiences of students for their future profession.

4. Methods

As we have already stated in the context of the case study we apply several research methods. To obtain the information from the students, who are the subject of our interest in this text, we have chosen the half-structuralized interview and content analysis of their twenty-four reflections on the continuous pedagogical practice. We have analyzed transcripts of four interviews and written reflections by the classical technique of open coding. In accordance with the recommendations for data processing in the qualitatively-oriented research we have analyzed the data continuously and record the codes which occur in the data. Subsequently we put them into the concepts and categories and these we have tried to interpret.

5. Discussion

Predictably the students consider the environment of UNS interesting and inspiring. They are at the beginning of their teaching career therefore they consider it inspiring for their practice. Relatively well they are able to identify the individual characteristics of the educational environment which the UNS represents. For example, the level of educational activities, relationships among teachers, relations with the surrounding environment of UNS, method of its control, the level of organization of all activities in the institution, the ability and potentiality of children etc.

As for the specificity of social and educational environment of UNS for developing their professional skills, three key moments - the characteristics of the UNS, clearly emerged from these data.

The first is the relationship to the founder of the UNS, especially to the University Faculty, which ensures the realisation of practical trainings of student teachers. Links with teachers teaching individual subjects associated with practical training at UNS some of them concern as a benefit for the professional development of both institutions-Faculty and UNS. They see it as a possibility for the realization of expert consultations and looking for and making usage of the connection of theory from

practice. The advantage is that they can actually identify this connection through their own experience. The other group of students has interpreted it as „*a restriction of free choice "* pressure and control. In this context then the students perceive a certain diversity in the environment in comparison to normal state nursery school. According to students it means increased demands for the professional preparation of teachers, continuous development of the ability to present herself/himself, discuss, argue own professional opinions and methods etc.

The second specific feature of UNS is a group of parents whose children attend UNS. As we have already stated, UNS is in fact the corporate parent nursery school which has a status of private pre-school institution. It is attended by children of academics and administrative staff and partly even of university students. The great majority of the parents has a university education, what means, for specific cooperation with them, a careful communication, clear professional arguments of didactic methods of the teacher, precise and strong awareness of parents, a wide offer of exclusive activities for children etc. In cooperation with the parents thus it's not mainstream in the chosen methods and forms. It is obvious, and it has been evaluated by the students as well, that the preparation of the cooperation and development of the relationship with the parents place the increased demands on the individual teachers and management of UNS.

The third specific aspect, according to students, is the age structure of children in one of three classes of UNS. Institutionalised pre-school education in nursery schools in the Czech Republic is for children from about three to six years old. At nursery schools in the Czech Republic there predominate the children aged three to five years (more Majerčíková, Kasáčová, Kočvarová, & 2015). Quite seldom there are set up classes for younger children (about two years). The new curriculum for this age group is only now being formed. There is such a class at UNS and it has been primarily set up on the basis of the interest of the parents – academics. Students have the opportunity and even the obligation in the course of practice to work with children up to three years. It is again an indicator that shows the heterogeneity of the educational environment of the UNS on one hand, what emerge as interesting. On the other hand, it again signals the demands on the professional competences of teachers at UNS. The students have, once again through their own experience, the opportunity to take a stand and consider the discussion, which is currently led in the Czech Republic concerning the education of children under three years old.

6. Conclusions

Education of student teachers at TBU in Zlín develops very progressively. Students have the opportunity to go through all three degrees of the University training from the Bachelor´s degree to Master´s degree to postgradual studies. UNS, which has the status of corporate parent nursery school, participates on the development of the professional competences of future teachers as well. It is a partner of the University in providing the educational environment, primarily creates opportunities for direct pedagogical interaction with all participants in pre-primary education. UNS has some specific characters, which even the students-trainees themselves have determined as specific in comparison with standard nursery schools. It concerns the relation with the founder, education of the parents of children and the age structure of children with whom they have a chance to work. UNS has the potential to offer students a relatively heterogeneous educational environment. It provides inspiration and situations which solution may prepare them even better for the varied educational reality in the Czech Republic.

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Virtual Presentations

LANGUAGE DEVELOPMENT OF INTERNATIONALLY ADOPTED CHILDREN

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Abstract

The present paper discusses issues of student diversity, focusing on the language development of Internationally Adopted Children (IAC). The adoption of foreign children constitutes an international social phenomenon of high frequency, due to demographic, sociopolitical and humanitarian reasons. The sociolinguistic shortcomings and traumatic experiences of IAC have been assumed to pose risks of developmental delay on their interpersonal relationships, emotions and particularly on their linguistic skills, affecting respectively their in-school and extracurricular life. Consequently, the purpose of the subject paper is to outline the linguistic development of IAC. For this reason, a literature review strategy is followed, collating and summarizing the findings of the twenty (20) most recent (2000-2015) relevant empirical studies, conducted at European and international level, investigating internationally adopted preschoolers, primary school aged children and adolescents. In all three categories, the IAC's language development seems peculiar; however, it is observed that it does not differ regarding certain stages applicable in typically developing monolingual children, acquiring relatively quickly the current second first language (English or French), although considered a vulnerable social group. Nevertheless, specific language deficits of receptive and productive language delay are identified, by majority in oral speech, which fall outside the sphere of pathology; they depend on IAC's small age at adoption, as well as on their linguistic and adverse psychological and emotional background, in conjunction with the multiple idiosyncratic effects of the school and family environment. In conclusion, until preschool age, by majority indigenous children's language level is reached or approached by IAC. Lastly, owing to the ambiguous and sometimes conflicting findings and methodological limitations of the studies reviewed, further investigation of the sociopolitical, demographic and economic parameters of IAC's language acquisition is expected, in order to benefit both theoretically and on the level of educational practice.

Keywords: *Language development, internationally adopted children.*

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1. Introduction

1.1. Foreign children's adoption phenomenon

Foreign children's adoption phenomenon substantially emerges after the Second World War, when numerous orphaned or abandoned children acquired a family outside the country of their origin, an event also linked to the dissolution of the Eastern Bloc and the massive migration worldwide (Pollock, Price, & Fulmer, 2003). More specifically, in the most recent adoptions at international level children mainly come from the following countries: China, Russia, Ethiopia, Colombia and Ukraine (Elleseff, 2013, p. 45). In fact, the United States (US) annually receive more than 20,000 Internationally Adopted Children (IAC) (Snedeker, Geren, & Shafto, 2007, p. 79).

Nonetheless, though starting out as means of assistance for children who were victims of war, the reasons for which international adoptions are performed since vary. Indicatively, children's population available for internal adoption in Western societies is limited because of the birth rate decline, which is linked, among others, to the legalization of abortion and the wide use of contraception methods. Moreover, many individuals are repelled by the national adoption systems due to the strict conditions laid down for prospective adoptive parents and the long waiting that the related bureaucratic procedures entail (Glennen & Masters, 2002). In addition, at times primarily humanitarian reasons prompt couples from developed countries to adopt Third World children. Lastly, adoption is aimed, according to current social perceptions, in securing the adoptees' physical, psychological and emotional interest (Greenfield, 2011).

1.2. IAC as a vulnerable social group

Owing to several reasons, it has been presumed that IAC face high risks of delay in various areas of development, including interpersonal relationships, emotions and particularly language, respectively affecting their in-school and extracurricular life (Delcenserie, Genesee, & Gauthier, 2013; Hwa-Froelich, 2009; Scott, 2009; Scott, Roberts, & Glennen, 2011). In this context, on the one hand, besides the sociolinguistic deficiencies in the institutions where many of them have been hosted and the trauma often experienced prior to adoption, IAC undergo major life changes partly due to an interruption of the language acquisition process in the biological family's environment (Snedeker, Geren, & Shafto, 2012). Yet, unlike what is believed by many adopters and practitioners, IAC's language development is not the same as bilinguals', exposed to a similar extent in both languages (Gauthier & Genesee, 2011; Geren, Snedeker, & Ax, 2005; Gindis, 2005; Greenfield, 2011). In reality, shortly after their adoption, most IAC lose the language partially obtained over the precedent months or years and begin to acquire another (Delcenserie et al., 2013; Elleseff, 2013). Thus, mainly those adopted at a relatively early age are considered more likely to experience language delay for reasons connected, among others, to an abrupt linguistic turn during the estimated critical age for language's ontogeny (Scott, 2009, p. 66). On the other hand, IAC withstand an interruption of the relationship formed with their birth parents; indeed, many encounter difficulties in building a healthy relationship with their adoptive ones. Accordingly, 27% of the IAC studied by Tan and Yang (2005) had demonstrated rejection towards their stepmothers. At the same time, a disturbed attachment relationship may even have long-term effects on the individuals' behavior and emotional life (Dalen, 2002).

Withal, despite IAC's adverse background, with reference to their linguistic development more and more often moderate optimism is expressed. For instance, investigating children of Chinese origin, Gauthier and Genesee (2011) argue that the unfavorable IAC's past and their removal from the first language's surroundings do not necessarily impede the acquisition of the so-called "second first language". On the contrary, the auxiliary role of a caring and supportive receiving environment (Hwa-Froelich, 2009), together with the balance and the quality of interfamilial relationships, even diverging from the traditional model (Pollock et al., 2003), has been supported.

Consequently, the present paper aims to outline the aforementioned language development of IAC. Therefore, following a literature review strategy, the findings of the twenty (20) most recent (2000-2015) relevant empirical studies, conducted at European and international level and investigating internationally adopted preschoolers, primary school aged children and adolescents, are discussed. Collating and summarizing the indicated research findings, an attempt will be made to draw conclusions regarding the parameters affecting IAC's linguistic skills.

2. IAC's language development

IAC's language development seems peculiar; notwithstanding, as suggested by Snedeker et al. (2007), it does not differ with respect to specific stages applicable in typically developing unilingual coevals (Geren et al., 2005; Glennen & Masters, 2002). Indeed, within 6-12 months after their adoption, IAC lose their receptive and productive linguistic competence relating to the language at least acquired in their home country (Elleseff, 2013; Gindis, 2005); such losses occasionally occur more rapidly in younger children, i.e. before reaching preschool age (Scott, 2009). Correspondingly, during their first year in the host country IAC acquire rather quickly their second first language, given their typical redeployment from environments deprived of (e.g. an institution) to others replete with linguistic stimuli (including school surroundings) (Delcenserie et al., 2013). Actually, these individuals are assumed to have an advantage over other children acquiring a second language (e.g. immigrants) for reasons associated with the generally high adoptive parents' economic and educational background, positively affecting the whole parent-child interaction (Delcenserie et al., 2013; Tan & Yang, 2005). What's more, the need for survival may impel IAC to learn the language of their host country, while presumably repulsed from their first one in view of its coherence with traumatic experiences in their place of origin (Roberts, Krakow, & Pollock, 2003).

Still, IAC mainly adopted at an early age (Hwa-Froelich, 2009) often face complex and interrelated linguistic deficits not always identified before adoption and possibly influencing them in various ways (Delcenserie & Genesee, 2014; Elleseff, 2013), albeit not usually falling within the sphere of pathology (Gauthier & Genesee, 2011). In fact, these children are more frequently referred for speech therapy evaluation and intervention, compared with the general population, however an incident to some extent solely reflecting their adoptive families' concern (Delcenserie et al., 2013; Geren et al., 2005). Ergo, a number of studies have investigated the factors potentially associated with IAC's language development.

Firstly, Tan and Yang (2005) examined 186 girls who had moved from China to the US through intercountry adoption at the age of 3-28 months, having passed 3-27 months in their host country. According to the study, within 16 months IAC of 30-35 months had equaled indigenous Anglophones of the same age as to vocabulary and grammar skills, whereas in participants of 18-23 months a corresponding delay was detected. Secondly, Gauthier and Genesee (2011) investigated the development of French language in 24 girls of Chinese origin adopted in Canada at the age of 7-24 months. Whilst not differing from their native coetaneous in the level of social, emotional and cognitive development, at the age of 4 and 5,5 years the participants exhibited respective deficiencies of expression and comprehension. Thirdly, Greenfield (2011) explored the development of English language in a 5,5 year-old child from China adopted in the US at the age of 3,5. Certain articulation and grammar shortcomings were observed; even so, the infant's speech was intelligible up to 80%, demonstrating a satisfactory level of passive vocabulary and pragmatic skills. Fourthly, Dalen and Rygvold (2006) found no significant differences between 154 13 year-old adopted children of Chinese and Norwegian origin in relation to oral communication skills at in-school and extracurricular level. Fifthly, Dalen's research (2002), which examined 193 11-16 year-old children adopted in Norway with Korean and Colombian origin, found the second linguistically less adequate, in comparison to their 193 indigenous peers.

3. Conclusions

This paper discussed issues of student diversity, focusing on the language development of IAC. In the interest of demographic, sociopolitical and humanitarian factors, the adoption of foreign children represents an international social phenomenon of high frequency. Likewise, the sociolinguistic shortcomings and traumatic experiences of IAC have been inferred to pose risks of developmental delay on their interpersonal relationships, emotions and particularly on their linguistic skills, respectively affecting their in-school and extracurricular life. Hence, the present paper outlined the linguistic development of IAC. On that account, a literature review strategy was followed, collating and summarizing the findings of the twenty (20) most recent (2000-2015) relevant empirical studies, conducted at European and international level, investigating internationally adopted preschoolers, primary school aged children and adolescents.

Decisively, in all three categories IAC's language development seems peculiar; however, it does not differ regarding certain stages applicable in typically developing monolingual children, acquiring relatively quickly their current second first language (English or French), even if considered a vulnerable social group. To conclude with, until preschool age the linguistic level of indigenous children is reached or approached by several IAC, howbeit not by all. Nonetheless, specific linguistic deficits of receptive and productive language delay are identified, by majority in oral speech, which regularly fall outside the sphere of pathology; veritably, they depend on various parameters, the range and severity of which has not yet been sufficiently elucidated. In particular, it is believed that the children's specific place of origin, their age at the time of the adoption and of every research, the context of the latter and the age difference between adoptive and biological parents, along with the language regime in each destination country play a certain role in IAC's language acquisition (Gauthier & Genesee, 2011; Glennen, 2014, 2015; Scott, 2009). As a deduction, corresponding future deepening in the field by specialists is expected not only to enlighten it more theoretically, but also to be of benefit on the level of educational practice (Scott et al., 2011; Snedeker et al., 2012).

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IMPROVING TEACHING SKILLS OF THE FACILITATORS IN CLINICAL SIMULATION

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Abstract

The teaching and facilitation skills have not been sufficiently covered in the clinical simulation, and it has been granted more attention to the clinical domain, sometimes losing the richness of the reflective guided process. For this reason, since 2015-2016, the University of Manresa (Spain) launched a specific postgraduate training in clinical simulation, adding a strong component of educational innovation in simulation processes. This has resulted in: a) an improvement of simulation as a learning and professional improvement methodology; b) an effort to contemplate strategies, skills and attitudes of teaching and facilitation.

Keywords: *Simulation, training, facilitator, teaching innovation.*

1. Introduction

Clinical simulation is an unquestionable teaching methodology to develop a wide range of the skills of undergraduate and graduate students and teachers of different educational levels and high performance teams. Its application in the medical and clinical arena has had multiple successes, usually pivoting around two areas: the clinical area (about the discipline referral skills) and instructional area (about skills related to improving clinical practice) (Palaganas, et al., 2015).

This is a methodology based on the active and experiential learning (represented, among others, by John Dewey and David Kolb), which recreates the professional reality at different levels, aiming the acquisition, development and implementation of the different inherent competencies of the professional sector to which apply. Although the simulation has been used mainly in the medical, health and military sector, in recent years it has been confirmed its potential as a teaching methodology in multiple fields (business, education, social, etc.).

As a teaching methodology, there is a consensus in the reference literature, to confirm that simulation has different phases: prebriefing, simulation and debriefing (Eppich & Cheng, 2015; Dreifuerst, 2009). Each one of these phases has the objective of getting the most out of the sensitivity everyone needs to learn. At the same time, it requires specific skills that the instructor and / or facilitator has to implement to get a group or individual reflection about the simulated situation, competencies implemented and learning outcomes. To sum up, the main objective of the prebriefing phase is:

- To create a safe environment in which the mistake is welcome and observed from curiosity,
- To ensure the confidentiality of what happens in the simulation,
- To reduce the initial stress, and
- To guide participants towards learning.

Secondly, during the simulation attendees participate and react, acting as they would in reality to manage their skills and competencies, and respond to established learning goals.

The process culminates with the debriefing phase, a process by which the facilitator guides the group to make the participants generate a significant learning from their experiences during the simulation. It is a moment for reflection and analysis in which feedback and guided reflection become key elements. In the simulation, this reflective practice focuses on improving personal and interpersonal effectiveness of professionals who have participated in it through the explanation on the basis of values, assumptions and knowledge which have driven their own actions (Schön, 1998; Tannenbaum & Cesaroli, 2013). The reflexive practice provides a conceptual model that guides the facilitator-teacher on how to discover the mental models that can be used regarding the actions taken during the simulation session and the situations taken place in it. The use of reflection in the debriefing extends the focus to include, not

only the final actions of the participants, but also their mental models that, ultimately, determine the process and the final outcome. This should collaborate to manage more competently new learning or working situations from what has been lived and thought during the simulation.

Each of the simulation phases requires some teaching skills and specific methodological actions, so that it becomes a complex teaching strategy with a variety of possibilities for teaching and learning to the facilitator and participants. Despite this evidence, it doesn't seem to exist a consensus between the literature about what kind of teaching skills and attitudes should be incorporated and developed in each phase, although there is consensus among the need of specific actions and specialized training for the facilitators, beyond the instructional reference discipline (just as necessary to guide the group) (Eppich & Cheng, 2015; Decker & alt, 2013; Nielsen & alt., 2007).

In special way, these teaching and facilitation skills have not been sufficiently covered in the clinical simulation, and it has been granted more attention to the clinical domain, sometimes losing the richness of the reflective guided process. For this reason, since 2015-2016, the University of Manresa (Spain) launched a specific postgraduate training in clinical simulation, adding a strong component of educational innovation in simulation processes. This has resulted in: a) an improvement of simulation as a learning and professional improvement methodology; b) an effort to contemplate strategies, skills and attitudes of teaching and facilitation.

2. Objectives

Through this study we intended, firstly, to design and evaluate a Graduate Program in Clinical Simulation to include a set of teaching and group facilitating competencies to improve simulation facilitators' and group effectiveness. The goal is to start and contrast a set of objectives and competences of the facilitator rather than the instructor, with an emphasis on teaching skills that had not been treated too deeply in the known training programs.

Secondly, to analyze from the set of teaching skills that had been developed in the graduate program, which of them had been identified and incorporated by the participants. It means, to understand and analyze the impact the program had on their ways of understanding the methodology of simulation itself and how they had acquired and transferred, not only the methodology, but especially the teaching skills associated with the phases of prebriefing, simulation and debriefing.

While it is evident the difficulty of discerning between those learning outputs derived directly from graduate and those built in other moments (professional, teaching, with colleagues, etc.), although it is intended to set time limitations on when they were acquired or developed, it is more important to know what is the perception of the participants regarding the growth of their educational background to be transferred to future applications of simulation in their professional fields.

3. Design and methods

Since the primary objective of the study focuses on the identification and understanding of how graduate participants (all of them university teachers and professionals in the health world) acquire and apply certain teaching skills, we chose the design of a qualitatively evaluative research. This allowed a bigger, more detailed and deeper approach to the object of study, drawing, through different data collection instruments, the amalgam of teaching skills internalized and applied by participants in their jobs. Each one of these instruments collected the study objectives, although it focused in some aspects and it was addressed to different reporting agents. The following table summarizes the instruments and key actors consulted.

Table 1. Instruments of data collection and key informants

		KEY INFORMANTS			
		16 participants	2 face-to-face trainers	1 on-line trainer	1 program coordinator
DATA COLLECTION INSTRUMENTS	In-depth interviews	8			1
	Discussion group	1		1	
	Participating observations of simulation	5	1		1
	Interviews on comprehension and analysis of practice	5	1		1
	Participant online questionnaire	16			
	Individual portfolio analysis	16			

This article presents the results obtained through one of the instruments: the in-depth analysis of individual portfolios. This process has involved a documentary analysis of portfolios developed by each participant (total of 16 units), creating a set of inductive categories (3 categories linked to "skills" and 2 categories linked to "attitudes") using the constant comparisons method by Glasser and Strauss (1967). Comparisons have allowed the creation, through the analysis and subsequent interpretation, of a set of constructs that make an approach to the studied reality giving it certain meanings. Currently, we are comparing and complementing this data with the obtained in the rest of instruments.

4. Results and discussion

As explained, the facilitator becomes the person who conducts the training and learning process based on simulation. It is a key figure at the time of prebriefing, simulation and debriefing. During the sessions it has placed special emphasis on teaching and communication skills which should be started by the facilitator to carry out the simulation.

In this sense, graduate facilitators and teachers have used a meta-simulation method to implement, with the own group of participants, the working method that was intended to stimulate. We used the simulation methodology and the different skills and attitudes of the facilitator in a double sense:

- On the one hand, to guide the simulated cases that participants had designed and implemented with their partners;
- On the other hand, to guide participants in its facilitation process to the rest of participants taking part in the simulation. Thus, method and content became the same thing.

The study has focused on analyzing those in which graduate participants found essential or important in a facilitator in the simulation, identifying and describing both their individual portfolios and in the discussion group.

4.1. Results obtained from the analysis of the portfolio

From the set of skills and attitudes mentioned by the participants and to which they attribute as essential in the task of any facilitator, there were five inductive categories. These can be classified into:

Table 2. Inductive categories created from data interpretation

Facilitator skills	
Category 1	Planning and design of cases
Category 2	Driving skills and group dynamics
Category 3	Communicative and relational skills
Facilitator attitudes	
Category 4	Not defensive welcoming attitude
Category 5	Flexibility no stiffness

Category 1. Planning and design cases. The participants mentioned the importance of the design of scenes and actions and to plan the case development to simulate according to specific objectives and competencies. On several occasions this planning was mentioned as essential to ensure and promote cognitive processes linked to both individual and group learning.

Categories 2. Driving skills and group dynamics. Participants identified the need to incorporate a set of strategies and dynamics that encourage interaction between individuals within the group. All of them allow the creation of a framework of trust and identity as a group and a space of collaboration between them.

Category 3. Communication and relational skills. They have identified aspects linked to active listening, to help formulate honest questions and based on curiosity and not in determinism, promoting the participation of everybody. In addition, mentioned repeatedly the need not to ignore and to take advantage of messages and attitudes of the participants who are not consistent with our system of values or with our references, and which can create understanding difficulties, barriers or perceptual distortions. All this aspects, they say, can interfere with the interpretation of the actions and behaviors expressed by the group. At the same time, they have identified skills that enable the facilitator to show the group:

- Is learning (for example, through the feed-back)
- What the group is learning (through questions confirmation)
- How to transfer learning to professional situations (through projections, cause-effect, etc.),
- What difficulties and obstacles are showing (breaking situations loop), and
- Which interpretations are being developed (using reflective questions).

Categories 4. Welcoming attitude, not defensive. This was highly valued by all participants. They claimed that it is be very difficult for a group of professionals or students to take risks, to talk about their mistakes and share their theoretical constructs, if it doesn't exist an environment of safety and trust that unequivocally should build the facilitator. This attitude is necessary to make each participant feel psychologically safe within the working group. Suspend judgment, do not issue a priori assumptions, do not tag (as mentioned in several portfolios) the actions of the participants as "good or bad, right or wrong" or do not build hasty or by other findings, are necessary attitudes that they have been identified as necessary and to be incorporated by the facilitators.

Category 5. Flexibility, not rigidity, to the ways of doing or thinking of the group and of each individual, making easier the communication and understanding of each of the behaviors and attitudes of the group. It is mentioned repeatedly the difficulty (and apparent) balance that suppose to participants developing a flexible attitude that helps to the group development and the achievement of the objectives at the same time. Most of the participants expressed reasonable doubts about how to combine a group dynamic that can "beat around the bush" or "entering the loop" (as mentioned by some participants who need to work the objectives set for the session. Some of them say that learning has meant for them to understand this reality and to consider that objectives of the simulation are useful as a framework rather than a prescription to be achieved at any costs. The group' attitude of adaptation and support in their learning and at different levels has been mentioned repeatedly.

Finally, it is interesting to note that all participants had a common idea about the binomial: facilitator *versus* expert teachers in the field. Since the instructor nor can be an expert in all matters of simulation activities, it has highlighted the need for the existence of specialists from different disciplines collaborating together, although the full weight of the training process it should always lie with the role of the facilitator as a person skilled in the simulation methodology.

5. Conclusions

We would like to highlight two key aspects about the set of initial conclusions concerning the first phase of the study.

On the one hand, participants identify a plurality of skills and attitudes linked to the facilitator profile, and consider them relevant to develop simulation as a methodology. Between those it is important to distinguish, as one of the most repeated, the *planning and design of cases and the process simulation* (Jeffries, 2005). Indeed, one of the findings that have commented all participants is the important role of the case design to ensure that the simulation will achieve the learning objectives. In this sense, is not only important the organization of space, time and resources needed to perform the simulation but also the identification of learning objectives to be achieved and the contents to develop. The definition of objectives and contents will be the transverse axis of the simulation, and it will determine the roles assigned to each participant and the type of actions to put in practice, and it will orient the results to get.

On the other hand, there is the *set of communication and attitudes skills* linked to the task of facilitator. Under this umbrella we find a wide range of options that could cover from the active listening to the suspension of the trial, through the open attitude towards the contributions made by participants or to make problematic the reality against the reductionism caused by the imposition of models of own thinking. The participants emphasized the need to put into practice skills and attitudes that identify themselves as very own simulation, and require an effort in breaking the previous schemes filters, not to influence or take the group to "an expected result".

We assume the need to deep on information obtained in the various data collection instruments, a fact that hopefully behave more knowledge about how participants have implemented and applied in practice teaching skills simulation.

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MANAGEMENT OF BEHAVIOR PROBLEMS OF STUDENTS WITH DISABILITIES: GREEK TEACHERS' OPINIONS

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Abstract

Effective classroom management is necessary for all teachers and facilitators. Not only does classroom management include how the teacher or facilitator delivers the curriculum, but also how the students interact with the teacher and with peers in the classroom, and extends into the classroom environment in which students learn as well as socialize. Approaches aimed at improving school and classroom environments, including reducing the negative effects of disruptive or distracting behaviors, can enhance the chances that effective teaching and learning will occur, both for the students exhibiting problem behaviors and for their classmates. Special and general educators believe that there is a positive correlation between emotional intelligence growth and school performance, but they do not seem to be aware of the control they themselves have on the teaching structure and its effect on the students (e.g. Giavrimis & Papanis, 2009).
The purpose of this survey was to determine teachers' perceptions of their confidence in classroom behaviour management, as well as the use and usefulness of such strategies. Teacher Classroom Management Questionnaire (TSQ: Webster-Stratton, 2012) was used as an instrument in the particular study. In total, 200 special (98) and general (102) educators from primary and secondary schools have participated in this survey. The sample was randomly selected from cities in Central and North Greece. The results show that, in general, teachers state 'somehow confident' in managing present and future behavior problems in class and also in promoting social and emotional skills' growth. Only 30% of the teachers questioned, though, have applied a social and emotional learning program in their class. They state that they often use prevention strategies, such as discipline plan, clear rules etc because they consider them important. Concerning positive or negative behavior management strategies, they seem to prefer using them almost to the same extent, because they consider them almost equally important and necessary for the classroom management, except for the inappropriate strategies such as singling out child or group for misbehavior. Finally, they seek support and solutions mostly among their peers rather than the relevant literature. Despite their confidence in using appropriate strategies, regular training in classroom management would improve their choice of behaviour management techniques (Giallo & Little, 2003).

Keywords: *Behaviour management strategies, teachers' opinions, students with behavioural problems.*

1. Introduction

Behavioural problems in the classroom may have a negative impact on both teachers and students. Students with behavioural problems perform more poorly in academic tasks and social interactions and their teachers often find themselves in great distress and anxiety concerning classroom management. It is a quite demanding situation and teachers need to be skillful so as to be able to manage their classrooms and discipline their students. According to Woolfolk (1995, as mentioned in Demir, 2009, 585) "classroom management includes the methods that are employed in order to ensure a positive and effective learning atmosphere", while "effective classroom management increases student engagement, decreases disruptive behaviours, and makes good use of instructional time" (Wang et al., 1993/1994, 76). Oyinloye (2010, 307) specifically considers *discipline* "as an instrument that molds, shapes, corrects and inspires appropriate behavior". For Tan and Yuanshan (1999) the ideal form of discipline is self-discipline that builds on self-respect as well as respect for others, (1999, 10), the starting point of which, of course, is a positive teacher-pupil relationship and a sense of belonging. This certainly

depends on the teacher's attribution of the problem behavior and his confidence about classroom management.

According to *Attribution theory,* Brophy's Classroom Strategy Study (1980) suggests that the pattern of teachers' classroom strategies indicates that locus (internal or external), stability (duration and likelihood of remaining) and controllability (under individual's control), intentionality and globality (generalization) are important in distinguishing teachers' perceptions of their students' behavior and their own sense of involvement in intervening, as much as in selecting the classroom management strategies. Also, according to Glickman and Tamashiro (1980) teachers' beliefs towards discipline on a continuum of control reflect the extent to which teachers want to exercise control on their students' behavior. So, interventionists emphasize the external environment and how this affects students' behavior. These teachers tend to exercise a high degree of control and conduct rules, convey them to students and implement rewards or punishment for compliance or non-compliance. Non interventionists, on the other hand, focus on internal locus of causality and create a student-oriented classroom which is shaped by students' input. Midway, between the two extremes, interactionalists focus on what the person does to modify the environment, as well as how the environment shapes the person. This kind of teacher prefers to share responsibility with students about classroom management, tries to find solutions suitable both for teacher and students and uses both directive and non-directive strategies, balancing the interventionist and non-interventionist perspectives accordingly (e.g. Cerit & Yüksel, 2015).

Social and emotional learning (SEL) is a theory that promotes these life values exactly, as an interactionalist teacher would. SEL is considered critical to student success in school, work, and life and could be implemented in terms of a prevention or intervention program. It has been argued that school-based efforts to promote students' social and emotional learning represent a promising approach to enhance children's success in school and life.

2. Aim of the study – research questions

The aim of this survey is to investigate teachers' perceptions of their confidence in classroom behaviour management, as well as the use and usefulness of such strategies. Specifically the following research questions are formulated:

a) How confident are teachers in managing classroom current and future behavior problems and in promoting students' social and emotional growth?

b) In particular, what kind of strategies do they use more often and which of them do they consider more useful?

3. Methodology

3.1. Participants

The participants were teachers from schools in Central and North Greece, mostly working in primary than secondary education. There were 146 women (73%) and 54 men (27%) of various ages ranging from 23 to 59 years (25.3% were at the 20-34 age range, 18.3% between 35-44, 47.8% between 44-54, and 8.6% 55 or older).

There were 98 special educators (36.5% of whom were working in special primary schools, 11.5% in integrative classes and 1% in parallel support) and 102 general educators (51%). Only 31% of the particiapnts had implemented a Social Emotional Learning (SEL) program before.

3.2. Procedure and analysis

The survey was conducted during school years 2013-14 and 2014-15. Initially there was a personal contact with the participants in order to inform them about the aim of the survey. The data were analyzed with the statistical package of SPSS 20.0.

3.3. Instrumentation

Teachers anonymously completed the Incredible Years (IY) Teacher Classroom Management Strategies Questionnaire (TSQ: Webster-Stratton, 2012), which was utilized in this study. The instrument which was translated in Greek and checked through the back translation method after written permission from the IY project, consists of four sections: (a) 'managing classroom behavior', (b) 'specific teaching techniques', (c) 'working with parents', and (d) 'planning and support'. There are 3 items in section (a), measuring teacher's confidence in managing current and future behavior problems and confidence in promoting emotional, social and problem solving teaching, which are offered on a 6-point Likert scale, ranging from: 1- very unconfident, to 6- very confident. There are 38 items in section (b), which are related to the five subscales and measure the frequency of use and the usefulness of five teacher

strategies: coaching, praise and incentives, proactive strategies, social & emotional teaching strategies, limit-setting strategies, and inappropriate strategies. These 38 items are offered on a 5-point Likert scale, ranging from: 1- rarely/never, to 5- very often, There are 10 items in section (c) and item 30 in section (b) (student interest survey) which measure frequency of use of positive approaches with parents and, 8 items in section (d) measuring planning and support related strategies. Section C and D items are offered on a 6-point Likert scale, ranging from: 1-never, to 7-daily.

The scoring directions were retrieved from the IY program's official page (Webster-Stratton, 2005).

3.4. Reliability

The reliabilities of the scales of classroom management strategies for the present study measured with Cronbach's Alpha are: .901 for confidence in managing classroom behavior, .941 for specific teaching techniques, .866 for positive approaches with parents and .889 for planning and support. The reliability score for the whole questionnaire also measured with Cronbach's Alpha is .949.

4. Results

The total mean of answers (5.34) for teachers' confidence (see Table1) shows that they feel 'Somewhat confident or Confident' in managing current and future classroom behavior problems as well as in promoting students' emotional, social and problem-solving skills.

The frequency and usefulness of various teaching techniques were at approximately the same level. The participants consider them moderately to very useful and use them accordingly. In a scale ranging from 1-5 the mean frequency of use of coaching, praise and incentives is 3.6885 and the mean usefulness of these techniques is 3.8432. The mean frequency of use of proactive strategies is 3.5437 and of their usefulness is 3.7239. SEL strategies' mean frequency of use is 3.5327 and of their usefulness is 3.7880. Frequency of use of inappropriate strategies demonstrated a relatively low mean (M=2.2649) and the usefulness of these strategies the lowest (M=2.2471). The total mean for positive approaches with parents is 3.2021. Among the most frequently used teaching techniques are the planning and support ones (M=3.3784) and among the ones considered most useful are the proactive techniques (M= 3.8342), mentioned above.

Table 1. Descriptive Statistics for frequency and usefulness of classroom management strategies

Subscales	Min.	Max.	Mean	Std. Deviation
Confidence	1	7	5.34	1.092
Frequency coaching, praise and incentives	2.13	5.00	3.6885	.62181
Usefulness coaching praise and incentives	2.13	5.00	3.8432	.64441
Frequency proactive strategies	2.13	5.00	3.5437	.61108
Usefulness proactive strategies	1.88	5.00	3.7239	.68758
Frequency SEL strategies	1.71	5.00	3.5327	.80577
Usefulness SEL strategies	1.71	5.00	3.7880	.79223
Frequency limit setting strategies	1.80	5.00	3.5219	.62364
Usefulness limit setting strategies	2.20	5.00	3.6758	.64059
Frequency inappropriate strategies	1.11	4.33	2.2649	.57524
Usefulness inappropriate strategies	1.11	4.67	2.4171	.64966
Positive approaches with parents	1.18	5.45	3.2021	.87713
Planning and support	1.00	6.00	3.7384	1.16493

On the individual item level, the least used (M=1.12) and the least useful (M=1.31) technique was considered to be 'sending child home' for aggressive or destructive misbehavior, while 'praising positive behavior' was considered/deemed the most useful (M= 4.73) and the most frequently used one (M=4.68). Most importantly, teachers seem to feel almost equally confident in managing current behavior problems (M=5.40) and in their ability to promote students emotional, social and problem-solving skills (M=5.39) and less confident in managing future behavior problems.

In addition, T-tests and one-way anova tests revealed statistical significance (p <0.005) between the two genders on the item concerning frequency of use of reward targeting positive behaviors with incentives, e.g., stickers, with women (M=4.29) using it more often than men (M=3.57).There is a statistically significant difference (p<0.005) between men (M=3.71) and women (M=4.36) concerning the usefulness of the same strategy as well.

Finally, in the frequency of nonverbal signals to redirect a child who is disengaged statistical significance (p <0.005) was indicated with women (M=3.72) considering the technique more useful than men (M=3.19).

One-way anova tests with post hoc analysis did not indicate significant differences in the frequency means of use or usefulness among age groups and genders, even though some significant differences were revealed between certain age groups in certain items.

For example, there is a statistically significant difference between the 35-44 and the 45-54 age groups in the item concerning the frequency of use of singling out a child or a group of children for misbehavior (Tukey's HSD, p=0.032). Additionally, in using problem-solving strategy (e.g., define problem, brainstorm solutions) statistical significance (Tukey's HSD, p=0.020) was demonstrated between the 20-34 and the 55+ age groups. In frequency of use of anger management strategy for self, (e.g. deep breaths, positive self-talk) statistical significance was revealed between the 35-44 and the 45-54 age groups (Tukey's HSD, p=0.026) and the 45-54 and the 20-34 (Tukey's HSD, p=0.01<0.05). Most statistical differences between age groups were found in sending home Teacher-to-Parent Communication letters or newsletters specifically between 45-54 and 20-34 (Tukey's HSD, p=0.005), 55+ and 20-34 (Tukey's HSD, p=0.023) and, last, 35-44 and 20-34 (Tukey's HSD, p=0.011).

5. Discussion

Answering the first research question concerning confidence in managing problems most teachers stated confident, which is consistent with other research studies (e.g. Aksu, 2015). More specifically, Greek teachers stated that they were more confident in managing current behavior problems and in promoting social and emotional skills' growth rather than managing future behavior problems. Even though they declared confidence in promoting emotional growth, still only 30% of the teachers have applied a social and emotional learning (SEL) program in their class. That poses a question as to where this confidence stems from and if teachers really feel confident or if they do not want to appear unconfident. However, the teachers that are most effective in classroom behavior management are those who are the most confident in their ability to deal with such problems (e.g. Giallo & Little, 2003).

As for the second research question, overall, the participants of the current study use the teaching techniques that they also find useful. They state that they often use prevention and limit setting strategies, such as discipline plan, clear rules etc, because they consider them important, as it was also concluded in previous research studies (e.g. Dutton Tillery, Varjas, Meyers, & Smith Collins, 2010). Sending child home for aggressive or destructive misbehavior is the least preferred technique to use and the one considered as the least useful as well, while the most useful technique seems to be praising positive behavior, which is also stated to be the most frequently used one. Concerning positive or negative behavior management strategies, teachers seem to prefer using positive ones rather than inappropriate, which are used sometimes or half the times according to the mean scores indicated. That is because they consider them very important in classroom management, which is in line with previous research studies such as the one by Arbuckle and Little (2004). In addition, women use reward targeting positive behaviors with incentives (e.g., stickers) and also nonverbal signals to redirect a child who is disengaged more frequently than men. Overall, of course, there is always the risk of understating the use of negative strategies as in studies concerning the perceived use of techniques both by teacher and students (Mumthas, Munavvir & Gafoor, 2014).

As for positive approaches to parents, more differences between age groups are noted concerning 'sending Teacher-to-Parent Communication letters' and the most favorable is 'developing teacher-parent partnerships'. Parent participation in school programs for reduction of behavior problems is quite promising since the multisystemic intervention model has proven one of the most effective prevention or intervention model concerning behavior problems (e.g. Embregts, Du Bois, & Graef, 2010).

Finally, educators in our study usually prefer to seek support and solutions mostly between each other and less in the behaviour management literature, as was also concluded in a previous study (e.g. Drysdale, Williams & Meaney, 2007), which is very optimistic as cooperation between scientists in special education is extremely important and is being promoted.

Even though Greek teachers feel confident in managing behavior problems in their classrooms and they seem to have a wide repertoire of management strategies, it would still be interesting to ask them whether they feel the need for further training in such techniques. As stated by Farmer, Reinke and Brooks (2014, 72) "there is a need for dynamic training and intervention support approaches that meet the implementation criteria of evidence-based interventions while simultaneously being responsive to the skills and competencies of the teacher, the policies and practices of the school, and the characteristics of the classroom and school peer context as well as targeted students with challenging behavior". Additionally, although they stated that they use various strategies to manage their students' behaviour problems; only 30% of them have implemented a complete SEL program to promote students' emotional intelligence, so training in implementing such a program would be of great importance.

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TQM TRAINING NEEDS OF UNIVERSITY GRADUATES

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Abstract

The need to adapt Spanish universities to the new European Higher Education Area and the commitment made by higher education institutions to improve the quality of university education has involved competency based learning activities aimed at developing the skills of graduates. College graduates are required to face a large number of demands and requirements during their transition to the labor market. Therefore, not only is it necessary for graduates to have developed the right skills to do the job, they must also keep their skills up to date to meet the constantly changing requirements and needs in organizations. This paper aims to answer two fundamental questions: do engineering graduates need to have acquired competence in TQM to perform their job successfully?, and, what is the profile of the jobs which require the most TQM training and knowledge?

Keywords: *Total quality management, training and skills, graduates.*

1. Introduction

In recent years extensive research has been carried out on competency-based training. Hartog defines competencies as talents, skills and capabilities of higher education graduates contributing to multi-factor productivity gains (Hartog, 1992). Recent interest in this field of study (Allen, 2003; Tejada, 2006; Bunk, 1994; Heijke, 2003; Kellerman, 2007; Jimenez, 2003) is due to the need to improve the quality of university education. It is well known that college graduates must face a lot of demands and requirements during their transition to the labor market. Therefore, there are frequent mismatches between the skill levels of graduates and those required in the workplace. Graduates are now not only required to have developed the right skills to do the job but also to periodically update their skills to meet the constantly changing requirements and needs in organizations.

Moreover, at present, quality has become a key factor in determining the success or failure of a company in the global market. Many companies worldwide have emphasized quality as an important strategic dimension. Most organizations that have been successful in their efforts to improve quality have adopted an integrated approach commonly known as total quality management (TQM).

Total quality management originated refers to the wide range of management and control processes designed to lead the entire organization and its employees to do the best job possible so as to supply products and/or services that satisfy the customer.

According to Sashkin and Kiser (1993), TQM means that the organization's culture is defined by and supports the constant attainment of customer satisfaction through an integrated system of tools, techniques and training. This involves the continuous improvement of organizational processes, resulting in high quality products and services. Thus, the management philosophy of TQM is customer focused. TQM incorporates the concepts of product quality, process control, quality assurance and quality improvement. Profitability, productivity, customer satisfaction and product quality are the natural outcomes of TQM. This paper aims to answer two fundamental questions: do Engineering graduates need to have acquired competence in TQM to perform their future job? and what is the job profile which requires the most TQM training and knowledge?

2. Objectives

The objective of the research was to determine the level of TQM training and knowledge needed by engineering graduates to successfully perform their jobs after joining a company. The study aims to answer the following questions: When a university graduate joins a company, what level of TQM

knowledge is required to for him to successfully perform his job? Is there any industry that requires more TQM knowledge than others? What jobs require the most TQM training and knowledge?

3. Methodology

3.1. Sample

This research was carried out using a graduate employability survey conducted by the Universitat Politecnica de Valencia on graduates two years after they had completed their university studies. Therefore, these graduates had been in the labor market for approximately two years and had had experiences in terms of the skills and knowledge they need to perform a job. (Hervas et al, 2012). In this study, the main predictive factors considered were the variables that appear in Table 1.

Table 1. Technical details of fieldwork

Name	Employability survey conducted by the Polytechnic University of Valencia.
Objectives	To determine the employment status of graduates and learn the skills and knowledge they needed to perform their jobs. To determine if TQM training and knowledge was required to perform these jobs.
Population	Company employees who completed their university studies in 2006 and 2007 meaning that they had been in the labor market for two to three years.
Study size. Sampling error	1340 workers. The maximum error with 95%confidence was 2.6%. Location of the company: 1. Province of Valencia (639) 2. Rest of the Valencian region (243) 3. Madrid (128) 4. Barcelona (93) 5. Rest of Spain (134) 6. Rest of Europe (83) 7. Rest of the World (20)
Study variable	Do you need to have TQM training and knowledge in your current job? Rate the level of training required from1 to 7

3.2. Data analysis

For the purpose of identifying job profiles depending on the demand for TQM training we develop an analysis of variance (ANOVA) and CHAID analysis (Chi-square automatic interaction detection).

4. Results

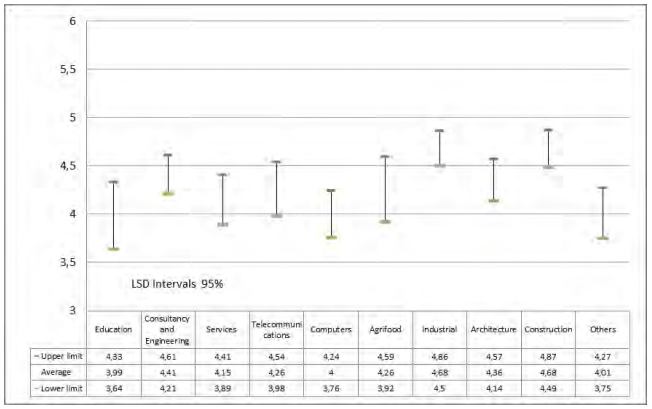
The average rating for the need to have TQM knowledge for job performance was 5.49 out of 10. 26% of the graduates surveyed believed that TQM training was not needed (little, very little or not at all) for job performance and 45.10% considered it to be necessary (somewhat, quite and very). Only 19.5% believed that this training was quite or very necessary for their job.

Table 2. Is TQM training necessary to perform the job?

Response category	Absolute frequency	Relative frequency
Not at all needed	66	4,9 %
Very little needed	76	5,7 %
Hardly any needed	206	15,4 %
Normal	387	28,9 %
Somewhat needed	330	24,6 %
Quite necessary	202	15,1 %
Very necessary	73	5,4 %

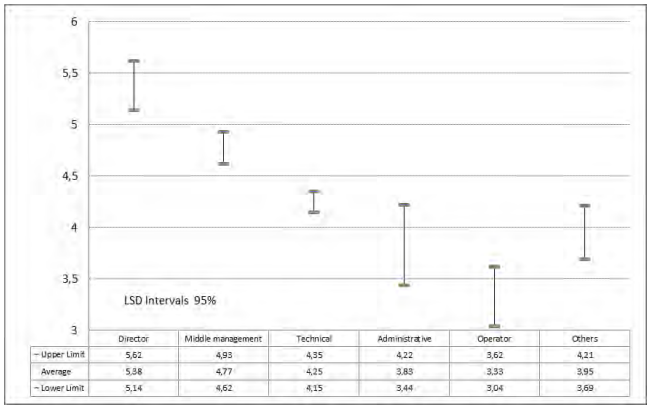
To identify the job profile demanding the most TQM training we evaluated four characteristics: business sector, job position, salary and management responsibilities (number of people managed), we performed an ANOVA. A significance level was obtained (p-valor < .05), and therefore it can be concluded that there were differences among group. Least Squared Differences Intervals (LSD), were calculated to identify the categories in which the differences occur. Figures 1, 2, 3 and 4 show the results obtained.

Figure 1. LSD intervals for quality and TQM training depending on the business sector of the company



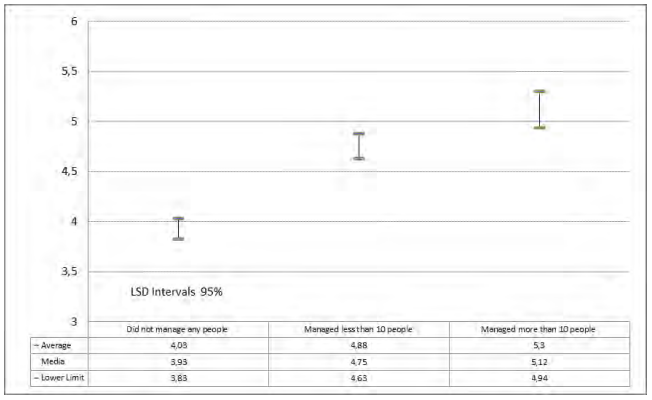
	Education	Consultancy and Engineering	Services	Telecommunications	Computers	Agrifood	Industrial	Architecture	Construction	Others
– Upper limit	4,33	4,61	4,41	4,54	4,24	4,59	4,86	4,57	4,87	4,27
Average	3,99	4,41	4,15	4,26	4	4,26	4,68	4,36	4,68	4,01
– Lower limit	3,64	4,21	3,89	3,98	3,76	3,92	4,5	4,14	4,49	3,75

Figure 2. LSD Intervals for quality and TQM training depending on job functions or position



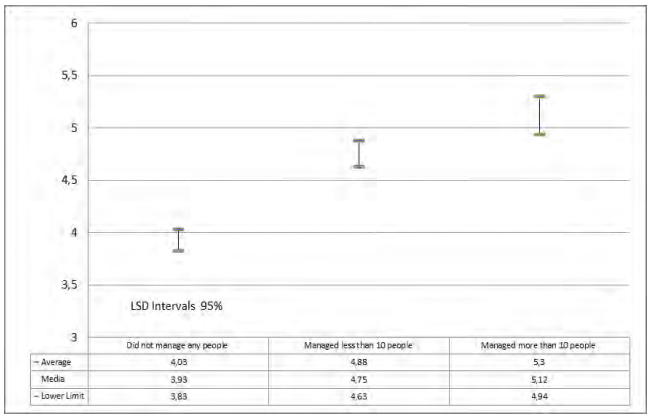
	Director	Middle management	Technical	Administrative	Operator	Others
– Upper Limit	5,62	4,93	4,35	4,22	3,62	4,21
Average	5,38	4,77	4,25	3,83	3,33	3,95
– Lower Limit	5,14	4,62	4,15	3,44	3,04	3,69

Figure 3. LSD intervals for training and TQM depending on annual salary



	Did not manage any people	Managed less than 10 people	Managed more than 10 people
– Average	4,03	4,88	5,3
Media	3,93	4,75	5,12
– Lower Limit	3,83	4,63	4,94

Figure 4. LSD intervals for training and TQM depending number of people managed

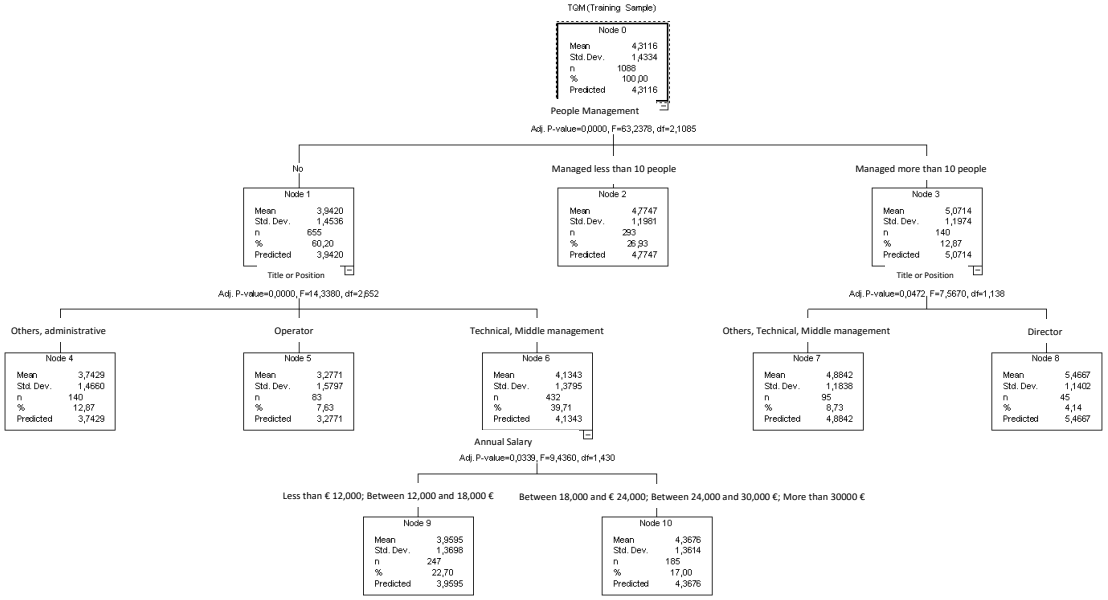


	Did not manage any people	Managed less than 10 people	Managed more than 10 people
– Average	4,03	4,88	5,3
Media	3,93	4,75	5,12
– Lower Limit	3,83	4,63	4,94

Figure 1, shows that graduates were demanded to have the most TQM training in the "industrial (4.68)" and "construction (4.68)" sectors, while the least demand was shown in the education (3.99) and ICT (4.00) sectors. In Figure 2, we can appreciated that the graduates holding director positions were those who most needed quality and TQM knowledge to perform their jobs, with an average rating of 5.38 out of 7, followed by those who hold a middle management position (4.77) and technicians (4.25). The university graduates, who needed the least training were operators (3.95) and administrative employees (3.83). Figure 3 shows that jobs for which the salary was higher than € 24,000 required the most quality and TQM training. This demand for training clearly decreased as the salary decreased. Finally, in Figure 4, we can appreciated that the demand for training in TQM is clearly related to the size of the group managed: groups of over 10 people (5.12), groups of less than 10 people (4.75) and no people managed (3.93).

In the second phase of this study a CHAID analysis was performed. In this case, the aim was to specify what factors lead to a greater demand for TQM training. The CHAID analysis is an explanatory statistical technique which is based on the definition of a dependent variable (in this case the variable characterizing demand for TQM training), forms homogeneous groups from combinations of explanatory variables (in this case, the business sector job function or position, salary and people management). The decision tree of this analysis is shown in Figure 5.

Figure 5. CHAID analysis results



The goodness-of-fit of this analysis was confirmed, since there was a risk estimate of 1.75922 and a standard error on the estimated risk of 0.07027, with a significance level of 0.05.

Of all the variables that were considered as potential predictors of the demand for TQM training (business sector, job functions or position, salary and people management), according to the CHAID analysis, management of groups of people and job function or position were found to be the most relevant. It can be observed that the Figure begins with a single group of respondents, node 0, consisting of 1,088 individuals with an average demand of 4.31. The Figure also shows how the best predictor of demand relates to the management of groups of people. The analysis found statistically significant differences between those who do not manage any people, node 1; those managing less than 10 people, node 2; and those managing more than 10 people, node 3. The next predictor was the job function, and the last was salary.

4. Conclusions

The purpose of our study was to evaluate was determined the level of TQM training and knowledge needed by engineering graduates to successfully perform their jobs after joining a company. The analysis of variance performed shows that there is a greater demand for quality training in certain business sectors (construction and industrial), certain jobs (director and middle management), jobs requiring management of groups and jobs for which the salary was high.

So, considering that there are no additional predictors, seven different profiles could be distinguished in the study population (Figure 6).

Figure 6. Demand profiles TQM training

Profile	Characteristics	Average
1	University graduates who manage groups of more than 10 people and are in positions of leadership.	5,46
2	University graduates who manage groups of more than 10 people and hold middle management positions.	4,88
3	University graduates who manage group of less than 10 people	4,77
4	Graduates who do not manage any people, and hold a technical or middle management position with an annual salary exceeding € 18,000	4,49
5	Graduates who do not manage people, holding a technical or middle management position with an annual salary of less than € 18,000	3,99
6	Graduates who do not manage people and who hold an administrative position.	3,74
7	Graduates who do not manage people and who hold an operator position.	3,27

These findings are useful engineering graduates and can have a positive impact on the development of students' key competencies. There were of course, limitations to this study. As stated previously, we used a student sample with a specific questionnaire and the generalization to other questionnaire, or population, should be proved with specific data. Furthermore, the sample size is rather small. It is possible that analyses based on larger sizes or different context or universities would yield different results. That determination requires additional investigation.

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MATHEMATICS CREATIVITY AND TECHNOLOGY (GEOGEBRA) IN TEACHING AND LEARNING: A CASE STUDY OF 9TH GRADE

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Abstract

Recent studies have shown the advantages of using dynamic geometry contexts in the mathematics' classroom, in learning of mathematics. More studies like have shown that mathematics students' creativity can be promoted through new teaching methodologies that means implementing tasks, where the students has a more active and independent role. In general, the students they have difficulties in the learning of mathematics and difficulties of teachers to motivate them to learning. The contexts using technology to facilitate the learning of mathematical concepts and promoting to creativity in students.The attempt to minimize this problem related was the motivation that led to this investigation. This study addressed whether a teaching experience performed with dynamic geometry *software* (Geogebra), which analyzed the conceptions of students about the creativity concept and evaluated the mathematics creativity by dimensions in reasoning processes of these students, to solve tasks of exploration and investigation in theme Functions. The study sample was one class of 19 students (12-15 years old) the 9th grade of a public school in the northern region of Portugal. The methodology used in this study was qualitative, following a design case study and the instrument for data collection was the questionnaire survey and mathematics tasks, implemented in mathematics' class at the beginning and end of teaching experience, in the school year 2014/2015. In the data processing it was included the analysis of the responses of students in the questionnaire survey and in tasks, using content analysis by formulating categories of analysis. Analyzing the results, it can be concluded that participants associating creativity and mathematics creativity concepts the *"To create do something new and different"*. This teaching experience showed that the fluency and flexibility were the dimensions of the most representative mathematical creativity by varying in student's responses the different questions of the task. To point out that this teaching experience contributed to the development of mathematical creativity of study when students use technology in solving mathematical tasks.

Keywords: *Creativity, mathematics, teaching and learning, dynamic geometry software.*

1. Introduction

Given the importance in solving challenges and problems the inclusion of mathematics creativity in an educational context is unquestionable (Bailin & Siegel, 2003). According to Ankiewicz (1995) the students are not encouraged to use creativity in learning. Therefore, the teachers should use teaching experiences which easily allow the learning and development of creativity in the classroom. Besides the role of promoting learning, the school must also teach students to think creatively in solving tasks. To Shaheen (2010) is important teachers create opportunities for the development of mathematics creativity of students through the use of technology resources, since they motivate them for learning and they are present in daily life of students. The students' attitude and motivation for mathematics can be changed through the use by teacher of different didactic materials in classroom (Yilmaz Altun & Olkun, 2010). From the perspective of Hoyles and Lagrange (2010) the use of technology has been producing changes in the methodological approaches and in the learning of mathematics, since the use of appropriate software has allowed the teaching of mathematics, either by discovery, either by better understanding mathematical concepts by students (Kebritchi, Hirumi & Bai, 2010). The Geogebra is a Dynamic Geometry software, free and open source, used as a technology resource in mathematics education, specifically in teaching geometry and algebra. This software easily allows students the creation and manipulation of graphic constructions, moving the elements of construction without any change in its properties and facilitating the learning of concepts (Goldenberg, Scher & Feurzeig, 2008). Several studies have been conducted with the use of Geogebra in the learning process. It is considered, as an example, the study by Li (2007), with students from Malaysia, what considered that the Geogebra was useful and facilitated learning.

Creativity has had its etymological origin of the word create (in Latin) which means to originate, to create, to make and to elaborate (Cavalcanti, 2006; Sawyer 2006). For Leikin (2009) the concept of creativity means to generate original ideas, resolutions or actions, associating the creativity to the innovation. On the other hand, the creativity is student's ability to analyze a given problem using a new perspective, through visualization of similarities and differences, presentation of multiple ideas and select a resolution strategy (Laycock, 1970). Moreover, Makiewicz (2004) considers mathematics creativity as a construction activity, through visualization of the regularities and also the formulation of hypotheses, conjectures and justifications. The evaluation of mathematics creativity of students is measured by four dimensions. Several authors (Conway, 1999; Leikin, 2009; Silver, 1997; Torrance, 1984) have identified them as being: Fluency - capability to produce a large number of ideas or possible solutions to a problem, measured by the number of correct resolutions/answers; Flexibility - ability to think in a large number of ideas related to the methods and strategies, measured by the number of resolutions/answers in different ways of thinking; Elaboration - ability to develop an idea, measured by adding a variety of details in a previous discovery; Originality - the ability to create unusual ideas, measured by the number of unique or rare answers in the set of given answers.

Being one of the goals of this study to analyze conceptions of students of the 3rd cycle of basic education, we adopt the meaning of conception defined by Thompson (1992) who states it as mental structures, as beliefs, as well as any kind of knowledge obtained through experience, namely, meanings, concepts, propositions, rules, mental images and preferences.

2. Design / Goals

The present study had as main aim in a first phase, to analyze conceptions that students of the 3rd cycle of basic education have on the terms of creativity (in general) and creativity mathematics. In a second phase, we claim to evaluate the mathematics creativity, measuring it by its dimensions in reasoning processes of students, based on the solution of mathematical tasks of exploration and investigation, using the Geogebra software. Another aim is to evaluate the implemented teaching experience, analyzing conceptions of the students on the integration of this software in mathematical class and its contribution in teaching and learning some mathematical concepts. In this sense, were selected, as study participants, the students of a class of 9th grade of the school year 2014/2015 in a public school of north of Portugal.

3. Methodology

The methodology used in this study was qualitative, interpretive, using a case study. The option for a qualitative methodology is related to some of its characteristics: the direct source of data is the natural environment, becoming the investigator the main instrument of data collection; is descriptive, based on the collected data that they are descriptive, considering words or images; data analysis are made using inductive means, since it is not intended to confirm previous hypotheses, but to search specific aspects of the data collected, creating groups associated with a specific properties, allowing a possible contribution to understanding the phenomenon allusive to this study (Cohen, Manion & Morrison, 2009). According to Erickson (1986) the study is interpretative, because it constitutes the main field of interest for the investigation: the nature of the classroom as mean for organized learning; the nature of the teaching as an aspect of a mean of learning and the nature of perspectives and the meanings of students. The option for case study in this work, following the idea of Stake (1995) is due to understanding this particular case, composed of by a group of the 3rd cycle of basic education in a public school of north of Portugal. As data collection instruments, we have implemented a questionnaire survey and mathematical tasks in the mathematical class. In data analysis, we have proceeded to the content analysis of questionnaire surveys and productions of participants in mathematical tasks (Bardin, 1979), with the elaboration of categories of analysis, which they have recursively defined according to the study aims (Sampieri, Collado & Lucio, 2003), not predefined, but associated with a theoretical framework. The idea of Esteves (2006) for analysis categories are concerned as an operation by which the data are classified and reduced after being identified as relevant in order to check answers to the study aims, creating categories. In the definition of categories of analysis, the data are classified and the numbers of answers of participants are reduced after having identified the relevant words. Furthermore the categories obey to principles set out by Bardin (1979) that were: homogeneity, completeness, uniqueness, objectivity and relevance.

3.1. Participants

This study was implemented in a class of 9th grade, 3rd cycle of basic education, in the school year 2014/2015 in a public school of north of Portugal. The participants of study were 19 students, nine of

female and ten male, aged from 12 and 15 (mean age 14.1 and standard deviation 0.4). The students 'performance into mathematics, in the previous academic year (2012/2013) and on a rating scale of 1 to 5, 1 being the lowest rating level, and 5 the highest level, the results achieved were as follows: 5.3% of participants obtained level 1, 47.4% had level 2, 21% had level 3, also 21% had level 4 and 5.3% in level 5.

3.2. Questionnaire survey and tasks

Proceeded to the elaboration of two questionnaire surveys (questionnaire 1 and 2) composed of two types of questions: closed nature – related to characterization of participants of the study and open nature – directed towards the analysis of the conceptions of the participants on the concept of creativity, mathematics creativity and contributions of using Geogebra software in mathematics classroom and in teaching of concepts. The evaluation of mathematics creativity of the participants, was made based on the resolution of exploration and investigation tasks, adapted from virtual school of the publisher Porto Editora (2015). The teaching experience took place in two classes of mathematics, with 90 minutes, in the unity "functions", more specifically, in the content "quadratic function".

4. Results and discussion

The answers presented by the participants were analyzed and elaborated the respective categories of analysis referred to questions of questionnaire 1. Such questions were "*What is for you creativity?*" and "*What is for you mathematics creativity?"*. The analysis categories considered for the concept of creativity were: "*To create something new and different*", "*Imagination*", and "*Others*" and for the concept of mathematics creativity the categories were "*Environment class*", "*Innovation*" and "*Others*". In the category "*Others*" the answers of the participants were included those that did not have a specific meaning or expressions like: "*To be amused* ", *"Being creative"* and "*The mathematics teacher"*. After, we have been counted the number of references of the analysis categories in each case, illustrated in the following tables (table 1 and table 2).

Table 1. Analysis categories for creativity and number of references

Categories	n.º of references
To create something new and different	15
Imagination	3
Others	1

Table 2. Analysis categories to creativity mathematics and number of references

Categories	n.º of references
Innovation	11
Environment class	6
Others	2

In the case of the questions of questionnaire 2 – "*Did you like to use Geogebra in math classes in this year? Justifies the answer*" and "*Did you consider helpful the use of Geogebra in the understanding of concepts in the unit functions, in the topic quadratic function? If your answer was yes or partially, describes the main contributions of Geogebra in learning the concepts*" – we proceed in a similar way than in the case of questionnaire 1. With respect to the inclusion of technology in mathematical class, we were considered the following categories: "*Learning*", "*Software skills*", "*Environment class"* and "*Others*". About the contributions of technology in the learning of concepts, the categories were: "*Easy of understanding*", "*Learning concepts or something new*" and "*Others*". In the last category, stand out as an example, an expression like: "*because we had never used and now we have experienced, so how mathematics is fun and interesting"*. After has been counted the number of references of the analysis categories illustrated in the following tables (table 3 and table 4), we verified that the majority of participants answered positively. It should be noted that only one participant responded negatively and other did not answer, in the case of table 3, and one participant responded negative and two have responded partially yes, in the case of table 4.

Table 3. Analysis categories and reference number in using Geogebra

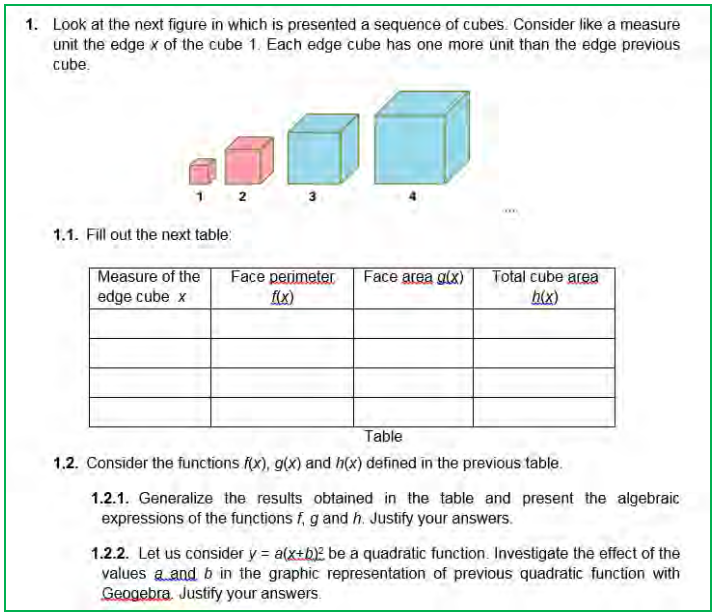
Categories	n.º of references
Learning	7
Software skills	5
Environment class	3
Others	2
Total number of answers	17

Table 4. Analysis and number of references in the Geogebra contributions

Categories	n.º of references
Easy of understanding	11
Learning concepts or something new	3
Others	2
Total number of answers	16

The results of students' productions in solving one of the tasks (items 1.1., 1.2.1 and 1.2.2.) in figure 1, concerning the development of fluency dimension mathematics creativity are the ones presented.

Figure 1. Example of one of the tasks given to the students



1. Look at the next figure in which is presented a sequence of cubes. Consider like a measure unit the edge *x* of the cube 1. Each edge cube has one more unit than the edge previous cube.

1 2 3 4 .....

1.1. Fill out the next table:

Measure of the edge cube *x*	Face perimeter *f*(*x*)	Face area *g*(*x*)	Total cube area *h*(*x*)

Table

1.2. Consider the functions *f*(*x*), *g*(*x*) and *h*(*x*) defined in the previous table.

1.2.1. Generalize the results obtained in the table and present the algebraic expressions of the functions *f*, *g* and *h*. Justify your answers.

1.2.2. Let us consider $y = a(x+b)^2$ be a quadratic function. Investigate the effect of the values *a* and *b* in the graphic representation of previous quadratic function with Geogebra. Justify your answers.

As an example we selected an exploratory question (item 1.2.1) and an investigation question (item 1.2.2.) of the task. Considering the dimension of mathematics creativity analyzed by Conway (1999), the evaluation dimension fluency measured by the number of correct resolutions/answers of students' productions and the respective percentage are given in table 5.

Table 5. Dimension fluency evaluation

Number of item	*number of correct answers/percentage*
1.1.	*13 (93)*
1.2.1	*11(79)*
1.2.2.	*6 (43)*
Total number of answers	*14*

In Figures 2-3 are presented some examples of graphs of some representative answers of participants P 10 and P 8 in the evaluation of fluency dimension in each questions and we also present the graphical sheet of Geogebra.

Figure 2. Representative answer of the participant P 10

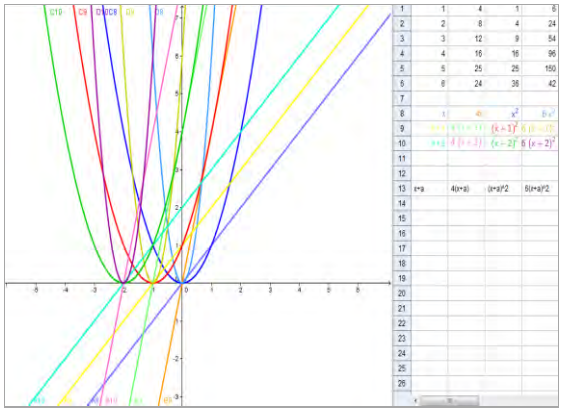
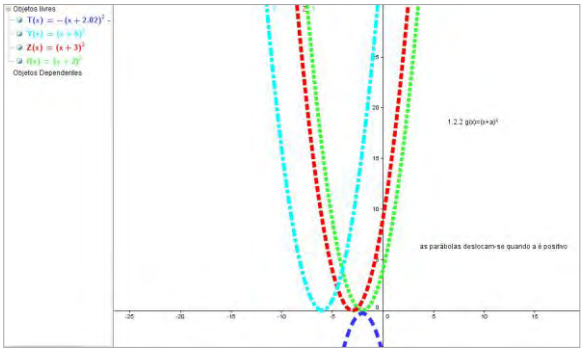


Figure 3. Representative answer of the participant P 8



5. Conclusions

This study has shown that the participants associate the concept of creativity to "Create *something new and different*" and the concept of mathematics creativity to "*Innovation*. In the evaluation of mathematics creativity, fluency was the unique dimension evaluated from the students' answers, noting a greater frequency in exploratory questions by contrast with a lower frequency in investigation questions. About the integration of Geogebra in mathematical class, the participants have a positive relation because they liked using it. The main reasons for that were to permit one innovative learning and also the software

skills. The contributions of the use of this software for understanding the mathematical concepts are due to help learning and to acquire something new. Although the reduced number of participants, we thing that this study could contribute to the development and sharing of diversified teaching experiences with technology, providing that the participants can reasoning in a creative way.

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BIOMIMICRY: AN EMERGING ECO-ETHIC FOR NEW DEVELOPMENTS IN EDUCATION

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Abstract

The nature of this paper is to study and reflect upon the "Global Citizenship Education" (GCED) and the "Sustainable Development Goals" (SDGs) proposed in the post-2015 Development Agenda led by the United Nations. The work has a transdisciplinary methodology and biomimetic approach with the intentionality to strengthen the links between human education and sustainability in the planet Earth. The concept of biomimicry seeks to understand the operating principles of life in nature with the goal to mimic them and reformulate the current human production systems in a sustainable way with the biosphere. Biomimicry is a key topic in the natural and social sciences because it promotes problem-resolution, cross-disciplinary team-performance, and wellbeing. The study is focused in the panoramic picture provided by the Big History discipline, in order to understand the ecosystems´ principles of coevolution on Earth. As result, the study shows many sustainable principles that human systems must mimic to achieve the SDGs. In conclusion, it is a research that seeks to integrate the eco-ethics as a pedagogical practice in the implementation of the GCED.

Keywords: *Sustainable development goals, sustainability, biomimicry, Big History, co-evolution.*

1. Introduction to the sustainable development goals

In September 2015, 193 Members States signed the "*Sustainable Development Goals*" (SDGs) to achieve 17 main goals by 2030. The General Assembly of the United Nations endorsed "*Global Citizenship Education*" (GCED) as target 4.7 of the education goal in the outcome document "Transforming Our World: the 2030 Agenda for Sustainable Development", saying that: "By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development; including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and nonviolence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development." In this regard, UNESCO established clearly defined indicators to enable monitoring progress at the global, regional, and national levels. This paper appears, then, as a tool to create new developments in all levels of education.

2. Objectives to raise sustainability awareness about our ecological footprint on nature

The main objective of this work is to provide a holistic picture of our human condition in the Universe in order to understand much better how our anthropogenic activities are leaving an irreparable ecological footprint in all ecosystems of our planet. Here, I propose two epistemological ways to implement GCED at national, regional, and global levels. On the one hand, the development of a *cosmodern consciousness* (NICOLESCU, 2014) that embraces the supra-identity of "*Homeland-Earth*" (MORIN and KERN, 1993) through learning the "*Big History"* (CHRISTIAN, 2010)(SPIER, 2011), which implies the recognition of human, life, Earth, and universe history. On the other hand, I also propose that GCED promotes an eco-ethic through the study of "*biomimicry"*, which inspires to understand the interdependence of ecosystems to make an organizational-procedural-structural application in all human systems (sociosphere, technosphere, etc.). In shorts, the idea of biomimicry has a *bioliteracy vision* that must be disseminated in the GCED´s pedagogical contents to inspire global citizens to observe and learn from nature, rather than exploit and destroy it. Sustainable development is not a goal, but a continuous process of proper management with all natural goods of the biosphere.

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3. Transdisciplinary methodology: linking the human condition in the Big History

The traditional concept of national citizenship is changing under the influence of multiple processes associated with globalization, because it creates economic, social, and cultural changes beyond the national borders. The notion of "global citizenship" acquired momentum when the UN Secretary-General, Ban Ki-Moon, launched his Global Education First Initiative (GEFI) in September 2012, recognizing the role of education in fostering global citizenship by making it one of GEFI priorities, next to access and quality of education. Since the beginning of the 21st century, the idea of "global citizenship" has been marked by people and institutions around the world that are questioning the value and meaning of Global Citizenship Education (GCED) in the current context of globalization. If it is true that education cannot offer immediate solutions to current *glocal* problems, it helps to solve them in the medium and long term. Then, UNESCO has undertaken pioneering and foundational work in order to advance the understanding of GCED, provide intellectual guidance and technical support for its implementation. From 19-22 May 2015, the World Education Forum (WEF) took place in Incheon, Republic of Korea, where the world education community was discussing about the education goal and targets in the post-2015 sustainable development agenda that was adopted finally by the UN Member States at the Special Summit on Sustainable Development of September 2015 in New York. According to UNESCO, the "Declaration on Education 2030" set out a global roadmap for Education until 2030.

GCED proposed by UNESCO requires a new methodology outside of the positivist thought of the nineteenth and twentieth centuries, which reduces and separates the relationship between subject and object, that is, *the hidden middle between human beings and nature*. In this sense, the pioneering work "*The Manifesto of Transdisciplinary*" published in 1996 by physicist Basarab Nicolescu is a proposal in perfect harmony with the paradigm shift that information age of network society (CASTELLS, 2000) is demanding to achieve the SDGs. It represents a new epistemological approach that understands human being as an integral part of the autopoietic cosmic whole, and also houses the ethical imperative to develop a culture of peace. In fact, the International Congress organized by UNESCO and CIRET *"Which University for Tomorrow? Towards A Transdisciplinary Evolution of the University*", celebrated in Locarno (Switzerland), participants would submit to the attention of Mr. Federico Mayor Zaragoza (Director-General of UNESCO at the time) programs of action and cooperation between Member States. A statement with recommendations that addressed the specifics of the new transdisciplinary methodological vision that would end up germinating with the *UNESCO´s Transdisciplinary Project "Toward a Culture of Peace"* in full symbiosis with the *UN International Decade of Culture of Peace and Non-violence for the Children of the World (2001-2010)*. In this context of new epistemological approaches, Nicolescu presented his three pillars of transdisciplinary: *levels of reality, logic of the included middle and complexity.* With such transdisciplinary methodology we are available to understand much better that different cultures are the different facets of the human being. With levels of reality, Nicolescu (2014) studies all ontological levels of physical laws that constitute the whole universe. With the logic of the included middle, Nicolescu (2014) proposed to integrate all those levels under the same scientific approach. And with complexity, Nicolescu (2014) refers to all the inter-related elements and phenomenon of Reality. Then, transdisciplinary methodology aims to create the foundations of a new theoretical-epistemological-methodological model that contribute qualitatively in the open debate for the implementation of GCED in the post-2015 Development Agenda.

One of the biggest challenges of GCED will be, in fact, the process of directing humanity towards new forms of cooperation and democratic social organization, which develop just and sustainable relationships with the environment. For that reason, GCED is a central objective of UNESCO's education program, drawing on work in related areas such as peace and human rights education, education for sustainable development and others. But, how could we adopt new human productive systems that do not conflict with the limits of ecosystems to achieve a real sustainability? How could we create a GCED, which respects the defining historical, and cultural characteristics of each community, and at the same time address the post-2015 targets from a sustainable critical consciousness? Could the GCED be able to build transnational bridges interconnecting the nations and peoples of the world without falling into the cultural homogenization of humanity? Could the GCED overthrow the political walls of the Nation-States to open frontiers to an authentic and true global citizenship that can move freely without subdue our brothers and sisters from the South, who die every day trying to arrive to North countries? Unfortunately, there is not a magic formula to answer these questions. The problem to create a GCED in the 21st century represents a paradigmatic civilizational challenge that is closely interlinked with the achievement of the SDGs. In my opinion, the emerging global citizenship must learn to contextualize human beings, life, Earth, and universe history from transdisciplinary methodological approaches provided by Big History.

Therefore, it is necessary to promote a structural epistemological transformation that facilitates the development of a complex thought capable to build a new kind of identity for the emerging global

citizenship. A global identity based on the idea that humans are part of nature (governed by natural laws), whose historical approach addresses the past of people, life, Earth, and the universe. That is, a transdisciplinary perspective whose dynamic approach understand complexity of social relations of our time with nature, in harmony with the *Big History* spearheaded by David Christian in his book "*Maps of Time*" (2010) and theoretically founded by Fred Spier in his work "*Big History and the Future of Humanity*" (2011). The Big History is an emerging discipline that examines the multidimensional identity of the emerging global citizenship through a *cosmic and planetary* approach that conceives the human condition complexity as individual-society-species: contextualizing cosmic and eco-biologically the human *species* to understand we all are ontologically equal beings (with the same molecular composition of DNA); with a rich cultural and spiritual diversity that characterized every *society* according their phenomenological and hermeneutical historical context; and with interests, motivations, and dreams radically different between *individuals*. Our human condition/identity is linked with the whole nature because we are co-evolving with all ecosystems of our biosphere in the own universe.

The purpose of my work is to provide a panoramic picture of current *glocal* problems of human unsustainability; integrative eco-ethical worldview can potentially contribute to achieve the SDGs. In this research, philosophical and cosmological levels are linked to human production systems because the transdisciplinary nature of eco-ethics requires the presence not only of the unity of natural and social sciences, but also a holistic image of humans in the universe. At the dawn of the third millennium, the understanding of human condition/identity on planet Earth needs an appropriate contextualization in the universe. When we analyze the connections between the microcosm and the macrocosm, we perceive that human beings are not involved in chaos and arbitrariness, but belongs to the large network of interdependencies, complementarities and reciprocities that constitute life (CAPRA, 2005). The emergence of life on Earth, around 3,8 billion years ago, was a complex process of exceptional natural phenomena, inherent in all living systems. A process that is expressed through unlimited creativity: mutation, gene exchange, and symbiosis (CAPRA, 1998). From a cosmological perspective, we can understand a new conceptual dimension of life, where all living beings share same basis of genetic code: the twenty amino-acids and four phosphatic bases. In fact, the diversity of living beings is caused by the combination of this cosmo-bio-genetic basis. The atomic particles that compose life on our planet - and that compose us-, are born in the first seconds of the cosmos: our carbon atoms were created in a sun before of current one and our molecules were formed on Earth (MORIN, 2011). This trans-dimensional perspective has a deep ecological and spiritual sense for our worldview because the human evolutionary adventure is the latest stage of life on Earth. The modern human being is a vertebrate animal, mammal, belonging to the primates, which emerged 200,000 years ago. In recent centuries he has imposed its anthropocentric, industrial and capitalist vision to the detriment of Pachamama (an Indigenous goddess known as earth mother). We consume around 120% of the natural resources that Earth Mother regenerates annually (MARGULIS, 2002). Our consumer behavior is immersed in a fatalistic dynamic with a destiny to climate change (deforestation, loss of biodiversity, ozone, etc.), and our own self-destruction as a species.

There is an urgent need to get beyond the cognitive fallacy that the mental structures of social Darwinism and capitalist postulates of the 19th century have historically constituted, because they only understand natural and social systems as warmongers and competitive processes whereby species diverge from each other. The Darwinian concept of adaptation to the environment has become outdated with the scientific overview of the Gaia Theory (MARGULIS and LOVELOCK, 1989), which recognizes the Earth as an autopoietic whole, where living and nonliving systems intertwine in the same net of interdependence. In this way, the evolution of living organisms is linked with the environments' evolution: adapting mutually in a unique process of co-evolution. The co-evolution recognition as an ontological phenomenon has deep philosophical implications that involve a revolution in the current civilization model of values. We cannot maintain the current capitalist socioeconomic order because it is incompatible with the planet's limits. The global economic crisis is actually a crisis of planetary civilization characterized by exploitation and depletion of natural resources. "*The only way to continue learning from nature is safeguard its patrimony, the source of new ideas*" says Janine M. Benyus (2012: 24) in her book *Biomimicry*, adding that "*biomimicry becomes more than just a new way of looking at nature: its becomes a career and a ransom*" (BENYUS, 2012: 24).

4. Discussions on Biomimicry: An emerging Eco-ethic for new developments in education

The term *biomimicry* comes from the ancient Greek βίος (*bios*), life, and μίμησις (*mīmēsis*), imitation. In the nineties, the term biomimicry would be used in disciplinary fields of material sciences, cosmetic research, and robotics, until the American science writer Janine M. Benyus popularized it with her book "*Biomimicry: Innovation Inspired by Nature*". Since then, biomimicry emerged as a new science that considers and values of nature as model, measure, and mentor: looking for the inspiration and

imitation of the natural process to be applied into social systems, and thus find innovative solutions to complex problems (such as SDGs). "*Biomimicry uses an ecological standard to judge the correctness of our innovations. After 3.8 billion years of evolution, nature has discovered what works, what is appropriate, and what endures*" notes Benyus (2012: 13), affirming that biomimicry "*begins an era based not on what we can extract from the natural world, but what it can teach us*" (ibid.). In her book, Benyus (2012: 22) recognized nine basic operational principles of Life in the Nature that can be used as example of beneficial model for human behavior: 1) Nature runs on natural sunlight. 2) Nature uses only the energy and resources that it needs. 3) Nature always fits form to function. 4) Nature recycles everything. 5) Nature rewards cooperation. 6) Nature depends on and develops diversity. 7) Nature requires local expertise and resources. 8) Nature avoids internal excesses. 9) Nature taps into the power of limits. The nine principles of Life from Nature identified by Benyus (2012), invite us to reflect and compare the inherent characteristics of ecosystems with the culture of human production.

From the reports of the Club of Rome in 1972, *The Limits to Growth*, the situation in which we are currently in the biosphere has worsened dramatically. Anchored in production models where reign the "planned obsolescence" to increase consumption, we continue without considering that biosphere is finite, with natural resources that have limits to regenerate, and that degradation (entropy) is manifested through the second law of thermodynamics. "*There are alarming indicators about the brutal climate imbalance that we have implemented, and which consequences will be terrible (ecocide more genocide, if you want to express it in a synthetic formula)"* notes philosopher Jorge Riechmann (2014: 333). With such future prospects, there is no doubt that our grandchildren will suffer, during the second half of this century, the climatic consequences of global warming caused by our consumer culture and irrational production. That´s why GCED must promote teaching-learning processes where emerging global citizens learn the same sustainable strategies that ecosystems are developing in nature during 3.8 billion of years of co-evolution in the Big History. Nature is the best model to develop new educational programmes around the entire world at global, regional, national, and local levels. This is a long discussion with many other authors. British biologist and ecologist Barry Commoner (1973: 33-45) also formulated the basic "laws" of ecology: 1) *Everything is connected to everything else*. There is one ecosphere for all living organisms and what affects one, affects all. 2) *Everything must go somewhere*. There is no "waste" in nature and there is no "away" to which things can be thrown. 3) *Nature knows best*. Humankind has fashioned technology to improve upon nature, but such change in a natural system is likely to be detrimental to that system. 4) *There is no such thing as a free lunch*. Exploitation of nature will inevitably involve the conversion of resources from useful to useless forms.

Basic laws of ecology that harbor a strong link of similarity with the notion of "ecoliteracy" or "ecological literacy" developed by physicist Fritjot Capra (1998, 2005), consist of the understanding the five organizational principles of ecosystems to build sustainable human communities: 1) Interdependence. 2) Cyclical nature of ecological processes. 3) Tendency to associate, establish links and cooperate as essential characteristics of life. 4) Flexibility. 5) Diversity. In short, Capra (1998: 20) argues that "*understanding the life must be seen as the scientific vanguard of the paradigm shift, from a mechanistic world conception through an ecological conception*", postulating that human systems should be governed by the key criteria of a living system: a) *organizational pattern* or configuration of relationships that determinate the essential characteristics of the system; b) *structure* or physical embodiment of the organizational pattern of the system; c) *vital process* or involved activity in the continuous physical embodiment of the organizational pattern of the system (CAPRA, 1998: 175). According to Capra (1998: 307), "*Being ecologically literate, being "ecoliterate", means understanding the organizing principles of ecological communities (ecosystems) and use these principles to build sustainable human communities. We need to revitalize our communities including education, business, and policies*". Furthermore, according to the Capra´s *eco-literacy*, also deserves special attention the six basic principles for the ecological reconstruction of economy that Jorge Riechmann (2014: 211) suggests from the concept of biomimicry: 1) Homeostasis or "steady state" in biophysics terms. 2) Living from sun as energy resource. 3) Close material cycles. 4) Not carrying too far the materials. 5) Avoiding xenobiotics as POPs (Persistent Organic Pollutants), GMO (Genetically Modified Organisms). 6) Respecting diversity. In abstract, all those ecological principles recognized by many authors describe how biotic communities go for a process of development (or *ecological succession*) from youth to maturity (or *climax*). The interesting thing for us is that this maturity state is characterized by stability, decrease of net production of biomass (more energy is consumed in respiration), decrease of entropy, complexity (increased information), closing cycles of minerals, increased nutrient conservation, and increasing the global efficiency in the use of energy and nutrients. Then, ecosystems are the best model to get inspired if we want to achieve the SDGs by 2030, because we can copy, emulate, mimic, and to perfect them to achieve a real sustainable human future. Therefore, GCED must promote such ecoliteracy vision at all levels.

5. Conclusions

Following the kinds of practices that govern in nature (variable according to the geographical area where the schools are located) as an integral model in the GCED, teachers would have a reticular pedagogical conception, that is, allowing the insertion of each community in the networking relations of their nearest environment, and after with their far environment. Thus, we would have an educational program where children would learn to assess how nature proceeds in its environment (following all principles of life identified by Benyus, Commoner, Capra, Riechmann, etc.), and how they can mimic those natural proceedings in their human relations: how they can interact inclusively, how they can recycle, how they can use solar energies, etc. Indeed, the biomimetic approach is a bridge between children who are living in societies more interconnected with nature and those who are living in the called "rich countries", who are distanced greatly from the natural habitat. Biomimicry is the meeting point between called "primitive" and called "hyper-technological" societies that, united by the concept of global citizenship, could develop a cosmodern consciousness capable to achieve the post-2015 goals.

In abstract, I am talking about proposals that seek to expand the complex debate we face when we talk about GCED and SDGs. A global governability challenge without historical precedents where solidarity and human cooperation are the symbiotic key to integrate eco-ethics as the civilizational meeting point to achieve a sustainable future human image. We are in the historical conjunction that Edgar Morin (2011) defines as "*the stone age of planetary civilization*." Therefore, it is necessary to *foresee* the future to be ready when it arrives, because there are no doubts that quantum computers, Artificial Intelligence, nano-technology, contact lens with Internet access, the genetic mutation of DNA, and travels in space will radically change our habits in a short period of time: contextualizing mankind in the *cosmodern paradigm* (COLLADO, GALEFFI and PONCZEK, 2014). The time has come to walk together towards this new civilization paradigm. Readers are encouraged to follow through with any thinking inspired by the reflections presented in this transdisciplinary and biomimetic work. In South Africa there is a symbolic proverb that says, "*If you want to go fast, go alone. If you want to go far, go together*". Are you ready? The challenge starts now. I invite everyone to meet me on this path bound for a transformation of current system of capitalist production, where new eco-ethical dimensions for a future human sustainability take place.

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IMPACT OF BOLOGNA: EXPLORATION OF PRACTICE PROVISION OF HIGHER EDUCATION TO ADULTS WITHIN AND OUTSIDE EUROPE

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Abstract

This paper discusses the impact of international and European reforms of Higher Education (HE) systems – especially the Bologna Process – on higher education provision for adults within Europe and; in the Russian Federation. Over the past decade the European Commission has encouraged Member States to make lifelong learning the basic principle underlying education and training, and within this framework to develop the Adult Learning sector (as set out in the "Action Plan on Adult Learning", 2007). Opening up higher education to those who have not previously engaged in studies at this level, including adults, is seen as crucial in this context. Flexible provision has been identified as one of the main elements needed in order to attract more non-traditional learners into higher education while overcoming barriers faced by this group of learners. In spite of this, progress on the benchmark for adult learning participation has been low. The paper presents some findings from one of the strands of the large scale completed project "Opening Higher Education to Adults", covering a representative range of the 25 countries (20 European and 5 non-European). At the time of author's work at Higher Education Research Centre, the work was completed on 3 country studies on the adult higher education provision – UK Ireland and one non-European country (Russia) within this international collaborative project.

The overall objective of this work was to collect information contributing to a knowledge base which will inform a number of future activities within the framework of European Cooperation on Adult Learning Policy. In this paper specifically, present the findings on Russia as a country case - mapping and analysis of recent developments in Russia with regard to quality approaches in the field of Adult Learning. I report on the work which involved a mix of desk-based research and analysis, as well as fieldwork, few expert interviews and fact-finding visits: a mapping of national regional policies, frameworks/legislation with regard to quality approaches, innovative teaching methods and other developments in the field of Adult Learning. I will also discuss some of the issues and challenges which are specific to the adult learning sector in relation to assuring quality of its providers and provision.

Methodology: The project was a comprehensive study on the factors impacting on the participation of adults in higher education and on the flexible delivery of higher education programmes and learning provisions for adult learners. The Research methodology has specifically focused on 25 country studies. The broad themes of the individual country studies included conducting the background research on the: definitions of 'adults' in HE and specification of target group of adult learners in HE; regulatory issues and policies at national, regional and institutional level (e.g. access and admission to HE, funding of HEIs, student grants/loans); the barriers for opening HE to adults (historical and contextual); the drivers for the enhancement of adult learners in HE (eg. labour market policy, educational policy, demographic change). The work also involved a mix of desk-based research and analysis, as well as fieldwork, few expert interviews and fact-finding visits.

In this paper I present the findings of the research work and conclude with the outcomes of the project and map the important factors that facilitate or inhibit participation of adults in Higher Education. In particular, I will map the important factors that facilitate or inhibit the participation of adults in HE; will describes models from higher education institutions (HEIs) in Russia, based on the completed case study, that are engaged in adult education; identify the types of flexible learning, including open and distance learning which are conducive for good adult learner performance and; will provide an example of good practice, selected from 5 non-European countries, with a specific reference to Russia.

Keywords: *Mature students, Bologna process, adult learning, access to HE; innovative learning methods.*

1. Definition of 'adult learners' and overview of the adult education sector in Russia and some examples from the European Union

The definition of an 'adult learner' in higher education is largely linked to the *readiness to learn* and *orientation to learning* rather than the age markers along. There is no commonly accepted definition of 'adult learners' is available, but rather various markers and criteria in the Russian Federation are used. Thus, for example the age marker could be used to refer to non-traditional students generally older than 25 years of age at the time of first entering higher education. Additionally, the 'life-course' marker could be used when attempting to define an adult learner, who enrol on to higher education programme or participates in higher education combined with a continuing professional education after a period of continuing work experience. Generally the modes of study which are typical for adult learners in the Russian Federation include part-time, distance and evening hours attendance of higher education programmes. Adult learners in the Russian Federation access higher education with the aim to increase their competency, knowledge and skills and be able to apply them more effectively. Adult learning experiences as such, are organised around competency development.

Key problems and challenges faced by the educational system of the Russian Federation are examined in the Report *'The Education System in the Russian Federation: Education Brief 2012'* (Nicolaev and Chugunov, 2012), which combines statistical data and provides in-depth information on the human and financial resources invested in education. The Russian Federation is among the world's leaders in the number of students in tertiary education. This results from a higher proportion of students engaged in the secondary vocational education; while in terms of the proportion of students engaged in higher education, the Russian Federation is in the average among OECD countries. Currently, the majority of the developed countries have programmes for adult learners to enter continuous and lifelong learning. The countries of the European Union could achieve in recent years relatively high rates of participation of adults in education and training. The rates of the economically active population which participates in lifelong learning across the EU countries reach 60-70%. In the Russian Federation, the share of economically active population, participating in lifelong learning does not exceed 22%.

The general higher education access arrangements for adults are the same for all higher education institutions in the Russian Federation. Under the Federal legislation, both men and women who have not attained the age of 35 can enter full-time (day time Bachelor programmes) higher education provision. Nevertheless, older adults can still enrol on higher education programmes provided through an evening mode / distance mode of study. However, only a few use this opportunity and the general figure of adults entering full-time higher education day programmes is very low by international standards – about 0.3%. In public universities students are enrolled on a competitive basis and pay no fee, with financing coming from a federal budget.

As stressed above, adult learners in the Russian Federation access higher education with the aim to increase their competency, knowledge and skills and be able to apply them more effectively. *Adult learning experiences as such, are organised around competency development.*

The Russian Federation has a well-educated work force compared on average to other OECD countries. The OECD Country report *Education at a Glance: OECD Indicators* (2012) indicates that a large proportion of adults in the Russian Federation have obtained a tertiary education: 44% of 55-64 year-olds age group and 55% of 25-34 year-olds (Figure 1). Regarding the upper secondary education – 91% of 25-34 year-olds have attained the upper secondary education, as compared with 71% of 55-64 year-olds (OECD, 2012).

2. Planning the case-study field visit

In selecting a case study for the HEAD project an advance study visit was undertaken in April, 9-16, 2012. Three higher education institutions were visited: Moscow State Technical University (Moscow state institute of Radio engineering, Electronics and Automation), MSTU MIREA; the Higher School of Economics and the Moscow School of Social and Economic Sciences (Russian – British Postgraduate Higher Education Institution). In terms of selecting an innovative example of university provision of higher education to adults amongst the 3 higher education institutions, it was decided to focus on the practices of MSTU MIREA for the following reasons:

- In regard to the modes of study and mainstream flexible learning opportunities - MSTU MIREA demonstrates a good practice example.
- The Higher School of Economics is a National Research University, and while it has a good selection of learning opportunities, this university is not typically representative of the Russian sector of higher education.

- The Moscow School of Social and Economic Sciences is a Russia-British postgraduate higher education institution and will not be representative of the sector of universities which provide alternative routes to adults to enter higher education.

3. Good practice example of opening higher education to adults – Moscow State Technical University (Moscow state institute of Radio engineering, Electronics and Automation), MSTU MIREA

3.1. Institutional context

The proposed good practice example of opening higher education to adults is focused on the programmes and educational and learning arrangements of Moscow State Technical University of Radio engineering, Electronics and Automation, in text referred to as MSTU MIREA. MSTU MIREA is a public university, was founded in 1947. The total number of students is around 16000. The university awards academic degrees of D. Engineer. The main faculties include Cybernetics; Computing Machines and Systems; Radioengineering systems; Electronics; International Faculty of Informatics; Economy and Management. Prospective adult students may choose to enrol on the courses and degrees of any of the degree programmes aforementioned faculties of the university and follow either: a day-time (full-time) education provision, evening mode of study (part-time), a study by correspondence, distance learning.

The mission statement of the university reflects the formation and development of human resources along with the scientific and industrial potential of the country through the means of integration of education, research, teaching and innovation.

3.2. Characteristics of the programmes of MSTU MIREA

As with other public universities, very few adults / adult learners participate in full-time, day-time bachelors or masters programmes.

The criteria for admission of adults (those older than 25) does not differ from the general admission criteria of those entering higher education on completion of secondary school - so they are the subject to the same admission rules that apply to recent college graduates.

Nevertheless, MISTU does offer adult learners a different entry route to higher education – they come to the full-time evening study (through an evening study department) or choose distance learning, which is usually completed through correspondence. In the context of this good practice higher education provision example, we define distance learning as a mode of study, where students work on their own at home or elsewhere, at the distance from their university. They communicate with the faculty via correspondence, which does not involve the Internet and computer-based systems and platforms. Overall MSTU offers programmes on the following modes of provision: day-time provision, evening mode of study, distance (through correspondence) and distance (with computer assisted tools). Nevertheless, please note, that it is possible to complete higher education degree in ‘Computer science’ through distance learning, involving communication through the Internet and computer-based platforms. The learning process is based on the principles of student independence, but also involves consultation with tutors (via e-mail). The students also have access to all materials (in the electronic form).

Each mode of study is administered/looked after by the relevant admission office in the university. Admission to these two study modes is determined by the general admission rules as set out by each university, and no special admission rules for adults exist. Also, there is an additional opportunity for adults to enter higher education – through the completion of a second /additional B.A degree, or a continuing education or through entering continuing professional development training. These forms of education are only available on a fee basis. The programme which is completed in order to qualify for the additional B.A degree can be modified according to the level of the fist degree, which is held by the student, as additional degree means covering the new set of modules to meet the individual student needs. As a rule, additional continuing educational programmes or professional development training are usually developed by the industry organisations and aiming at improving the skills of their employees. In that case, companies usually pay for the development of such programmes and also cover course study fees. Individual programmes can also be ordered and paid for by the federal or regional authorities. In that case, the enrolling adult students do not pay fees. The courses under such programmes could include computer literacy training for the general population, retirees or people engaged with child care or domestic responsibilities. The programmes, for example, can also cover business foundations and entrepreneurship. In the system of additional education the following approaches are widely used: distance learning, electronic textbooks, virtual laboratories with remote access to the equipment.

3.3. Innovation in opening higher education to adults through partnership between the university and employers

In the last decade several steps have been taken at the national policy level to upgrade the content and improve the quality of vocational education. A few steps had been also taken to integrate Russian professional education in the international space and align with the Bologna requirements and process: educational programmes have become more flexible, state educational standards have been introduced and the process of overcoming early specialisation within the programmes in under way. Importantly these standards allow greater independence of educational institutions in their ability to customise their educational programmes.

In recent years there is a pronounce trend for the private companies and enterprises to create their own education centres for up skilling and training programmes for their staff, as means to increasing the human capital capacity of their staff. This leads to a closer link between the demands of the labour market and educational programmes' content of universities and vocational subjects offered for adult learners.

As research shows, 66% of employers prefer to re-train their employees on the basis of their own educational departments. In general this situation corresponds to the global trend of the rising role of in-house training. Also, as was mentioned above, according to a recent survey of the Higher School of Economics, the State University, over 95% of adult education happens in the workplace (Abdrahmanova et al, 2007).

MSTU MIREA has cooperation agreements with 52 major businesses and industrial companies. These contracts additionally contain agreements on cooperation, training and professional development of their employees who already hold higher education qualifications. The study programmes for these companies are run in the evenings or on a part-time distance learning basis. For some employees, the study and training takes place in the industry organisation or a plant in specially equipped premises, except, of course, for general laboratory disciplines (physics, chemistry, etc.). The state does not generally provide grants for adult education. But some financial support can be provided by the individual industry organisations, which can specifically target up-skilling / training of their employees. Adults students who are registered on full-time undergraduate programmes can apply for the scholarships on the same basis as those who enter higher education on completion of secondary school. Previous work experience of adults is only recognised on entering the programmes of Continuing education.

3.4. The study format and programmes provision

The adult learners have the option to undertake the degree courses in MSTU MIREA through the following forms of study:

- Day-time (full-time). This form of study is available on all educational programmes of MSTU MIREA for both undergraduate and postgraduate students.
- Evening mode of study (part-time). This part-time form of education is available for the degree courses of the main faculties of the university. The evening mode of study is mostly suitable for adult students working in the daytime. Classes are held 4-5 days a week for 4 academic hours. The programmes are usually delivered from 18-00 to 21-10 in the evenings.
- Correspondence (part-time) mode of study. It is available for the degree courses of the main faculties of the university and also as a form of postgraduate study. This form is particularly suitable for commuting students or those working at night shifts or on schedule.
- Distance learning mode of study is available and particularly convenient to people living in remote areas, and people with disabilities. Adult students considering taking up their degree courses through this mode of study should have a personal computer and Internet access.

4. Assessment of programmes of MSTU MIREA

The case study institution however does demonstrate a number of examples of good practice through part-time evening provision, access to full-time Bachelors degree and connecting with work based learning opportunities. The University is involved into cooperation between other Higher Education Institutions, companies and organisations, both nationally and internationally.

It can be argued that the strengths of the University in its provision of education for adults relate to the content of the programmes and the arrangements of the educational provision. Here we would specifically relate to the evening mode of programme provision. The evening mode of study provision is very practically compatible with full-time employment of university students. Additionally, MSTU MIREA show good flexibility in regard to facilitating access into higher education degree system. Adult students can enrol on a number of faculties across the University.

Nevertheless, adults who wish to enter higher education in public universities in Russia face many barriers - some of which are legislative. For example practically no lifelong learning opportunities exist for people 55/60-70 age group. And workers of small enterprises have less potential to enter training and upskilling programmes due to the lack of funding. It would be beneficial for the adult learning sector to introduce normative provisions which can comprehensively regulate the adult education system.

In general, across the country a high level of access to the education at all levels is currently present. However, the Russian Federation lags behind the developed countries in regard to the access to the individual sectors that are important to meet the needs of the citizens: early childhood education, pre-school education, continuing education and non-formal education. In addition, the transfer in recent years of the responsibility to fund and finance the sector of pre-school and *additional education* to the local/regional authorities has led to the inter-regional differentiation in the availability of educational services. To note, the Russian Federation is one of the few countries where the government funds the organisations which provide *additional education* to children, in the areas such as sport, arts and culture. *Additional education* services currently used by 49.1% of children aged 5-18.

5. Discussion and conclusion

There is much to be learnt from this project in terms of partnership approaches to opening higher education to adults- with complex networking and trust building between the university and a range of external agencies.

In this paper the author presented a good practice example in terms of flexible route for adult learners to gain entry to higher education and subsequently to work as professionals in a variety of educational fields in the public and private sectors.

The definition of 'adult learners' in higher education varies widely across countries included in this project "Opening Higher Education to Adults" (although not reported in this paper) as well as within national contexts. The analysis of the country reports led to the following conclusions:

- The lack of a coherent understanding of adults as target group makes it difficult to develop a better understanding of the specific needs of adult learners in HE.
- The criterion 'age' surfaces in many definitions, descriptions or legal frameworks, and is one of the main criteria to describe 'adult learners', with average age of 'adult' students may vary significantly.
- Other spheres of life – especially work and family – might be better indicators for the identification of adult learners in a perspective on the integration of learning throughout a life-span.

In order to identify and describe flexible types of learning the study distinguished two major dimensions of flexibility of higher education learning provisions: i) didactical dimensions and the individual learning environment of adult learners, and ii) structural dimensions which concern the modes of delivery at an organisational, institutional and system level. Regulatory frameworks and financial provisions play a key role in facilitating the opening of higher education to adults. Financial factors have been identified as one major barrier for adults to participate in higher education.

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DRIVING TEACHING INTERVENTIONS WITH ANALYTICS

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Abstract

The research described in this article aims to study the analytics impact on the process of teaching. A short review of analytics evolution is presented, making a retrospect to the time of Greek philosopher Aristotle and his works on Analytics. Some physical analytics methods through the years are mentioned before reaching the contemporary digital world where the modern Learning Analytics concepts, methods and tools are discussed. The paper goes deep into using the information technology achievements in measuring, collecting, analyzing and reporting of data about learners during the educational process. Key methods and popular computer tools for digital analysis and Educational Data Mining are threshed out. Software functionalities are compared and the most sought-after features for a LA product are defined. Finally the paper includes some challenges and further works for creating effective Learning Analytics tools and components integrated in a learning environment.

Keywords: *Learning Analytics, Information Technologies, review, Big Data, education.*

1. Introduction

In the modern society the process of education is not and will never be the one which our ancestors knew and practiced. We use advanced information technologies (IT) people have not even dreamed about a century ago. Intelligent systems manage students' courses and classes, trace their activities, assessments, communications and collaboration with others, track achievements and progress, predict future results and interests. All these software systems and environments collect a big amount of data. In addition mobile technologies penetrate more actively in teaching and learning. This brings to the fore the issue of collecting and analyzing large amount of mobile data and development of mobile tools. For having a successful education today it is important data to be used in order to have more effective teaching and learning.

This paper is organized as follows. The next section presents the evolution of analytics starting from ancient times and traditional analytics methods and tools and reaching the contemporary world with high technologies and modern methodology. In the third section three sample analytics tools are described and compared by key features with the objective to define a specification for software product that meets the market demand. Some users' and software engineers' challenges were presented in the fourth section and the further work on this research was summarized. Last section makes a conclusion.

2. Evolution of analytics

Analytics as a term dated to the 4th century BCE when the Greek philosopher Aristotle used it to title his works in logic – "Prior Analytics" and "Posterior Analytics". His methodology was to divide the logical reasoning to simple elements and proceed them into a complex reasoning. For centuries the general methods used to collect information about learners, to process it and make conclusions about the success rates could be called "manual" - teaching students face-to-face, leading physical school diaries, preparing grade reports. With the development of Probability theory in 18 century the mathematical statistics gave the main logical tools for analysis. According to the Oxford dictionary now analytics is "Information resulting from the systematic analysis of data or statistics" (http://www.oxforddictionaries.com/definition/english/analytics).

The technological boom in the last few decades, when we used to carry notebook computers with us or living with mobile devices in the pocket, when we started to turn the dream about "Internet of things" into reality, we changed our lifestyle and our thinking. Our education went out of its traditional framework. Smart software systems were implemented to serve teaching and learning in all their phases.

Technological innovations developed new techniques, tools and methods for extracting and visualizing data from educational settings. New term was introduced "Educational Data Mining" (EDM) defined as "a multidisciplinary area in which several computing paradigms converge: decision tree construction, rule induction, artificial neural networks, instance-based learning, Bayesian learning, logic programming, statistical algorithms, etc." by Klosgen & Zytkow in 2002. Ten years later the field of EDM is explained as "an emerging discipline, concerned with developing methods for exploring the unique and increasingly large-scale data that come from educational settings, and using those methods to better understand students, and the settings which they learn in" (http://www.educationaldatamining.org/).

In parallel the improvement of graphical tools for software visualization led people to talk about visual analytics as the "the science of analytical reasoning facilitated by interactive visual interfaces" (Thomas and Cook, 2005).

About this time two new types of analytics were introduced. The first one was Predictive analytics defined as "a set of business intelligence (BI) technologies that uncovers relationships and patterns within large volumes of data that can be used to predict behavior and events." (Eckerson, W., 2007). It is "forward-looking, using past events to anticipate the future" (Eckerson, W., 2007). The second type is Academic analytics which "marries large data sets with statistical techniques and predictive modeling to improve decision making" and gives it the "potential to improve teaching, learning, and student success" (Campbell, J., Oblinger, D., 2007). The methods of this analytics were described as capture, report, predict, act, and refine data.

In 2009 Avinash Kaushik published "Web Analytics 2.0" in which he defined Digital analytics as "the analysis of qualitative and quantitative data from your business and the competition to drive a continual improvement of the online experience that your customers and potential customers have which translates to your desired outcomes." Kaushik, A., 2009). His approach to divide data on a different principle and give them specific meaning was used to develop and broadcast Google Analytics for measuring web traffic to and from web-sites. The penetration and promotion of social media sites like Facebook (https://www.facebook.com/) and Twitter (https://twitter.com/) later set the beginning of contemporary social analytics, defined as "monitoring, analyzing, measuring and interpreting digital interactions and relationships of people, topics, ideas and content" (http://www.gartner.com/it-glossary/social-analytics). In education this kind of analytics aims to research the role of social interactions in the process of learning and their influence on students' progress.

In 2010 George Siemens introduced Learning analytics as "the use of intelligent data, learner-produced data, and analysis models to discover information and social connections, and to predict and advise on learning" (Siemens, G., 2010). The same year as pointed Rebeca Ferguson the main trends of analytics in education are:

- "Educational data mining focused on the technical challenge: *How can we extract value from these big sets of learning-related data?*
- Learning analytics focused on the educational challenge*: How can we optimize opportunities for online learning?*
- Academic analytics focused on the political/economic challenge: How can we substantially improve learning opportunities and educational results at national or international levels?" (Ferguson, 2012).

One year later during the first international conference on Learning Analytics and Knowledge (LAK) was decided that Learning Analytics "will focus on integrating the technical and the social/pedagogical dimensions" and the contemporary definition was given: "Learning Analytics is the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs". The same year Tanya Elias published a model of LA visualizing three main phases (1) gathering data with capture and select them, (2) information processing from aggregate to predict, (3) knowledge application from refine to use all data about people, theory, computers and organizations (Elias, T., 2011).

The vertiginous development of information technologies in 21st century changed the units and scale for measuring information as well as the methods for data manipulation. Starting with bytes and kilobytes five decades ago today we talk about exabytes and zettabytes and even yottabytes of data when planning the near future. Big data sets are collected and their processing is beyond the ability of traditionally used software tools. In 2012 Gartner defined big data as "high-volume, high-velocity and/or high-variety information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision making, and process automation" (http://www.gartner.com/it-glossary/big-data/). This brought to the fore the most recent type of analytics – Big data analytics with all its challenges to extract information from big sets of structured and unstructured data.

3. Analytics tools

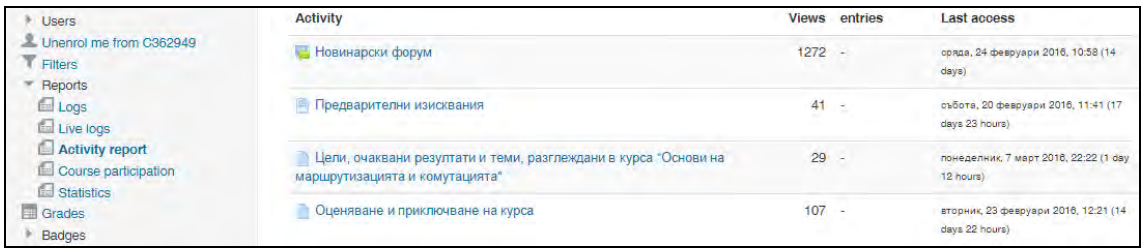
The rapid development of information technologies in the last few years set big challenges for software engineers to develop advanced professional tools helping teachers to answer so many questions about teaching materials and course organization, student perception and knowledge improvement etc. Modern learning management systems (LMS) include build-in analytics features for reporting content and resources analysis, for capturing student interactions and course participation, for social analytics.

In this paper three sample tools for LA are shortly described and compared: (1) Moodle LA reports, (2) Learning Analytics and Reflection & Awareness Environment (LARAe), (3) Mobile Inquiry Coordination Interface (MICI) created in the frame of European project weSPOT (2012-2015) (http://portal.ou.nl/web/wespot).

3.1. Moodle

As an open source platform Moodle (https://moodle.org/) is one of the most popular and widely used LMS. It offers a wide range of standard reports concerning log files, activity reports, course participation, overview and completion, statistical analysis (Fig. 1). There are many additional third-party plugins giving extra data about course dedication, engagement analytics and a series of configurable database queries. Teacher is given even the possibility to generate own SQL queries to database for receiving special enquiries. In most cases the result data are displayed in a table view and teacher, student, administrator or decision-maker is offered the option to download and subsequently process them with another analytical tool.

Figure 1. Moodle analytics



In fact Moodle LA tools filter data from log files and provide them for analysis to external statistical software tools like SPSS, R, Tableau, MS Excel etc. The drawback of this analytics tool is the inability to handle real-time data.

3.2. LARAe dashboard

LARAe tracks all activities happened online in a system, no matter they are caused by students or by teachers and visualizes them in a dashboard usually as circles (Fig. 2). Actions are displayed by users and could be divided into different columns by phases of education, types of activities or any other criterion. Sorting function is available for each activity group as well as rating is possible for each action. Additional details could be shown for each activity on demand (Charleer, S. et al, 2014).

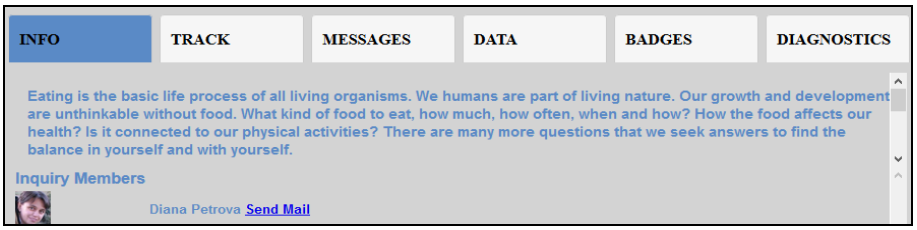
Figure 2. LARAe Dashboard, weSPOT project, Inquiry Feeding with balance – health in advance

Usually more than one applications in learning environment are synchronized to record data in the dashboard. LARAe helps teachers to deep-dive into data on students' involvement in the learning process and to answer some questions concerning systematic learning, interest of students, final results and many others. The main problem with this analytics tool is that the measurement is primarily quantitative. Multiple executions of one activity does not guarantee quality education.

3.3. MICI

MICI is an open mobile application developed in 2014 with the main goal to monitor and coordinate mobile students' activities during inquiry-based learning (Fig. 3). Teacher is provided with a dashboard with six separated tabs for common information about inquiry, a geographic map with option to pin participants' position, a message box for social communications between students, data for contribution to the inquiry, badges board and some diagnostics.

Figure 3. MICI dashboard



This tool displays in attractive graphical way statistical data about students' participation in courses but its weakness is the same as LARAe tool – the measurement is mostly quantifying.

3.4. Comparison of reviewed tools

The following table summarizes some key features of the described above analytics tools.

Table 1. Comparison of the studied analytics tools

Criterion	Moodle LA	LARAe	MICI
Mobile version	X	X	√
Grades visualization	√	X	X
User friendly interface for defining request	X	√	√
Graphical data visualization	X	√	√
Ability to ask off-beat queries	Partially	X	X

From the comparison could be concluded that none of the studied analytics tools meets all the required criteria.

4. Challenges and further works

Popular LA tools nowadays provide a big set of predefined analytics reports like students' activity, course participation, log tables data etc. This information is extremely valuable, but it is not sufficient to answer all the questions, which may arise during the teaching and learning. Suggested reports are not flexible enough and cannot ensure the desired freedom of the participants in the process of education. Data require further processing with external software to extract useful knowledge about teaching and learning which means more mathematical, statistical and computer literacy, more working time, more software licenses. The interfaces suggested for requests definition are not enough user-friendly, questions are composed in text form.

A major challenge for software engineers is to develop a user-oriented interface allowing teacher to compose queries by drag-and-drop graphical components. A wide variety of analytics tools could be created but it should always be taken in mind the ethical aspect of working with personal information. Data protection, security and privacy should be guaranteed.

The presented LA tools are based on structured database extractions. So far, for the purposes they were developed, and worked with the quantity and types of data they should have handled, these tools have performed their task. Nowadays in time of „big data" booming, new contemporary tools must be developed intended to process unstructured and real-time data. Similar solutions are used successfully in business. For example the open-source Hadoop framework is the base file system and job tracker for Amazon Web Services (https://aws.amazon.com/), Cloudera (https://cloudera.com/), Hortonworks (http://hortonworks.com/) etc.

Currently two main directions for future research and development are discussed. The first one is searching for options to integrate an existing statistical software like R to a LMS. The challenge here is to find out is it possible to integrate such kind of systems and to what extent. The second direction is to develop a new analytics software tool which can be used either alone or as a part of other system, for example Moodle. The challenge of this task is to research whether such a tool could be based on Hadoop distributed file system and MapReduce engine.

The ultimate goal of next study is to propose features unrealized in other LMSs. The challenge is to research (1) what exactly are the expectations of concerned and (2) how to realize them. We consider three types of users – teachers, learners and education managers and we suppose that the main differences for these target groups will consist in data visualization.

5. Conclusion

The presented research is still in progress. In upcoming articles will be submitted specific solutions and the operations taken for their implementation.

Especially today, when the massive online courses (MOOC) with thousands of participants are so popular the presence of software analytics tools is crucial for the quality of teaching and for the students' success. They give to teacher the possibility to monitor course performance and to solve encountered problems in a timely manner. This can play an essential role for successful course completion of learners.

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DOES GERMAN-ONLY SCHOOLING HELP IMMIGRANTS SUCCEED?

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Abstract

This study investigates such policies and tries to show that officially forcing somebody to always use a language different to one's mother tongue – as well-meant this intention may be – is doomed to fail. Austrian laws do not take a clear position yet. Nevertheless, some illegality of such an intention can be derived from a number of regulations. The study shows that these procedures can unfold massive negative consequences for children that are affected by such policies. They may not only develop minority complexes due to their foreign decent but also experience a feeling of worthlessness and humiliation. Some may even refuse to keep using their mother tongue as a means of communication and in this way estrange themselves from their families and their native culture. This in turn can have devastating effects on their personal development and formation of identity. Another important point is that the acquisition of a second language can only be successful on the basis of a good command of one's native language. Therefore "German only" policies in schools are contra-productive for the respective individual and society in general. On the contrary, is it indispensable to support and promote mother tongue education for migrant students in schools. Otherwise they will not only suffer from negative personal consequences but eventually develop resistance and resentments against society in general. This again will endanger the cohesion and solidarity of a multicultural state and promote parallel societies.

Keywords: *Migration, language policy, multicultural society.*

1. Introduction

In connection with the educational disadvantages of children and adolescents from immigrant backgrounds a good command of a country's official language is as a key competence for a successful educational career and therefore of crucial importance. A number of international comparative school achievement tests like PISA or PIRLS (Progress in International Reading Literacy Study) showed the enormous difference between the results of students with and without migration backgrounds with regard to reading and mathematical competence. Children with native languages other than German often lack behind up to two years (Clapeyron/Seisek-Yilmaz 2010). A poor command of the national language obviously leads to a poor performance in all subjects (Döll/Dirim 2011).

School is often the only place where children and young people can learn, practice and perfect their language skills. In their homes, among friends and in many other social settings communication takes place mostly in their native language. This circumstance caused schools in Germany and recently also in Austria, to oblige children and adolescents to speak only German at school and during school related activities. This regulation does not only apply during classes but also during breaks, on the playground or on school trips. There are exceptions only for foreign language classes where the communication in English, Spanish or Italian has remained an important part of the linguistic methodology applied in foreign language teaching. The incentive for a Germany only policy in schools originated from teachers, parents, and students who tried to implement such regulations at individual schools by means of grass-root initiatives (Friehs 2016).

2. Pro and contra debate

People who have a bad command of a country's national language do not only have problems at school, but will also be unsuccessful in their search for jobs. This fact also contributes to a life in relative poverty and makes an active and constructive participation in society impossible. Not speaking German at an acceptable level means not being able to deal with authorities and other institutions, not understanding labels and manuals, and not being able to find and/or keep a job in Austria (Hoppe 2006). According to

proponents, the obligation to only speak German in schools shall lead to a better command of German of students with a migration background. They argue that only in this way can they practice German at a continuous level which improves their languages skills and facilitates the integration into the majority population (Hoppe 2006).

This topic had already been of major interest in the late 90's of the last century. A German principal caused a massive uproar when he demanded in an info letter to parents that "in the interest of all students" the language for communication spoken in school had to be nothing but German. "In any case, at school we would like to hear neither Russian nor Turkish, because these languages are not taught here" (Frankfurter Rundschau 29.10.1999). When an official discussion on this topic started in Germany in two years ago, a lot of positive, as well as negative reactions followed. Whereas such regulations were welcomed by many teachers, parents, and other members of the general public, negative reactions came mainly from the Turkish media. Newspapers expressed their outrage about such an approach (Die Welt 8.1.2016). This attitude can be explained by the high rate of Turkish immigrants in many German cities. They felt humiliated and discriminated against by these regulations.

Also in Austria fierce debates on the introduction of an obligatory use of German in all school-related settings could be observed lately. The discussion was triggered by the state government of Upper Austria, were such a regulation was officially stipulated (Die Presse 23.10.2015). An immediate reaction was an adoption of a norm by the Ministry of Education which rejected this regulation (APA 23.10.2015). This decision is not undisputed, however, as even renowned researchers, who can only see advantages with such regulations for all respective students, are in favor of a "German-only rule" (Taz 2.2.2006).

3. Legal considerations

The aim is to question if an obligation to exclusively use German in Austrian schools does not violate any constitutional rights of migrant students. Civil rights and liberties guaranteed by the Austrian Constitution are definitely restricted by such a regulation (Art. 1 on the Rights of Children). The European Convention on Human Rights states a right to privacy (Art. 8 ECHR), which is also violated by an obligatory exclusive use of German in schools. Therefore, from a legal point of view any school regulations or agreements regarding behavior that require the exclusive use of German and do not permit the use of other languages are illegal (APA 23.10.2015).

On the other hand, there are still options to legally require the use of German in all school-related activities. A regulation (BGBl. Nr. 37, § 1 Abs. 2) demands of all students a polite, empathic and cooperative behavior. The use of other languages but German could be classified as impolite, as many schoolmates are excluded from the communication process (Die Presse 24.10.2015). But even in this case a thread with legal consequences cannot be regarded as a purposeful measure. On the contrary, young people have to be guided with pedagogical skills and supported in their attempts to acquire good manners that are well respected in the Austrian society. Such manners do not permit to communicate in a language that cannot be understood by everybody present.

4. Personal consequences of a ban to use one's native language in school

There is no doubt that a good command of German is of major importance for a successful life in Austria. Schools play a very important role when it comes to learning German at an appropriate level. Therefore, the almost exclusive use of German during classes is beyond question, as teachers can help with language problems and immediately correct errors. If students are forced to communicate exclusively in German with schoolmates of the same ethnic origin during all school activities, this, however, will probably have more negative than positive consequences. By means of such regulations, many of these students will be deprived of the opportunity to communicate in a language familiar to them. Language is not only a transfer medium of information but also one of identity, personality, history and culture. The skill to deal with abstract problems or cope with emotional conflicts is influenced by the range and extent of language that is available to us (Friehs 2016). Interacting with others that speak the same language, reduces high levels of stress which can be caused by the exposure to a foreign culture. It is also beneficial if there exists a support system in schools that is familiar to migrant students while they are in the process of adapting to the circumstances and conditions of the new culture. If in such a culturally unfamiliar environment migrant students are deprived of the opportunity to communicate in their native language, this will lead to additional feelings of insecurity and anxiety. In a worst case scenario the ban on speaking one's native language in schools can impair the free development of the personality and provoke problems with the identity finding process (Levitan 2015).

If an exclusive use of the German language in school leads to an improvement of the language skills of migrant children, is not scientifically proven yet. It is also questionable if the enforced use of one language actually supports and promotes better access to mainstream society or if it instead evokes resistance and rejection (Friehs 2016). Noteworthy in this context would be that Austrian children and adolescents also profit from language pluralism at their schools. According to Quehl (2003) in addition to the general facets of intercultural learning they succeed in better understanding that people often have a special relationship with their own native language, that all languages are equal and that patience is necessary in situations, in which people struggle with a language.

5. Hierarchization

EU-Guidelines have already declared bilingualism or multilingualism as a desired goal in education (Fürstenau/Gomolla 2011). Bilingualism of most children and teenagers with a migration background, however, is hardly valued by society (Leitner/Pinter 2010). Everything children have learned so far in their native language, loses any kind of value in school. These impacts on a child's language biography can lead to a negative language development and harm reading and communication skills in both languages, in their native language as well as in German. If the use of the native language is forbidden in school, this will lead to a loss of competency in this language, without an automatic improvement of German. Therefore, a double semilingualism is promoted (Leitner/Pinter 2010). The children's' confidence as well as their educational achievements support the acquisition of a new language. Fear and self-doubt hinder the progress. It is equally important to have a good command of and a positive attitude towards one's native language and the motivation to learn German as a second language. Societies' validation of one's native language plays an important role as well. Unfortunately, languages of the major part of migrants are ascribed a very low prestige by the majority population (Peltzer-Karpf 2011). Well-educated Austrian parents see an enormous value of multilingualism in connection with certain languages such as English and Spanish. A paradox situation is created. Migrant students do not feel appreciated for the valuable resource of their native language, as schools regard the multilingualism of migrant students more a problem than a valuable asset. With this attitude they support a marginalization of the native languages of many of their students (Kassis-Filippakou 2013).

Austria, just like in most other European countries, offer classes in the first languages of students with migrant background. Officially, the attendance of classes in native languages is highly recommended. Native language teachers try to impart Turkish, Bosnian, Rumanian, and many other languages. Classes are offered if there is demand and if qualified teachers are available, which is not always the case (Nekula 2011). These classes have the intention to develop biculturality and bilingualism. Respective language classes, however, are not part of the regular curriculum, which means that they are often seen as an additional burden added to normal school assignments. Therefore, such extracurricular language classes are not attended by many migrant students. Others do not even know about these classes, as there is often a lack of sufficient information. Bilingual co-teachers, who assist during regular lessons, are scarce but very helpful. The best pedagogical, psychological and language didactical model would be a bilingual alphabetisation, which due to financial restrictions can hardly be found in Austrian schools (Furch 2008).

6. Teacher anxieties

Teachers are concerned about not understanding what students are talking about during classes and breaks. They fear that they are being undermined in their educational activities. There is no doubt that more conflicts arise and more secrets are kept in schools with a high number of migrant students in comparison to monolingual schools. If children, whose German skills are not sufficient yet, are allowed to use their native language during class, they will be able to follow lessons much better. Help from competent bilingual classmates can encourage the learning success of the affected children, which leads to a more positive learning environment. The temporary use of the students' native languages when doing group or project work should be permitted if all group members speak the same language. In order for all children to understand, the project´s result has to be presented in German anyway. To encourage intercultural learning a diversified composition of groups would be the best option. In this case German is the language which is automatically used by all because in no other way can all participants communicate with each other. If the use of the native language is sanctioned, many students will defend themselves accordingly and use their mother tongue as a sign of protest (Gogolin/Fürstenau 2001). It is even worse when students begin to develop an inferiority complex because of their native language and start to distance themselves from their mother tongue. "If there's a disconnect between students' home identities (…) and what's promoted by the school, students are more likely to disconnect, disinvest, and experience

educational failure. (When) children lose their home language skills, (...) educators have a serious problem … fractured communities are created when families can no longer (talk) on a deep level about issues that matter" (Anderson 2015).

The consequences of the loss of a good proficiency in the mother tongue are often severe. Communication facilities between parents and children are tremendously restricted, which can lead to a massive deterioration of the parent-child-relationship. There is no common family language anymore and the communication is limited to basic content. It is hardly possible for parents any longer to transmit their traditions and to impart their values or beliefs to their children, which in turn can affect a healthy development of children and young people (Wong- Fillmore 1992; Gibson 1998). This is even more problematic as students tend to lose their native language more quickly than they learn the new language (Wong-Fillmore 1991). Moreover, does only a good command of the mother tongue guarantee, that a new language is acquired in an appropriate way, as it has been scientifically proven, that one acquires the second language with the help of abilities and skills, which have been developed during the acquisition of the mother tongue (Fthenakis 1981). A solid basis in the first language does not only support the acquisition of the second language, but is of major importance for learning any other foreign language and for the entire academic success (Fleck 2008).

7. Conclusion

The objective of encouraging students to speak more German is certainly not achieved by suppressing and devaluing their native language. On the contrary, this constitutes an attack on the students' self-esteem, which in turn could lead to aggression, resistance, and eventually even to academic failure. It would not stimulate the willingness to integrate of those affected, but rather foster resentment towards the majority population instead. Migrant children need both languages to cope with their lives, one to ensure successful participation in mainstream society and the other in order to not hamper their identity development and allow continued communication with their families. Indicating that there is no room at school for their language of origin and that it is considered to be purely a private matter, is counterproductive. By implementing such language policies, schools would imply that their students' languages are inferior to German. Considering that schools can be seen as a microcosm of society, this message would suggest that there is no room for such languages in the Austrian society either and cultural diversity is not understood as its integral part (Heath 1986).

From a societal point of view, a promotion of the bilingualism of many students is a positive factor. Increasing international interdependence in economy, politics and culture requires people who can communicate in two, three or more languages without any problems. Ignoring the linguistic skills of many students instead of recognizing these abilities is a waste of valuable resources (Fleck 2010; Levitan 2015). A nation is enriched by multiculturalism. Austria still has to go a long way to recognize the remarkable multilingual potential with which it is already provided. Multilingualism does not automatically create parallel societies. The cohesiveness of a society is much more affected by the way people treat each other and by their level of appreciation for each other. The use of the native language is a fundamental right. Speaking the national language is a basic obligation. You cannot encourage an obligation by prohibiting a fundamental right. This is not compatible with the constitution of a free democratic society (Genc 2006).

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DIGITAL LITERACY FOR THE EMERGING EDUCATIONAL RESOURCES IN THE CONTEXT OF LIFELONG LEARNING

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Abstract

Digital technologies occupy an increasing part of our private and public life. It would seem that educational performances may be improved thanks to digital tools. Implicitly, in a context of lifelong learning, the appropriation of digital skills is a long-standing debate. In this article, we formulated the hypothesis that digital literacy becomes a key element for lifelong learning and completes the traditional methods of teaching. In order to test this hypothesis, we used a mixed methodology. The results of the research confirmed that, simultaneously, digital literacy is linked with the core competencies, involves a set of educational disciplines and influences the lifelong learning by developing several elements such as creativity, distributed cognition, judgement, pooling knowledge, social awareness and citizenship.

Keywords: *Digital literacy, digital skills, core competencies, lifelong learning.*

1. Introduction and general context

In the context of the importance and ubiquity of the new information and communication technologies, the debate of digital competencies and digital literacy are more and more present. Nowadays, lifelong learning became a catchword for teachers, learners and policy-makers (Delors, 1996). Moreover, since 2006, European policy-makers have defined eight key competencies, including the digital ones (EU, 2006). In the "digital era" (Fourgous, 2011) and "Petite Poucette's" time (Serres, 2012), it is expected that, via new technologies and digital competencies, the fight against school failure be strengthened (Bouvier, 2014). In order to avoid the "social reproduction" (Bourdieu & Passeron, 1970), educational offers should be more inclusive, equitable and adaptable to personal and social learners' needs.

In France, the Minister of Education proposed a new educational reform focused on news technologies at school by September 2016. Given that the appropriation of digital literacy is strongly founded on the re-foundation of the Republic declared on 8 July 2013 (Loi 2013-595), digital literacy plays an important role in this decision making. In our article, we will analyse the scope of digital literacy in connection with the lifelong learning, giving some preliminary finding of an ongoing research. Thus, firstly, we will explain the theoretic model with a focus on digital literacy and lifelong learning, as well as the research objectives. Secondly, we will present the description of research methodology and thirdly, we will present several discussions and findings. Eventually, we shall conclude our presentation with some elements characterising the interconnection between digital literacy and lifelong learning.

2. Theoretical model and research objectives

Education was always linked to learning objectives which change from a historical period to another. With the development of new technologies, digital skills seem to become leading competencies in a lifelong learning approach. It is said that digital skills allow learners to communicate more easily and to use the most appropriate learning content.

Let us define briefly the key words that structure the theoretical context of our research, that it to say lifelong learning and digital literacy. Lifelong learning is an important concept, used since the 1990s in an educational context that strongly biased on neoliberalism and labor market. For instance, the International Labour Organisation promoted that "*lifelong learning encompasses all learning activities undertaken throughout life for the development of competencies and qualifications*" (ILO, 2004, p. 1-2). We note that in the definition of lifelong learning there is question of competencies, abilities, skills or

qualifications. Thus, the European Union established a list with eight core competencies for lifelong learning – such as communication in mother tongue or in foreign languages, mathematical, civic, artistic or entrepreneurial skills. Among the competencies listed: "***digital competence*** *involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet*" (European Union, 2006, p. 6). The acquisition of digital skills has become more and more complex with the arrival of new technologies enabling the development of frontier research and the creation of new concepts.

For that reason, *digital literacy* is more and more testified by researchers as defining a set of knowledge and skills which enable learners to better use and produce information. Digital literacy provides learners with the ability to understand information, as well as the ability to evaluate, integrate and interpret (Gilster, 1997). Moreover, digital literacy is linked to the process of appropriating and using meanings (Jacobson, 2012), and includes the development of several elements: cultural, cognitive, constructive, communicative, confidential, creative, critical and civic (Belshaw, 2011). Influenced by the research of Jenkins (2006), Canadian researchers have proposed a digital literacy's pyramid which starts by "accessing" and "using" information and finishes by "understanding" and "creating" it.

The highest level of the pyramid includes, among others: social awareness and identity; judgment and safety; cultural empowerment and citizenship; problem solving and decision making; appropriation and distributed cognition; simulation and decision creativity and networking. Thus, Canadian researchers consider that digital literacy associates technical with general skills, accompanied by critical thinking and ethical behavior (CCEMLN, 2015, p. 1).

Inspired by these theoretical approaches, the main objective of this article is to identify the practical link between digital literacy and lifelong learning's opportunities in the context of French schools.

3. Hypothesis and research methodology

In order to analyse the scope of digital literacy within the lifelong learning policies in French schools, we used a "bottom-up approach" and undertook field research on three secondary schools of the Franche-Comté region, in Eastern France, in the cities of: Montbéliard, Voujeaucourt and Besançon. As digital literacy seems to become more involved in the learning processing, before starting the research, we defined the working hypothesis as follows:

Nowadays, digital literacy tends to complete the traditional educational methods and become a key element for lifelong learning, coating a multitude of educational aspects.

For testing our hypothesis, after conducted "face to face" (Mucchielli, 1991) semi-structured interviews with teachers (Quivy & van Campenhoudt, 2006), we made observational internships (Blanchet & Gotman, 2001). Secondly, we asked teachers to fill an experimentation form (Kaufmann, 1996) for describing activities conceivable with new technologies in schools. The main thematic units of the grid were:

1. description of experimentation;
2. learning objectives;
3. planned period;
4. human resources involved;
5. targeted skills, as well as;
6. indicators for evaluation and auto-evaluation (de Ketele & Roegiers, 1996).

As for sampling, we will rely on the "purposive sampling" defined by Van der Maren (1995). Under this principle, we collaborated with almost thirty volunteer teachers wishing to test the digital tools as part of their courses. The main results were evaluated with a grid analysis (Dépelteau, 2002). A variety of activities, prevailing inverted classrooms, interaction design, collaborative or in group works, was proposed in mother tongue, English or Spanish classes, sport, technologies, life sciences, history or geography. After that, we focused on decoding and encoding information (Bardin, 1977), and we identified pertinent variables to analyse educational models proposed (Robert & Bouillaguet, 1997). The analysis of experimentation forms conducted us to several finding presented in the following subsection.

4. Results and discussion

We can note that, *in a first stage*, according to the data collected from our research, digital literacy plays nowadays a major role in lifelong learning addressed to learners of all age. Let us explain this last point. Firstly, the introduction of digital tools in the educational field represents a challenge for

the *teachers* themselves because they need to benefit of continuing training. Secondly, as for *students*, it seems that digital skills help them to improve basic skills and to have an adaptive content in accordance with their learning difficulties. Thirdly, concerning the *parents*, using the new technologies, they have more opportunities to become "stakeholders" in the educational process. From the perspective of lifelong learning, many digital experiments can be implemented such as: collaborative and cooperative learning; learning in multicultural and multilingual environment; flipped classes or tutoring. For the realisation of this kind of activities, different tools could be developed: digital workspace, Moodle, ENOE, Bibliobox, Esidoc, Prezi, Evernote, Adobe Voice PowToon, ExplainEverything, Pinterest and Padlet.

In a second stage, it appears that digital skills are applicable to almost all educational subjects and implicitly, it is proposed for a number of disciplines, including:

1. *mother tongue*, namely French, for both the best and average students;
2. *foreign languages*: English or Spanish, sometimes in interconnection with history and geography activities;
3. *sciences and technology*, mathematics, life sciences and physical chemistry, in particular by using software such as Python or Scratch;
4. *physical Education* and sports in order to promote the integral development of the person, thanks to Acrosport EPS and Keynote applications;
5. *transversal and tutoring activities* in different disciplines – French, professional immersion, art – mainly focused on media education and developed especially in the Documentation and Information Centre *(Centre de documentation et information pédagogique).*

These activities using digital technologies could support the educational activities proposed in a traditional manner and, thus, enrich the lifelong learning approach.

In a third stage, we identified a set of implications of digital literacy in the learning process. Digital skills seem to be involved in several skills included in the common core skills: communication skills, social, documentary or intergenerational skills, as well as "learn to learn" skills. In this context, the main involved skills are:

1. *digital skills* helping to adopt a responsible attitude and to share information;
2. *communication* skills for understanding and communicating in mother tongue and foreign languages;
3. *social skills*, compulsory to accept human differences and to promote the team working;
4. *"Learning to learn"* skills enabling learners to learn with motivation and determination all their life;
5. *documentary* skills needed to analyse, produce, reproduce and create information;
6. *intergenerational* skills which promote the co-education between different learning actors: students, parents, teachers, policy-makers.

We see that numerical skills and digital literacy appear as a "coagulating agent" for other skills: social, civic, communicative or documentary, whilst the most linked to lifelong learning remain the intergenerational and the "learning to learn" skills.

Finally, we can take note that the relationship between digital skills and lifelong learning is developed at three levels:

1. the linkage concerns learners of all age: students, teachers or parents;
2. digital skills may be involved in multiple educational disciplines;
3. digital literacy both influences and is influenced by several core competencies like: communication, documentary, social, intergenerational or "learning to learn" skills.

5. Conclusions

As results of our investigation, we noticed that digital technologies may be useful for adapting the learning content to educational needs of different learners. Briefly, the correlation between digital literacy and lifelong learning characterises three poles:

1. digital literacy is involved in the educational process both vertically – for all learners – than horizontally – for a range of disciplines;
2. digital literacy promotes the lifelong learning by the means of educational activities proposed inside and outside schools;
3. digital literacy and, implicitly, media education could become a key competency, part of the "core skills" defined at the European and national levels.

Thereby, inspired by the Canadian researches and linked to the French educational landscape, we can conclude that digital literacy focuses mainly on creativity, redistribution of knowledge, problem-solving, reflection, social awareness and citizenship. The figure below schematizes better the relationship between digital literacy and lifelong learning:

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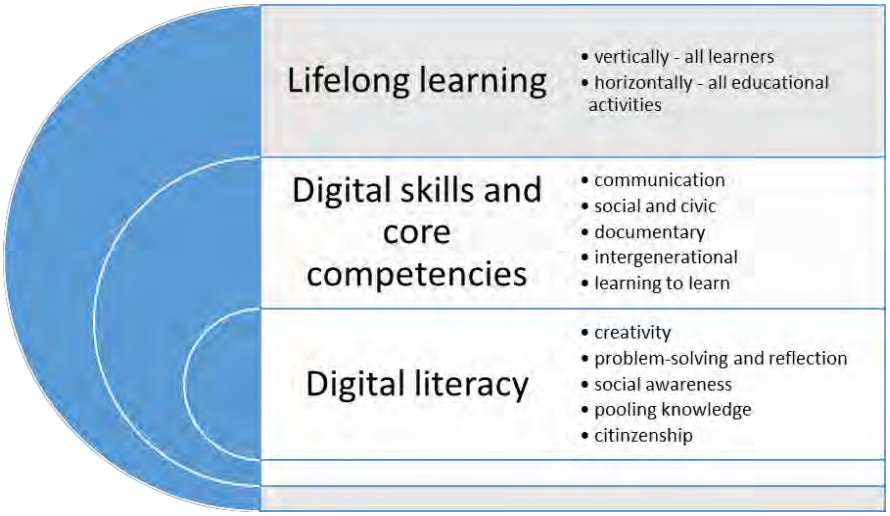
Figure 1. Relationship between digital literacy and lifelong learning in the context of French classrooms



As we can see above, the most important aspects of digital literacy involved in the educational system are the following:

1. creativity and simulation – used for the mother tongue, life sciences, history or geography;
2. distributed cognition – making possible the mentoring activities among students;
3. problem solving and judgment – for mathematics and algorithms;
4. pooling knowledge and networking – used during sport or in team activities;
5. social awareness and cultural empowerment – provided by foreign languages and intergenerational activities;
6. citizenship and decision-making – encountered in "learn to learn" and documentation activities.

As a conclusion, the survey described in this article shows the interdependence of digital literacy and the lifelong learning. It seems that digital technology may complete traditional educational methods but not replace them at all. This relationship between digital skills and lifelong learning could take multiple facets and involve various educational disciplines. Thus, our research hypothesis was confirmed by this study.

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BEING AN INNOVATIVE TEACHER: IS IT POSSIBLE IN THE SECONDARY SCHOOL EDUCATION?

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Abstract

The University Master's Degree for Secondary Education, Vocational Training and Language Teaching at the University Jaume I (Castellón, Spain) allows students to consider what education is during the educational period involved. It is open to students from various degree courses, many of which are not related to teaching, although all students have had their own educational experience in the past. It is necessary to shape the idea of teaching that each of us has about a thoughtful teacher who does not act on impulse or intuition – or at least not always – and who incorporates reflection in their professional activity, together with the appropriate skills and knowledge.
The present research is implemented in the subject: 'Teaching Innovation and Introduction to Educational Research' in the specialty of Language and Literature and Language Teaching of this Master degree. 45 students are involved in this subject (24 belong to the branch of English and the remaining 21 belong to the Spanish branch). The importance of this subject in the formation of secondary school teachers is the need that teachers have to confront and respond to the changes that have occurred in recent decades in society. All these aspects are discussed in this subject from three general units: innovation, research and evaluation, which is taught from a generic and multidisciplinary perspective in the first half and applied specifically in the field of specialty in the second part. As part of the subject´s assessment, the students are asked to work in groups in order to write a research proposal between 3000-4000 words, divided into two main parts: (i) theoretical background (definition of innovative teaching, main trends and authors and some examples of innovative projects), (ii) students define the innovative tool/resource they have chosen (e.g. blog, wiki, Webquest, forum, etc), then, they have to design a didactic unit with 3/4 tasks (describing target pupils, methodology, contents, competences, objectives).
In this paper, we analyse the virtual resources chosen and explained in their proposals and reflect their feelings and opinions about the implementations of these new technologies in a real secondary school classroom. Result show that these innovative tools can help secondary school teachers to enrich and improve the teaching/learning method by supporting the traditional method but, by no means, substituting it, however not all our students think about the possibility of implementing them in a class.

Keywords: *Secondary school education, master´s degree students, innovative resources.*

1. Introduction

The University Master's Degree for Secondary Education, Vocational Training and Language Teaching allows students to consider what education is during the educational period involved. It is open to students from various degree courses, many of which are not related to teaching, although all students will have had their own educational experience in the past. It is necessary to shape the idea of teaching that each of us has into that of a thoughtful teacher who does not act on impulse or intuition – or at least not always – and who incorporates reflection in their professional activity, together with the appropriate skills and knowledge. The master program includes training of 60 ECTS credits. It is a complete training structured around specific (for each of the specialties offered), general subjects (psycho and socio-pedagogical field) and end module, including the Practicum, that is, the subject that provides for closer links with secondary schools, and the Master PhD Final Dissertation, aiming to be an opportunity for students to make a critical and reflective synthesis of the teaching / learning lived in the Masters and specialty enrolled. External internships or Practicum is a period of eight weeks teaching (a total of 200 hours) that all students of the Master must be performed in secondary schools in the province of Castellon. In them there is a moment of reception by the centre where the organization of the educational community, an observation period with the assigned tutor and a period of intervention. The Practicum is

[1]This research is conducted by a member of IULMA Institute.

done in the specialty of the Master that the student is enrolled. Master PhD Final Dissertation is done as a final step of the Master studies.

Many studies have been directed to research how the integration of technology into the curriculum may enhance language teaching and learning (Wong 2004; Miner, 2004; Brodskaya & Thiele, 2004; Timucin 2006; Eugene, 2006; Hixon, 2008). Most of those studies shared a common finding that is related to the effectiveness of the use of technology in education and how it assists in developing teaching methods and students knowledge (Frigaard, 2002; Schofield & Davidson, 2003; Miner, 2004; Timucin, 2006). The use of technology in order to help in the teaching/learning process is becoming an increasingly important part of higher and professional education (Wernet, Olliges & Delicath, 2000). However, in schools, teachers are seen to be active instruments in the process of changes and implementation of new ideas as their beliefs and attitudes may support or impede the success of any educational reform. (Woodrow, 1991; Levin & Wadmany, 2006). The technical advances of information technology have also had a great impact on English language learning and they increase students´ motivation, according to Mansor (2007).

2. Objectives

The objective of this paper is make students, enrolled in the Master Degree, aware of the importance of implementing new technologies in the secondary school classes in order to innovate and renovate the traditional teaching methodologies. We do not pretend to replace them but to complement them by adding some innovative methods. Students design projects in this very same line, and give their opinions and feelings about the possibility of implementing their projects in a current secondary school class. After that, they are asked their opinions and feelings about the possibility of implementing them in a secondary school class.

3. Method

3.1. Participants

The participants are 45 students enrolled in the subject SAP405 (Teaching Innovation and Introduction to Educational Research) in the Master's Degree in Teaching of Compulsory Secondary Education, Vocational Training and Language Education in the specialty of Language and Literature and Language Teaching course. Out of these 45 students, 24 belong to the specialty of English and the remaining 21 belong to the Spanish branch.

3.2. Description of the subject

It is one of the three theoretical subjects of each specialization of the Master in Teaching of Compulsory Secondary Education, Vocational Training and Language Education. It consists of 8 ECTS credits of a total of 200 hours of student work. The subject is compulsory for the students of the Master Degree and is developed intensively for four weeks. The importance of this subject in the formation of secondary teachers is the need that teachers have to confront and respond to the changes that have occurred in recent decades in society and for traditional teaching methods have shown be unsuitable or less insufficient. To provide an effective response, not worth to apply the methods known as a recipe, but there is a questioning attitude based on data from reality. All these aspects are discussed in this subject from three general groups: innovation, research and evaluation, which will be taught from a generic and multidisciplinary perspective in the first half and will be applied specifically in the field of specialty in the second part.

3.3. Project

Students, in groups, have to write a project clearly separated in two parts:

- Theoretical Framework
  - Definition of Teaching innovation
  - Main authors and trends
  - Examples of teaching innovation projects
- Proposal
  - Choosing a resource for innovation (blog , wiki, Webquest , forum, etc)
  - Theoretical explanation of the chosen resource
  - Project proposal (didactic unit with the use of innovative resource/tool)
  - Description of the students
  - Proposed activities

Once students have delivered their project, they have to expose it in front of the class so as to their classmates can learn from their peers and can get a wider and/or different perspective.

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3.4. Questionnaire

Then, students are asked to answer some questions in order to get their opinions and feelings about the possible implementation of their projects in a real secondary classroom.

The 3 questions are the following ones:

1. After your practical classes in an actual secondary school, do secondary school students/ teachers make use of the new technologies in their classes in order to learn English as a second language?

2. Do you think your didactic proposal/project could be implemented in a real classroom? Why/why not?

3. Do you think you can be an innovative teacher in the actual educational system in Spain?

4. Results

4.1. Projects

12 working groups are formed as noted in the table 1 (6 groups of students enrolled in the specialty of English and 6 groups of students enrolled in the specialty of Spanish)

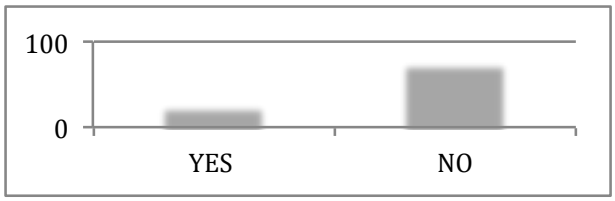
Table 1. Students of the subject Teaching Innovation and Introduction to Educational Research[2]

24 students: 6 groups (English)	21 students: 6 groups (Spanish)
1. FLIPPED CLASSROOM	**1.THE INTERVIEW IN A BLOG**
2. FAKEBOOK	**2. LITERATURE FAKEBOOK**
3. WEBQUEST	**3. VLOG**
4. PODCASTING	**4. DIGITAL BOOK**
5. MAHARA	**5. JOURNALISTIC BLOG**
6. PODCAST	**6. BLOG**

4.2. Questionnaire

1. After your practical classes in an actual secondary school, do secondary school students/ teachers make use of the new technologies in their classes in order to learn English as a second language? Which ones?

Figure 1. The use of new technologies in the secondary schools

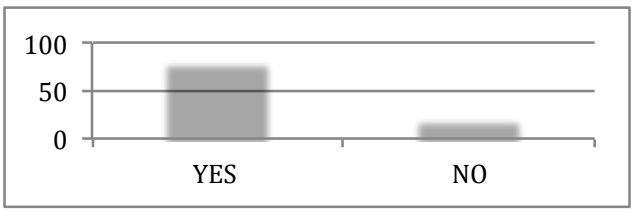


75% of the students affirmed that, in the secondary schools where they were doing their internships did not use any kind of technological resource or virtual resource or tool. Although some assured there are some technological resources in the centres such as digital boards, projectors, computers, teachers do not use them in their classes.

The other 25% said that some teachers in the secondary schools made use of digital boards and some encouraged their students to use some digital resources such as the Powerpoint to present some classroom works.

2. Do you think your didactic proposal/project could be implemented in a real classroom? Why/why not?

Figure 2. Students´ intentions to implement their projects

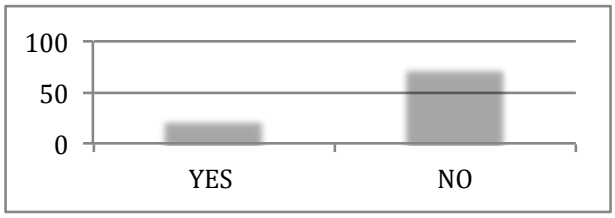


[2]Due to length restrictions, we only name them.

Most of the students, 80% of them, answered that they would like their projects to be implemented in an secondary school class and some of them answered that technological resources are not used in the secondary schools but if there were, they would use them and encourage their students to do the same. The rest of our students, 20% of them, said they would not like to implement their projects as they said it would be impossible in their current secondary schools.

3. Do you think you can be an innovative teacher in the current educational system in Spain? Give reasons.

Figure 3. Students´ answers about being an innovative teacher



Students´ answers to question 3 coincide in percentage with answers in question 1. This fact can be explained as students have had experiences in real life. They have experimented the difficulties that teachers face every day with new technologies. Students answering 'no' justify their answers by telling their experience in the secondary school: answers such as 'teacher does not make use of new technologies as they do not feel like, or they do not know how to do it, or if they want to do it, but they find many institutional obstacles' are the most common answers when saying 'no'. Otherwise, students answering 'they would try with new technologies' are the ones who, in their trainings, have met teachers willing to implement new language teaching methodologies and they work hard to make them use in the classrooms.

5. Conclusion

Our students enrolled in our Master Degree are young students, eager to start their professional careers. They are full of innovative ideas, they are enthusiastic and as I have told them: 'if you do not do it, who else is going to do it?' but they have to work hard.

They all have the key to improve our educational system. They have to contribute to our society to make their future students become competitive and competent citizens. This is an individual task and they are willing to implement the theoretical background they have studied first in their degree and now, in the Master degree. However, when they face reality, they understand there is much work to do, as current classrooms in secondary schools are not as ideal as they thought. As far as they are concerned, they encounter some institutional, logistic and bureaucratic hurdles together with some secondary school teachers' obstacles such as lack of time, lack of knowledge or simply they do not feel like having extra work. In conclusion, the three main drawbacks when making use of new technologies are: investment of money, investment of time, uncertainty of results but with effort, hard work and institutional help, they can change the educational system.

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TOWARD WIDER EXPLANATIONS OF TECHNOLOGY ADOPTION: THE CASE OF SECONDARY EDUCATION TEACHERS IN BUCHAREST, ROMANIA

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Abstract

A variety of theoretical models of technology adoption by individuals have been advanced including Innovation Diffusion Theory (IDT), Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Social Cognitive Theory (SCT) and Theory of Planned Behavior (TPB). TAM has general been the most influential and arguably has shaped important aspects of research. Its preferred variables, *perceived usefulness* and *perceived ease of use*, have usually been favored as principal direct effects on technology adoption, often other variables being demoted, a priori, to the role of antecedents. TAM has also come under recent criticism for having had an oversimplifying effect on research.
This paper aims to widen the universe of possible explanations of *ICT use* and *intentions* of use. We do so by means of a comprehensive study of direct effects on them, where most explanatory variables proposed by the main theories in the field are tested for simultaneously in a many-variable statistical study. The study is based on a survey of 845 secondary education teachers primarily from Bucharest, Romania.
Our regression analysis (OLS) results show that: 1) a high percentage (60%) of variance is explained in both models; 2) the results of the *use* and *intentions* models are quite different; main relevant direct explanatory variables for use express capability, opportunity and social influence: *ICT access*, *ICT skills*, and *observability*; while the main explanatory variables for intentions are *computer enjoyment*, *compatibility, perceived usefulness, image* and *self-efficacy* denoting psychological motivations; 3) TAM variables, *perceived usefulness* and *perceived ease of use*, don't play a very important role (the former is significant in the model of intentions only, and the later not at all), suggesting that broader models of direct determinants of technology adoption need to be constructed.

Keywords: *Technology adoption, information and communications technology, secondary education, teachers, Romania.*

1. Introduction and literature review

Several theories of technology adoption by individuals have been advanced as explaining use and intentions to use technologies. We discuss what we believe are the five most important ones. Due to the strict limitations of the size of this paper we present them very briefly, focusing only their contributions regarding individual adoption of technology and variables advanced.

1.1. Innovation Diffusion Theory (IDT)

Innovation Diffusion Theory (IDT) (see Figure 1(a), abaixo) proposes a large number of individual level determinants of technology adoption/use (Rogers 1983). These are: 1) the (perceived) *relative advantage* of innovative technology over its alternative; 2) *compatibility* of technology with one's values, experiences and needs; 3) technology's *complexity,* in as much it might be easy or difficult to use and understand; 4) *trialability,* the degree to which an innovation can be tried temporarily; 5) *observability*, extent to which an innovation use is socially visible.

Later research has reconceptualized and added to the individual level determinants of adoption. *Personal innovativeness* has been conceptualized it as a personality trait (Flynn and Goldsmith 1993). *Voluntariness* was introduced and defined as the "the degree to which use of innovation is perceived as being voluntary, or of free will". Similarly, *image*, defined as the degree to which using an innovation increases social approval of an individual, has been included in the IDT (Moore and Benbasat 1991).

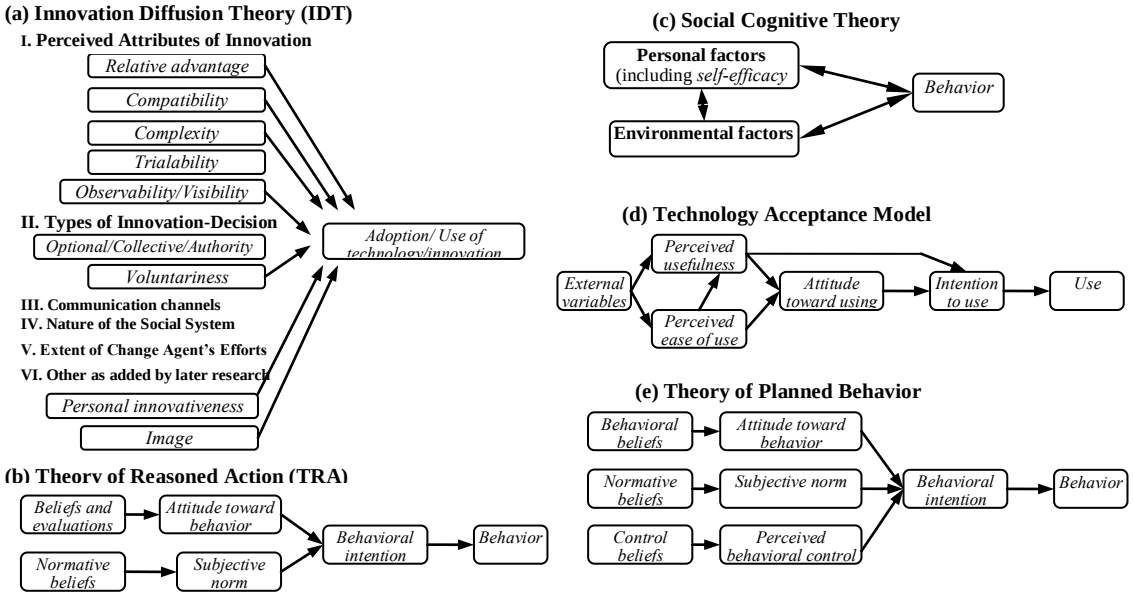
IDT variables have found empirical support in various studies of information technology adoption/ acceptance (e.g. Leonard-Barton and Deschamps 1988; Gharavi, Love and Cheng 2004; Agarwal and Prasad 1997; Agarwal and Prasad 1998).

1.2. Theory of Reasoned Action (TRA)

TRA is a general theory of human behavior developed by Fishbein and Ajzen (1975; Ajzen and Fishbein 1980). TRA states that reasoned / voluntary *behavior* depends on *behavioral intention*. *Intention* depends on: *attitude toward behavior*, and *subjective norm* – an individual's perception of social pressure to perform (or not) the behavior. These are seen as broader constructs determined each by more specific relevant *beliefs and evaluations* and *normative beliefs* (see Figure 1(b), abaixo).

Several studies have found at least some evidence for the significance and relevance of TRA's attitude(s) and subjective norm in understanding technology use (e.g. Davis, Bagozzi and Warsaw 1989; Mishra, Akman and Mishra 2014). TRA, however, is more relevant as a predecessor of the Technology Acceptance Model, and Theory of Planned Behavior.

Figure 1. Main theories explaining technology adoption by individuals



1.3. Social Cognitive Theory (SCT)

Developed by Albert Bandura (1982), the Social Cognitive Theory (SCT) main relevant contribution to technology adoption literature is the construct of *self-efficacy* defined as: "beliefs in one's capabilities to organize and execute courses of action required to manage prospective situations" (Bandura 1997, p.2). Many studies have found evidence for its significance and substantive relevance as a predictor of either behavioral intention or actual behavior (e.g. Hill, Smith and Mann 1987; Compeau, Higgins and Huff 1999; etc.).

1.4. Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) (see Figure 1(d), acima) was developed by Fred Davis in the 1980s (Davis 1989; Davis, Bagozzi and Warshaw 1989). It builds on TRA by focusing exclusively on *attitudes* (ignoring *norms*). It assumes that information technology *use* (behavior) is determined by *intention* which at its turn is determined by a global *attitude* toward technology. Attitude is determined by two relevant specific attitudes: *perceived usefulness* of the technology to be used, and its *perceived ease of use*. All other variables are assumed as antecedents of these two variables.

Many studies have provided evidence for the predictive power of *use* and *intention of use* of technology in business (e.g. Szajna 1994; Igbaria and Ivari 1995) and in education (e.g. Teo 2011), TAM having become the dominant theoretical model in the field. However, it has also come under criticism for: focusing on two explanatory variables and either failing to elucidate which are their antecedents (Benbasat and Barki 2007); or failing to take into account alternative influences (Bagozzi 2007).

1.5. Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB), is an expansion of TRA (Ajzen 1985). TPB adds the construct of *perceived behavioral control* (mainly based on *self-efficacy*) as a direct determinant of both behavioral *intention* and actual *behavior*. TPB found empirical support in a number of studies of technology adoption (e.g. Taylor and Todd 1995; Koufaris 2002).

2. Toward a comprehensive model of technology adoption

We develop our model by constructing a typology of variables where categories and classes are distinguished based on theoretical causal mechanism and locus of measurement (for more details see Ogrezeanu 2015). This typology, description of variables, their classes, categories, number of items, expected relationship with dependent variables, etc. are presented schematically in Table 1, abaixo.

Table 1. Description of model variables, classes, number of items and Cronbach's α

Category	Class	Variable	Definition	Exp. relation	Items	α
Dependent variables		*ICT use in teaching*	The extent to which teachers use a set of various ICTs in their teaching (computers, email, electronic documents, digital textbooks, video projectors, the Internet; elearning platforms)		11	.848
		Intention to use ICT in teaching	The extent to which a teachers intends to use ICTs in teaching in the future		6	.934
Attitudes/ Motivations	Extrinsic motivations	*Perceived usefulness*	"the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis 1989)	+	3	.885
		Image	"the degree to which adoption/usage of the innovation is perceived to enhance one's image or status in one's social system" (Karahanna et. al 1999)	+	3	.897
	Intrinsic motivations	*Perceived ease of use*	"the degree to which a person believes that using a particular system would be free of effort" (Davis 1989).	+	3	.857
		Computer anxiety	"the fear of apprehension felt by individuals when they used computers or when they consider the possibility of computer utilization" (Simonson et al. 1987).	-	3	.772
		Computer enjoyment	The extent to which individuals enjoy working with computers.	+	3	.914
	Normative beliefs/ motivations	*Computer compatibility*	The degree to which information technologies are perceived as consistent with a teacher's teaching discipline, methods and work style.	+	3	.921
	Control beliefs / abilities	*Computer self-efficacy*	The beliefs in one's capacity to execute [work related] courses of action related to computers/technology.	+	3	.902
		ICT Skills (or literacy)	The ability to use the computer, related hardware and computer software.	+	16	.905
Psychological traits	Stable/ Personality traits	*Computer innovativeness*	The willingness and propensity of an individual to try out novel, possibly risky courses of action and technologies.	+	2	.884
	Semi-stable traits	*Work Satisfaction*	Reported satisfaction with work	+	3	~~.510~~**
Social and sociotechnical context	Socio-technical context	*Technology access at school*	The extent to which the individual perceives to have access to technology at work/school.	+	10	.789
		Technology access at home	The extent to which the individual perceives to have access to technology at home.	+	8	~~.564~~, .845**
		Tech support availability	The extent to which a teacher perceives to have technical support available at school.	+	3	.863
		Observability	The degree to which ICTs are observable by teachers among relevant colleague teachers.	+	3	..801
		Voluntariness	The degree to which the use of ICTs is perceived as voluntary, of free will.	+	3	.849
	Social/ institutional context	*School type (by education level)*	Refers to the education level (by ISCED classification), whether (in our sample) lower secondary education (ISCED 2) or upper secondary education (ISCED 3).	+	1	NA*
		School location	Location as to whether within Bucharest or outside.	?	1	NA*
Socio-demographic and professional characteristics	Bio-demographic characteristics	*Age*	Respondent's age	-	1	NA*
		Gender	Respondent self-reported gender	?	1	NA*
	Professional characteristics	*ICT course participation*	Number of ICT courses to which responded participated in the past.	+	4	.529**
		Teaching degree	In Romania, teachers advancement in career takes place on 4 levels from "debutant" (entry level) to "tenured", "degree II", and degree I.	?	1	NA*
		Teaching discipline	Our samples included teachers of: mathematics, Information and Communications Technology (ICT); Romanian language and literature; English language, Others	?	1	NA*

* not available due to one item of measurement; ** see discussion in text, Section

3. Data and Measurement

Data for this study was collected by means of a questionnaire filld by participants to the "MAGISTER Educational Forum"[1], in Bucharest, on March 17-19, 2015. 845 valid questionnaires (from 1209 participants) were returned. Respondents were secondary education teachers aged between 24 and 70 (mean 43.3), predominantly female (92%), mostly from schools in Bucharest (82%).

Cronbach's α test revealed high values, well over .7, for most variables (see Table 1, last column). Three variables had lower α at around .5. In these cases we followed Bollen's recommendations

[1]Event organized by Niculescu Publishing House in Bucharest. We are grateful to the *Niculescu Publishing House* and personally to Prof. Cristian Niculescu and Assist. Prof. Andrei Niculescu for their support in allowing us to collect data for this study at the event organized by them.

(Bollen 1984). Where indicators were considered strictly as *effects* of the latent construct they are measuring, like *work satisfaction*, low α meant the variable was dropped from analysis. Where some or all indicators were found inconsistent but they were deemed *causes* (*constitutive*) of the latent construct, like in the case of *ICT access at home* or *ICT course participation,* the requirement for high α was relaxed and the variables were kept in the analysis.

We identified 1.8% missing values which were imputed using the EM procedure in IBM SPSS.

In the case of *ICT course participation* a nonlinear transformation (square root) was operated to reflect decreasing marginal effects and compensate for positive skewness and high kurtosis.

4. Data analysis and interpretation

Data analysis was carried out using IBM SPSS 23 using Ordinary Least Squares analysis.

Table 2. Regression analysis results

		Dependent variable: ICT use in work (teaching)					**Dependent variable: intention to use ICT in teaching**				
		B	***SE***	***β***	***t***	***p***	***B***	***SE***	***β***	***t***	***p***
Constant		-0.068	0.230		-0.297	0.767	0.755	0.211		3.585	0.000
ICT use in teaching							0.047	0.032	0.051	1.456	0.146
Perceived usefulness		0.054	0.035	0.051	1.523	0.128	0.159	0.032	0.166	4.937	0.000
Image		0.004	0.020	0.005	0.208	0.835	0.082	0.018	0.116	4.593	0.000
Perceived ease of use		-0.034	0.034	-0.037	-0.983	0.326	-0.004	0.032	-0.005	-0.137	0.891
Computer anxiety		-0.010	0.023	-0.012	-0.458	0.647	-0.015	0.021	-0.019	-0.720	0.472
Computer enjoyment		-0.030	0.038	-0.034	-0.770	0.441	0.203	0.035	0.253	5.768	0.000
Computer compatibility		0.040	0.035	0.049	1.125	0.261	0.140	0.032	0.191	4.342	0.000
Computer self-efficacy		0.008	0.030	0.008	0.262	0.793	0.092	0.028	0.105	3.326	0.001
ICT Skills (or literacy)		0.194	0.026	0.266	7.390	0.000	0.014	0.025	0.021	0.572	0.568
Computer innovativeness		0.158	0.024	0.216	6.629	0.000	0.016	0.022	0.024	0.704	0.482
Technology access at school		0.539	0.047	0.295	11.449	0.000	-0.098	0.046	-0.059	-2.108	0.035
Technology access at home		0.065	0.011	0.139	5.751	0.000	0.026	0.010	0.063	2.529	0.012
Tech support availability		-0.024	0.018	-0.033	-1.379	0.168	-0.014	0.016	-0.020	-0.851	0.395
Observability		0.095	0.024	0.115	4.022	0.000	0.003	0.022	0.004	0.139	0.889
Voluntariness		0.033	0.023	0.039	1.478	0.140	-0.028	0.021	-0.035	-1.337	0.182
School type:	*Lower secondary*										
	Upper secondary	0.120	0.035	0.082	3.395	0.001	0.010	0.033	0.007	0.307	0.759
	Other	0.264	0.098	0.061	2.699	0.007	-0.049	0.090	-0.012	-0.544	0.586
School location	*Bucharest*	0.030	0.045	0.016	0.661	0.509	-0.035	0.041	-0.020	-0.851	0.395
	Other										
Age		0.001	0.002	0.018	0.599	0.549	-0.005	0.002	-0.068	-2.214	0.027
Gender		0.007	0.062	0.002	0.106	0.916	-0.022	0.057	-0.009	-0.391	0.696
√ICT course participation		0.025	0.019	0.032	1.335	0.182	0.043	0.017	0.060	2.465	0.014
Teaching degree	*Beginner*	-0.033	0.077	-0.012	-0.431	0.667	-0.075	0.071	-0.030	-1.064	0.287
	Tenured	-0.100	0.048	-0.057	-2.108	0.035	-0.014	0.044	-0.009	-0.322	0.748
	Degree II	-0.061	0.049	-0.031	-1.232	0.218	-0.018	0.045	-0.010	-0.394	0.694
	Degree I										
Teaching discipline	*Mathematics*	-0.199	0.042	-0.125	-4.689	0.000	0.056	0.039	0.038	1.423	0.155
	ICT	0.274	0.068	0.100	4.032	0.000	0.037	0.063	0.015	0.587	0.557
	Romanian										
	English	0.060	0.043	0.038	1.398	0.162	0.084	0.039	0.057	2.124	0.034
	Other	0.075	0.050	0.034	1.507	0.132	0.011	0.046	0.005	0.242	0.809
Overall model statistics	*N*	845					845				
	R^2	.612					.611				
	Adjusted R^2	.599					.598				

Both models (of *use* and *intentions*) exhibit high goodness of fit, adjusted $R^2 \approx .6$. Significant variables for *intentions* are quite different from those for *use*. *Intentions of use* is mainly explained by: intrinsic motivations like *computer enjoyment* (*β*=.253), normative motivations like *compatibility* (*β*=.191) and extrinsic motivations like *perceived usefulness* (*β* =.166) and *image* (*β* = .116). Actual *ICT use* is explained primarily by "capability", "opportunity" and social factors such as *ICT skills* (*β*= .266), *ICT access* (*at school* (*β* = .295) and *at home* (*β* = .139)) and *observability* (*β* = .115).

Both models show 10 significant direct determinants. This rejects TAM's assumption that there are only two direct determinants of intentions to use and behavior while all other variables being are antecedents. Our analysis finds many other direct determinants of ICT use and behavior. *Perceived ease of use* is insignificant (as direct determinant) in both models, while *perceived usefulness* is significant only in the model of intentions, having the 3rd most explanatory power in that model.

5. Conclusions

Our analysis validates the need for and usefulness of comprehensive, inclusive models of technology adoption in education. Our models accounted for 60% of variation in the dependent variables *ICT use* and *intentions to use*. We found that most relevant predictors of intentions are psychological,

motivations such as *computer enjoyment*, *compatibility, perceived usefulness, image*, while actual *use* behavior is mainly a function of capability (*ICT skills*) opportunity (*ICT access at work/school* and *at home*) and social influence of peers (observability). The heterogeneity of findings concerning *intentions* versus actual *behavior* may indicate the need for further theoretical effort to provide separate explanations for the two. Finally, our findings suggest that the principal TAM variables are not the main direct predictors of *ICT use* and *intentions of use*, therefore we suggest that the research should renounce this assumption of TAM that the two mediate all other influences.

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EDUCATION AND ACCESS OF STUDENTS WITH VISUAL DISABILITIES TO CULTURE: REDEFINING THE ROLE OF MUSEUMS

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Abstract

Museums in the 21st century have redefined their role in the society with the development of a wide educational and social role and in the context of an "audience centered" approach. In this perspective museums seek to remove different barriers of access in order to improve their relationship with their audiences, to promote educational opportunities to different people and to contribute to social inclusion and social cohesion. The present paper refers to a European project entitled "Bridging the Gap between Museums and Individuals with Visual Impairments" (BaGMIVI) which aims to support museums to develop various practices in order to enhance the access and inclusion of people with visual disabilities into their context and content with emphasis to schoolchildren with visual disabilities. A crucial factor for the access of schoolchildren with visual disabilities to museums is the training of museums staff not only in issues of visual disabilities but also in contemporary issues in inclusive education and differentiation. Issues of the development of a syllabus for museums staff training, the main axes and the thematic areas of the syllabus as well as the training course that took place in the participating museum in Greece are presented in this paper. Based on the experience of this training course, the feedback from museum staff and the development of accessible and differentiated museums programmes the authors argue that museums staff training in the above issues is very important not only for the improvement of knowledge about disability but also for the positive attitudes and the development of educational activities which can respond to the needs and characteristics of school children with visual disabilities.

Keywords: *Students, visual disability, museums, museum staff training, inclusion.*

1. Introduction

Museums as institutions *"in the service of the society"* (ICOM, http://icom.museum/the-vision/museum-definition) are considered as spaces with a significant educational and social role (Black, 2005; Hooper-Greenhill, 2007; Sandell, 2002). In the context of an *"audience-centered"* approach, museums are interested not only for their collections but also for their audiences (Black, 2005; Gazi, 2004). In this framework museums seek to develop new audiences – especially those who traditionally were excluded-, to remove different barriers of access (Dodd & Sandell, 1998), to establish relationships with their audiences and develop their social role (Black, 2005). Regarding people with disabilities, during the last decades the issue of their access to museums and to cultural goods in general has been a main topic of discussions and a field of relevant practices within museums. This increasing interest is the result of many factors (Argyropoulos & Kanari, 2015) and undoubtedly is in line with the adoption of social models of disability which stresses issues like the barriers and the limitations of the society which isolate and exclude people with disabilities from equal social participation (Moussouri, 2007; Oliver, 1990). As Weisen (2008:247) refers, barriers of access to museums constitute a *"multidimensional reality*" – physical, sensory, intellectual, attitudinal, financial, cultural, educational barriers, etc. Thus, museums have to develop a systematic policy for the improvement of access to their spaces and collections for people with different needs. Although, many steps have been made towards this direction there are a lot of differences between countries and museums regarding the type and the systematic character of accessibility provisions, facilitations and programmes for people with disabilities (EBU, 2012; Weisen, 2008).

Furthermore according to Weisen (2008:247), accessibility barriers are not only *"multidimensional"* but also *"interdependent*"; for this, disability awareness is considered as a crucial component for the development of a systematic and sustainable access policy in museums to confront and remove different type of barriers. To this direction, it seems that relevant museums' staff training helps to reduce prejudice and attitudinal barriers (Dodd & Sandell, 1998; Weisen, 2008) and contributes to the

development of appropriate behaviors towards people with disabilities. As McGinnis (1999:281) refers *"understanding how to communicate, how to behave and how to assist disabled visitors are the first hurdles museums must face".* Additionally, relative researches and projects showed that training in disability issues leads to more confident museum staff and also museums that give emphasis in training regarding disability issues are more likely to develop access provisions, facilitations and other programmes for people with different needs (Bell, Matty & Weisen, 2006; Partington-Sollinger & Morgan, 2011). Also, it is worth noting that museums' staff training in disability issues helps museums' staff to frame the knowledge that may already have (Partington-Sollinger & Morgan, 2011) and also to update their knowledge not only in different practices of access - for example in new technologies - but also to contemporary issues in education such as the context and the practices of inclusion, inclusive education and differentiation (Tomlinson et al., 2003). It is acknowledged by many researchers that all above contemporary issues may enrich museums' programmes and provisions in order to respond to the diversity of their visitors including individuals with disabilities and schoolchildren with disabilities from different educational settings (Shepherd, 2009).

The present paper refers to a European project entitled "Bridging the Gap between Museums and Individuals with Visual Impairments" (BaGMIVI) which aims to support museums to develop various practices in order to enhance the access and inclusion of people with visual disabilities into their spaces (http://www.bagmivi.eu/). More specifically, the present work highlights a critical aspect of the BaGMIVI project which is related to museums' staff training in disability issues. In alignment to this purpose, a syllabus for museum staff training was developed and based on that a series of intensive training courses were offered to the participating museums and galleries of the BaGMIVI project (i. e. City Gallery Szekesfehervar in Hungary, Nicholas and Dolly Goulandris Foundation Museum of Cycladic Art Museum in Greece, Transylvanian Museum of Ethnography in Romania, and Galeriya Rakursi in Bulgaria). BaGMIVI project has put great emphasis on the museum staff training in disability issues and has considered it as an indispensable part of an integrated accessibility policy for individuals with disabilities.

As it was mentioned above there are a lot of differences between countries and museums regarding the development of a systematic access policy for people with disabilities. In Greece and particularly in the majority of cultural centres (e. g. museums) which are located in the province there is a lack of a systematic training regarding in subjects such as disability and accessibility (Kanari & Argyropoulos, 2014). Nevertheless, there are some important initiatives taken by the Ministry of Culture, museums, academics or other associations with respect to training in disability but they occur sporadically rather than repetitively and systematically (Argyropoulos, Chamonikolaou & Kanari, 2015; Kastrinaki, 2004; Ministry of Culture, 2004). Also, there are a lot of differences in these initiatives regarding their i. content, ii. interdisciplinary approach, iii. duration and/or iv. number of trainees who usually participate. In turn, the structure of a syllabus for museum staff training will be presented which was developed under the auspices of the BaGMIVI project and was implemented during the training phases of the project. The Greek partner who represented the participating museum in the BaGMIVI project was the Museum of Cycladic Art (http://www.cycladic.gr).

2. Syllabus design and thematic areas of the training program

A needs assessment study preceded the development of the syllabus for the museum staff training. The needs assessment study constituted the first of the intellectual outputs of the BaGMIVI project, and focused: a. on literature review which was conducted at local and international level and b. on a research for the exploration of experiences regarding accessibility in museums for people with visual disabilities which was conducted by semi-structured interviews and questionnaires. The participants in the research were individuals –adults and students- with visual disabilities, special education teachers of students with visual disabilities and staff of the participating museums from Greece, Romania, Bulgaria and Hungary. Hence, the design of the syllabus was based on research in conjunction with theoretical aspects addressed by the field of special education. The elaboration of the data which emanated from the needs assessment study revealed that an effective syllabus for museum staff training for the improvement of access of individuals with visual disabilities has to give emphasis to issues and characteristics of visual disabilities, awareness in disability in general as well as to contemporary issues regarding access and inclusion in museums, education, cultural and social life. Thus, the broad thematic areas of the syllabus – which composed the second intellectual output of the BaGMIVI project - were the following: a. the heterogeneity of individuals with visual disabilities and the existing disabling barriers in their access and inclusion, b. haptic apprehension, haptic memory and mental maps, c. the accessible museums' programs for individuals with visual disabilities, and d. the principles of differentiation and design for all and its implications for museums. The suggested duration of the training program was 18 hours within a week

time. However, there was a flexibility which means that each museum could expand, add or modify the content of the syllabus according to its needs and priorities or organize the training program according to its availability regarding schedules and obligations.

2.1. Syllabus objectives of the training program

The developed syllabus for the museum staff training support issues about the rights of people with disabilities for access to museums and culture (UN, 2006) with the long-term aim to improve access, information, education, participation and inclusion of people with visual disabilities to museums and social life. Furthermore, the expected learning objectives of the syllabus and the proposed museum staff training include knowledge, skills, attitudes and behaviors. More specifically based on the proposed training programme the museum staff is expected to gain: a. knowledge about visual disabilities (e.g. haptic apprehension, mobility and orientation issues, etc.), access and inclusion (e.g. social model of disability, the concept of "Design for all", "Universal Design for Learning" and differentiation, issues of inclusive practices in education, museums and society, various ways, material and programmes for the access of people with visual disabilities in museums, etc.), b. skills (e.g. escorting a blind person, constructing accessible material for individuals with visual disabilities, collaborating with different specialists, etc.) and c. attitudes and behaviors (e.g. understanding and respect to diversity, proposing alternatives to enhance the accessibility within their museum, etc.).

3. Case study: the staff training programme in the Museum of Cycladic Art

The needs assessment study which is the first intellectual output of BaGMIVI project revealed the needs of individuals with visual disabilities, teachers and museum staff regarding issues of access to museums. These needs in conjunction with their suggestions indicate some basic and global priorities for the improvement of access to museums and also can frame the basis of a syllabus for museum staff training in disability issues. Thus, the content of the syllabus for museum staff training which is the second intellectual output of BaGMIVI project can work as a technical tool for the establishment of the parameters for equal access of individuals with visual disabilities to different museums and not only to the participating museums in the project. Based on the aforementioned outputs the next activity of the project was the implementation of a series of training courses to the participating museums and galleries of the BaGMIVI project.

In this framework a training course was organized for the staff of the Museum of Cycladic Art in December 2015. The training course took place in Athens in the spaces of the museum. The trainers were academics from the field of Special Education and Education for children with visual disabilities, special educators, museum educators and specialists in mobility and orientation issues. The participants from the Museum of Cycladic Art were 16 persons with different specialties and duties (e.g. archaeologists, museum educators, security guards, etc.). The duration of the programme was 18 hours and the content of the training was based on the syllabus which was developed at the previous stages of BaGMIVI project. All thematic areas were present during the training course: a. "Special Education and individuals with visual disabilities: haptic apprehension - communicative and educational perspectives", b. "Inclusion and differentiated programmes: Contemporary perspectives" and c. "Individuals with visual disabilities and issues of accessibility in education and culture". The teaching methodology of the training programme was based on the conjunction of theory and practice through theoretical lectures and workshops by experts. Each day of the programme – three in total - was dedicated to a different thematic area with the combination of lectures and workshops. In this way all trainees had the opportunity to combine theory and practice, to participate in discussions, ask questions, collaborate with other people and reflect on their own background

The first day of the training programme was dedicated to the first thematic area of the syllabus. The lecture with the title "Characteristics of individuals with visual disabilities- Communication and interaction with individuals with visual disabilities-The importance of differentiation in education and daily life", gave to the participants the opportunity to get to know or to deepen their knowledge in issues such as the concept of disability and inclusion, the spectrum of visual disabilities (e.g. blindness, low vision, age of visual loss, consequences) and the heterogeneity of people with visual disabilities, myths and reality as well as chief principles in communication and education of individuals with visual disabilities. The workshop of the first day with the title "Issues of Orientation & Mobility area: guiding and escorting a person who is blind", gave the opportunity to the participants to gain knowledge and skills for escorting a blind person and a better understanding to issues such as the environmental adaptations, the mobility, the use of the remaining senses, etc.

The second day of the training programme was related to the thematic area "Inclusion and differentiated programmes: Contemporary perspectives". The concepts that have been presented in the

lecture with the title "Inclusion and differentiation: Education, Museums and Society" were related to inclusive education, practices and approaches for an inclusive museum, the social role of museums towards social inclusion and the concept of differentiation. During the workshop of the second day the participants worked in groups and have been involved in the construction of differentiated museum programmes for visitors with visual disabilities based on the educational programmes, the collections and the material of the Museum of Cycladic Art.

The third and final day of the training program was associated with the thematic area "Individuals with visual disabilities and issues of accessibility in education and culture". During the lecture entitled "The concept of access to museums-Accessibility practices in museums for individuals with visual disabilities" the participants had the opportunity to see facilitations and practices for the access of individuals with visual disabilities in different museums in Greece and abroad and to deepen their understanding for the concept of "Design for All". During the workshop of the third day staff members of the Museum of Cycladic Art had the opportunity for a hands-on-experience working on tactile diagrams and elaborating principles of designing tactile diagrams.

4. Conclusions-discussion

Museums of the 21st century have redefined their role in the society and are expected to develop a multidimensional educational and social role, to promote inclusive practices and contribute to social inclusion and cohesion (Black, 2005; Coxall, 2006). Partnerships between different organizations, collaborations and consulting with audiences, disability and diversity awareness are some of the crucial components for the development of contemporary museums' role. In this line BaGMIVI project with a series of activities and intellectual outputs -such as needs assessment study, syllabus for museum staff training, training courses, differentiated programmes in museums for children with visual disabilities, etc.- is an initiative which is expected to contribute to an inclusive museum and to inclusive education.

In order to *"bridge the gap between museums and individuals with visual impairments"* training in disability and access issues is a crucial factor for museums for the development of accessible differentiated and inclusive practices for people with disabilities. The syllabus for museum staff training was not based on theoretical assumptions but on a needs assessment study in order to respond to the needs of students and adults with visual disabilities, special education teachers and museum staff. Moreover, the syllabus was designed with an interdisciplinary approach in order to include contemporary issues of education, access and participation to cultural life, museums' social and educational role in combination with the development of different accessibility practices and materials such as new technologies. The above elements – the needs assessment study and the interdisciplinary approach- constitute some of the basic and innovative characteristics of the syllabus and the training programme for museum staff.

The implementation of the training programme showed that museum staff is willing to improve and enhance access to the museums for individuals with visual disabilities if they have support and knowledge. The staff of Museum of Cycladic Art who participated in the training programme was actively involved through collaborative activities, discussions, questions, new ideas and suggestions for the improvement of accessibility to the museum. The following extract is representative of the positive impact of the training programme: *"I think that this training programme was very important. We had some prior experiences of programmes and activities with people with disabilities but after this training I think that we can do better activities, taking access into consideration in advance and in a more systematic way".* The positive impact of the training programme is also reflected on the differentiated and accessible educational programmes and materials that Museum of Cycladic Art has designed for children with visual disabilities as part of BaGMIVI project, an activity which is in progress.

For these reasons the present syllabus for museum staff training could also work as an agreed social document which defines and expresses national priorities for access to museums with impact to cultural accessibility for individuals with visual disabilities. However, to this direction there is a need for a more systematic policy at education, museum, societal and state level so as the results of this programme and other similar initiatives to be expanded and not ending in the context of programme. The development of more partnerships between different organizations, collaborations with specialists, the evaluation of relevant activities, further research and the diffusion of knowledge, experience and good practices are some of the key factors for the inclusive character of the museums and for equal educational, cultural and social opportunities for all people and schoolchildren including those with visual disabilities.

Acknowledgments

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EFFECT OF ORTHOGRAPHY ON ENGLISH AND ARABIC READING AND SPELLING IN LEBANESE FIRST GRADES: A COMPARATIVE PILOT STUDY

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Abstract

This study hypothesized that poor Arab readers should perform better in English (non-phonetic, orthographic language) decoding than in Arabic (phonetic-orthographic) because they rely on the orthographic route to compensate for their phonological deficits. To test this hypothesis, a group of Lebanese bilingual first graders comprised of normally achieving and poor readers and spellers were given tasks of decoding, orthographic discrimination, encoding and visual tests in both English and Arabic. Results of this pilot comparative study across ability and languages showed significant differences between good and poor readers on tasks of single word decoding and encoding and on the visual tests in Arabic. No significance was found between both groups on decoding of English words, orthographic discrimination and visual tests in English, suggesting that the deficient phonological skills of poor readers would hinder their word recognition in Arabic, yet their visual-orthographic ability would compensate for these deficits when reading English words. Further, different orthographies seem to require different cognitive skills. Implications for Arabic reading instruction are provided.

Keywords: *Arab; Lebanese; reading; spelling; orthography; phonology.*

1. Introduction

Learning to read is a highly demanding cognitive task that requires the implementation of several interrelated processes such as perception, memory, visual processing, and lexical analysis. While there is a universal neurocognitive basis for dyslexia, differences in reading performance among dyslexics of different countries are due to different orthographies (Paulesu et al, 2001).

Arabic is characterized by a deep orthography which requires advanced phonological processing (Abu Rabia & Siegel, 2002), whereas English is a non-phonetic and shallow orthographic language. Recent studies have shed some light on the characteristics of poor and good readers in Arabic and found that poor readers rely on the orthographic route to compensate for their phonological deficits (Abu Rabia & Siegel) and that reading disabled Arab children have relative strengths in orthographic processing (Abu Rabia, Share & Mansour, 2003). Given the nature of the different orthographies of Arabic and English and characteristics of the visual-orthographic development of poor Arab readers, the investigators hypothesized that poor bilingual readers in Lebanon (Arabic and English) are expected to fare better in English decoding and spelling tasks than in Arabic.

In Lebanon, bilingualism is an integral part of the school system. Students typically learn Arabic as a first language and English or French as a second language. Although some research has been conducted on the characteristics of bilingual Arab readers in various countries such as Canada and Israel and on the nature of reading and spelling errors in LD Arab students (Abu Rabia & Siegel; Abu Rabia & Taha, 2004), no studies have compared reading and spelling ability in both English and Arabic among bilingual emergent readers and spellers of different abilities.

2. Methodology

2.1. Participants

The participants are Lebanese students from two different middle-class private schools in the Greater Beirut area. The two schools follow basically the phonics approach, both explicit and analytic (reading by decoding and spelling by encoding) and elements of the whole language approach (thematic readings, print environments, whole word reading, etc.) for both Arabic and English reading instruction.

Teachers in both schools were asked to identify at-risk and normally-achieving readers and spellers in first grade. At-risk students were defined as those whose grades ranged between 3 and 9 out of 20; grades of normally-achieving ranged between 11 and 17 out of 20. It is implicit that some of the poor achievers may be learning disabled.

Good and poor readers were selected from the five sections of grade one in the first school (N = 32; 16 from each group). Good and poor spellers were selected from five sections of the second school (N = 38; 19 from each group). Gender parity was taken into consideration during selection. Boys outnumbered girls only by a marginal difference. Data was collected at the two schools in June 2015 to make sure that they all had finished the reading curriculum of first grade.

2.2. Assessment tools

2.2.1. Reading. Words were chosen from the first and last two chapters of the students' basal readers (Arabic and English). To eliminate context effect, all words were presented in isolation and Arabic words were all partially vowelized (the final letter of each word) as presented in the students' book.

Tool 1: Word Reading

Each Arabic and English list consisted of 20 individual words of increasing difficulty.

Tool 2: Orthographic Discrimination:

Each Arabic and English list consisted of 20 words: 15 real words and 5 non-words. Non-words were selected either on the basis of similar orthographic representation of real words (e.g., atfer for after), or on real phonetic non-orthographic representation of real words (e.g., littel for little). The purpose of this test is to compare the ability of orthographic discrimination of real and non-words in both languages and among poor and good readers. Students were asked to read the words silently and circle the words that do not exist in Arabic/ English.

2.2.2. Spelling. Words were selected from the students' first and last two chapters of their basal readers (Arabic and English). Students were examined in groups of 5 to 10.

Tool 3: Spelling Test:

Each Arabic and English list consisted of 20 individual words of increasing in difficulty.

Tool 4: Visual Test:

Each Arabic and English list consisted of 15 pairs of words. Each pair consisted of a real word and a non-word. Three types of non-words were selected: pseudographemes based on similar orthographic representation of real words (e.g., atfer for after) and pseudohomophones based on similar phonetic, non orthographic representation of real words (e.g, littel for little); or a combination of two aforementioned types (e.g, ligh for light). The purpose of this activity was to compare the ability to identify the correct orthographic representation of real words when presented with a non-word distractor across languages and groups. Students were asked to read each pair silently and circle the real words that exist in Arabic/English.

3. Results

Results of this pilot comparative study across ability and languages showed significant differences between good and poor readers on tasks of single word decoding ($F(7,31) = .87$, $p<0.05$) and encoding ($F(14,37) = 1.20$, $p<0.05$) and on the visual tests in Arabic ($F(8,37) = 1.10$ $p<0.05$). No significance was found between both groups on decoding of English words, orthographic discrimination and visual tests in English, suggesting that the deficient phonological skills of poor readers would hinder their word recognition in Arabic, yet their visual-orthographic ability would compensate for these deficits when reading English words. Further, different orthographies seem to require different cognitive skills.

4. Discussion

Good readers outperformed poor readers[1] in decoding of Arabic real words, consistent with other findings on young Arab learners (Abu Rabia et al., 2003; Abu Rabia & Siegel, 2002; Abu Rabia & Taha, 2004), yet they performed as poor readers in English, a stark contrast to the significant correlations found in Abu Rabia et al (2003) between good and poor readers ages 9-11.

[1]Since poor students (readers and spellers) and learning-disabled students shared similar features, these two terms are used interchangeably in this section.

Good and poor readers similarly performed on the orthographic discrimination of real English words. On the other hand, good spellers' performance was similar to that of poor spellers on English visual tests. In a similar vein, the performance of the reading-disabled was as good as that of the normal group matched by chronological age and significantly better than the younger normal group matched by reading level in orthographic processing (Abu Rabia et al, 2003). Therefore, the equal performance of all groups (poor and good readers and spellers) in the orthographic discrimination and orthographic representation (visual test) of English words could be attributed to the relative development of the orthographic route over the phonological route among poor readers, and to the developmental lag in the phonological awareness skills particularly needed in the Arabic orthography.

When both languages were compared, readers, regardless of their ability, performed better in English decoding. Based on these results, it can be argued that different orthographies require different routes in reading. English decoding is reliant on both the phonological and the orthographic routes, whereas Arabic reading relies more on the phonological route. Therefore, the poor performance of deficient readers in Arabic decoding is related to the developmental lag in their phonological decoding skills. However, their similar performance relative to good readers in English is an indication of the development of their visual-orthographic route over their phonological route. The latter may compensate for their lack of phonological skills in reading English but not in Arabic since the latter is not highly reliant on the orthographic route, consistent with our hypothesis.

The reason why all groups achieved better in Arabic visual tests is likely tied to the inherent high phoneme-grapheme correspondence in the Arabic language. This finding is analogous to Abu Rabia & Siegel (2002)'s results that bilingual Arab-English learners, including poor readers, showed no significant difference in tasks requiring recognition of pseudophomophones across languages. This explanation also supports our finding that poor and good spellers achieved better in Arabic encoding.

Our cohort of good and poor first graders equally performed in English decoding which is not consistent with other studies on Arab bilingual children. Abu Rabia & Siegel (2002) found that bilingual good and poor readers ages 9-14 showed significant differences in English decoding. It seems that there is a Matthew effect for these skills. Differences between bilingual good and poor readers in English decoding are initially negligible and, by grade 5, become more prominent due to factors that need further investigation.

On visual spelling tests, good readers performed better than poor readers in Arabic (contrary to Abu Rabia & Siegel, 2002) whereas they equally performed in English (consistent with the same investigators). This result supports our hypothesis that different orthographies require different reading and spelling routes. Since Arabic requires advanced phonological awareness skills, it is expected that poor readers lag behind in this task

5. Implications for reading instruction

The results of this study may serve as useful guidelines for Arabic teachers in the kindergarten and first elementary cycle. It would be useful to emphasize phonemic awareness, an oft-neglected skill in Arabic language classes, and provide activities in blending and segmenting sounds to improve Arabic decoding and prevent reading problems. Visual discrimination exercises should be provided more systematically, using symbols and figures with dots to approximate letters in the Arabic alphabet.

Finally, early childhood teachers of Arabic are recommended to speak in classical Arabic so as to palliate the diglossia effect and reduce the phoneme-grapheme correspondence errors.

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WRITING WITH THE BODY. ACTION AND COGNITION IN TEACHING

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Abstract

Until a few years ago, the prevailing position in cognitive science was to consider the human body a brain accessory (Borghi & Iachini, 2004). During the last ten years this position was, however, overturned by a multitude of experiments and publications that have highlighted the importance played by the physical body in cognitive processes: it is claimed, in fact, that cognition is embodied (Embodied Cognition, Caruana & Borghi, 2013) and that it depends also by features of corporeal type. The student, using his body as the main tool for apprehension and communication, acquires knowledge and skills that, otherwise, would remain inaccessible; it allows him to participate actively with the world around him, giving him the opportunity to learn through experience, exploration, the relationship with the others, using his body to express, interpret and to know: that's how it is really possible to realize the circular process of the body-action-cognition (Gomez Paloma, 2009).
Starting from this analysis, the aim of the research was the acquisition of reading and writing skills using the educational method (Josiane Jeannot Method, Neri A., 2005), which bases its activities mainly on the use of the body, and to verify its effectiveness through the results achieved and the enjoyment rating perceived (PACES-it, Carraro, Young and Robazza, 2008). The research involved 69 children of 6-7 years divided into three classes and for a period of four months. The Jeannot method has been adopted only in two classes, in order to observe the difference of the achieved results, and in the same classes it was also given the enjoyment test adapted to the children's age.
The results obtained at the end of the meetings were very clear: the two experimental classes have reached an higher level of learning than the third class, that has acquired the reading and writing skills through the traditional frontal teaching method; and the enjoyment rating has strengthened the positive level of learning achieved, bringing a high score in the positive scale and a low score in the negative one.
In conclusion, the body didactics could be considered a valid alternative to the stereotypical frontal lessons, allowing also to teach the main disciplinary contents, but into dynamic and creative setting, where the body become a fundamental part of the teaching/learning process.

Keywords: *Body, Jeannot method, enjoyment, learning.*

1. Introduction

Until a few years ago, the prevailing position in cognitive science was to consider the human body a brain accessory (Borghi & Iachini, 2004). During the last ten years this position was, however, overturned by a multitude of experiments and publications that have highlighted the importance played by the physical body in cognitive processes: it is claimed, in fact, that cognition is embodied (Embodied Cognition, Caruana & Borghi, 2013) and that it depends also by features of corporeal type. In fact today, gradually, it has come to the conviction that the mind is influenced by the brain, and especially by the body; at the same time, it has been creating a strong relationship between three fundamental processes that previously were constantly split off from each other, ie the perception, the action and the cognition. In 1998 Susan Hurley regarded the mind as a "mental sandwich", in which perception and action were considered marginal to cognition, defined as the pulp. According to this theory, the mind was considered as a sandwich with two slightly proteic ends: the sensory and the motor, and at the center the meat, or cognitive processes. Over the past fifteen years there have been several studies and research about "embodied" and "grounded" cognition without neglecting the setting of the traditional cognitive science. In fact, there was no single "embodied" theory, but there were different: some highlighted the radical importance of the experience and perceptions, other the importance of the body and action. Depending on the pre-eminence of one or other, there were two main models of Embodied Cognition: in the case the

enhancement of perception prevailed, the model was "phenomenological", in case prevailed motor action, however, the model was "pragmatic". Several scholars, even contemporaries, have given greater rise to perception: such as the "Phenomenology of Perception" by Merleau-Ponty in 1945, the analysis of touch by Husserl in 1952, until the recent record found in the mentions of Gallagher and Zahavi (2009). Different, however, was the logic adopted by the pragmatic model, where the supremacy of the action could be reviewed using different keys approach: American pragmatism (Dewey, 1949), for example, intended the concepts not as mere representations of objects, but as a set of instructions useful to the interaction with objects finalized to the action (F. Caruana, A. Borghi, 2013); furthermore, the ecological approach of Gibson is based primarily on the "affordance" concept, ie all the physical qualities of an object that suggest appropriate actions to manipulate it. Each object has its affordances, as well as the surfaces, events and places; the individual did not perceive only a copy of what the outside world referred him, but captured a wealth of information useful for its action (Paloma Gomez F., 2013).

The student, using his body as the main tool for apprehension and communication, acquired knowledge and skills that, otherwise, would remain inaccessible; it allowed him to participate actively with the world around him, giving him the opportunity to learn through experience, exploration, the relationship with the others, using his body to express, interpret and to know: that's how it is really possible to realize the circular process of the body-action-cognition (Gomez Paloma, 2009).

2. Objectives

Starting from this analysis, the aim of the research was the acquisition of reading and writing skills using the educational method (Josiane Jeannot Method, Neri A., 2005), which bases its activities mainly on the use of the body, and to verify its effectiveness through the results achieved and the enjoyment rating perceived (PACES-it, Carraro, Young and Robazza, 2008).

3. Methods

The research involved 69 children of 6-7 years divided into three classes and for a period of four months (from September to December). The Jeannot method has been adopted only in two classes, in order to observe the difference of the achieved results, and in the same classes it was also given the enjoyment test adapted to the children's age.

The Jeannot method was invented for children with disabilities and this made it interesting and very beneficial to children with no disabilities. Jeannot designed a psychomotor path to learning reading and writing related to the tracing of a "dog" stylized, storing through it the direction of movement required to write, and finally she tied support images to facilitate the grapheme-phoneme association. The cognitive approach was linked to the motor one; it was accompanied by a constant phonological activities and provided continuous psychomotor facilitations. In this method, it was essential the whole body involvement to read and write, i.e.:

- The use of the body that acted on the floor as if it were a pencil.
- Learning of seven basic movements to write in cursive on the ground, in the air, on the sheet (face, eye, leg, back, tail going up, water jet that falls and turns).
- Their repetition through roundabouts and singing games.
- The support images (adapted to the Italian language) for the strengthening of phoneme-grapheme association.
- The body games with tablets for the analysis and synthesis of words and simple and complex syllables.

The support pictures were 24, as many as the graphemes of the Italian language and suggested the identification of a character (person, animal or thing) that is doing an action, during which the sound of a spontaneous emission took place. To clarify the difference between an alphabet and an image support: in an alphabet to write the word 'home', the child used the initial 'h' of the house, the 'o' of orange, the 'm' of mountain and the 'e' of elephant . The image support used, instead, for example, the 'brrrrr' of shivering child or the 'grrrr' of a growling dog. It was a reinforcement to associate the sound to sign.

The path was circular: the teacher simultaneously tackled a work related to body movement, to writing, to listening and to the sense-perceptual games. All these different aspects of the work used the body as a large pencil which acts on the floor, in the air, on the wall and were always based on the psychomotor action considered a great learning facilitator. The activities took place in a circle. The circle is used to sit down and listen to the story, listen to each other, to be able to look everyone in the eyes, the flow of time in the clock sense, in a ritual that joins all.

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Figure 1. The stylized dog and the water jet on which to perform the move

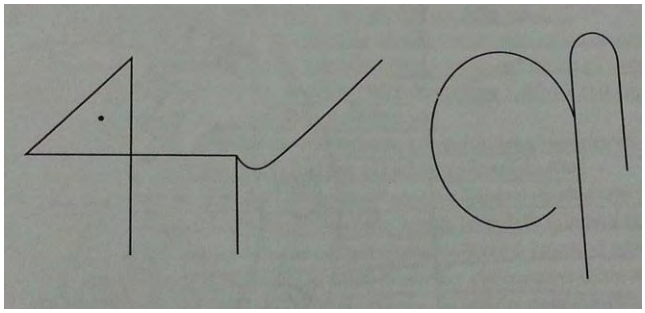
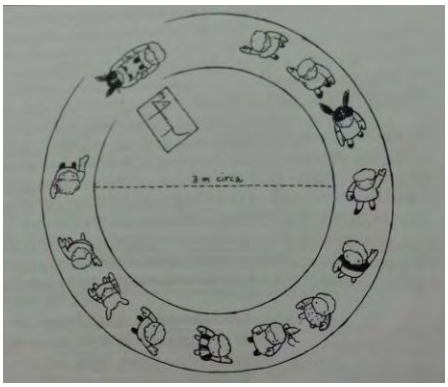


Figure 2. The circle disposition of the children before the activities



The enjoyment was assessed by the revised PACES, which was originally designed to measure positive affect associated with involvement in physical activities in college students (Kendzierski & DeCarlo, 1991). The original PACES consisted of 18 bipolar statements on a 7 point continuum (I enjoy it - I hate it) which were summed to produce a total enjoyment score. The revised PACES consists of 16 statements which begin with the stem "When I am physically active…". In doing so, two items were removed and others rewritten to improve comprehension and reduce redundancy, and a 5-point Likert-type scale (1 = "Disagree a lot" to 5 = "Agree a lot") which was considered more comprehensible to younger children replaced the 7-item bipolar continuum (Motl et al., 2001). A score is computed by calculating the average of the 16 items. In this research it is used the Italian version, translated and validated by Carraro, Young and Robazza (2008).

4. Discussion

The results obtained at the end of the meetings were very clear: the two experimental classes have reached an higher level of learning than the third class, that has acquired the reading and writing skills through the traditional frontal teaching method and the enjoyment rating has strengthened the positive level of learning achieved, bringing a high score in the positive scale and a low score in the negative one.

At the end of December the two experimental classes have successfully reached the reading and writing skills: the students could write and read all graphemes/phonemes and they were ready to acquire new morphological concepts. Instead, the third class needed further consolidation activities, because only half of the students have perfectly achieved the association grapheme/phoneme.

The PACES-it scores highlighted the success of the first two classes: the 8o% of children have positively responded to the questionnaire, agreeing to responses like "I feel good", "I find it pleasant", "I'm having fun." Only 20% of children have chosen the item "I am unsure or neutral."

5. Conclusion

In conclusion, the body didactics could be considered a valid alternative to the stereotypical frontal lessons, allowing also to teach the main disciplinary contents, but into dynamic and creative setting, where the body become a fundamental part of the teaching/learning process.

The scientific recognition of education through the corporeality and movement has opened new horizons for study and fertile opportunities for cultural connection between the world of neuroscience and

the pedagogy. The physical approach to knowledge and relationship asks to get out of some academic schemes, with particularly regard to the traditional form of frontal lessons, to find out the possibility of learn by moving, to live differently the classrooms setting, ie sit on the floor, lie down, relax, walk and dance barefoot, etc. The interaction between functional study, experimentation and practicality is a fundamental condition for acquiring a new and effective skills.

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BODY BECOMES BRAIN. THE SFERA METHOD FROM THE COMPETITIVE PRACTICE TO ITS PLAYFUL APPLICATION

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Abstract

The choice of the topic " SFERA method " (Vercelli G., 2006), method used to improve mental skills connected to the body, is configured as research for new possibilities about the method application in the educational field. This research leads us to reflect not only on the advantage that athletes personally benefit from its application on a competitive level, but also on psychological and social benefits originating from the application outside the sports practice, thanks to its simple contents. Initially the focus was placed on the explanation of the SFERA method, an Italian acronym of the five factors that make the word up: SYNCHRONY, STRENGTH, ENERGY, RHYTHM, ACTIVATION. Subsequently then it moved to the individual understanding of each factor to understand their effective results. For thus optimize every single SFERA factor through the game , they have been proposed for the game - exercises for children aged 6 to 12 years , bringing the benefit that each factor produces to stimulate new mental skills. To do this, it is assigned to each factor of a minimum of two SFERA games.

Keywords: *Sport, SFERA, games, children, education.*

1. Introduction

The connection between game and sport becomes obvious also in the prospect that their execution makes up an internship of social and human relations as means of education, especially through the respect of the rules. They passed from mass phenomenon to individual activity, they have always had a key role in our culture which is constantly increasing nowadays. Their balance inside this field it is not just bodily but also cognitive. But, it's only recently that the connection between mind and body has gained a role, a role approved thanks to the contribution of neurosciences. Without any doubt, the benefits deriving from the playful and sportive activity help the learning, but an important contribution has to be recognized to the cognitive activity. So, the body education is an essential condition but the mind education, of course, doesn't represent a lower step during the awareness path that has no age but just different deepening levels in our mental, cognitive, affective and motor frameworks.

The alliance between mind and body has to be build on solid basis to develop and improve our mental skills, for this reason the attention is focused on the "SFERA" method (Vercelli G., 2006).

2. Objectives

The aim of this research was to understand not just the advantages that athletes who personally apply this method at an agonistic level but also the psychological and social benefits deriving if this method is applied out of the agonistic practice, thanks to the simplicity of his contents, especially in the educational field. Therefore, to prove the educational application of this method, It has been necessary to develop some game-exercises basing on the factors that compose the sphere, showing how the playful activity used to reach the aims, is a good means used to satisfy all the needs of a kid.

3. Methods

The reference model was born in 2006, created by Prof. Giuseppe Vercelli, director of the Sport Psychology Center of SUISM.

The method had his origins from the experiences and observations matured on this field during the years, and from the analysis of the results of hundreds of athletes who have reached high level performances going beyond their limits. At the beginning, it has been done a research on a sample of 102

high level skiers, this research allowed to highlight five factors linked positively with an excellent performance, drawing in this way an emotional profile. These factors are : Motivation, adaptation, emotive stability, energy and self-efficacy .

All these factors were renamed later and resumed in the SFERA acronym, which is comparable to the mental condition of the highest performance done by the athlete that represent the symbol of perfection that recall to our mind perfect images on a geometric and artistic point of view. The acronym is made up of the words : SYNCHRONY, STRENGTH, ENERGY, RHYTHM and ACTIVATION shows the existence of these five factors that are named also attractor points , on which is necessary to act for the structuration of the mental representation of the athlete(Vercelli G., 2006).

The first attractor of the SFERA is the Synchrony, it is the connection between mind and body, being here and now.

In the synchrony state there aren't distractions from the outside, but what is done it's a perfect correspondence between internal and external resources. It's for that the reason of the being here and now, because the synchrony represents the capacity of being present to what you do in the moment you do it. We are in synchrony for example every time we focus on what our body is doing.

The second attractor is about the strength , those strength points on which we identify to improve our performances when we are in a competition , resuming, the awareness of our technical, physical and psychological skills. They are used when we are sure that we can use it for our advantage showing our own skills.

The third attractor is the energy, what we use to clear a duty or achieving an aim , the active use of the strength. It is linked with the capacity of control, if a person that uses this attractor enjoys and at the same time has a passion for what he's doing , he will surely have advantages using the energy.

In fact the energy is a conscious process fueled by the willing which is fueled by passion and motivation.

The fourth attractor is the RHYTHM, that correspond to the elegance of the gesture and the quality of the movement. It is linked with the energy, but while the energy is the quantity dimension, the rhythm express his dimension in the quality, alternating the right movements.

The fifth and last attractor is the ACTIVATION , the motivational engine that allow us to go beyond our limits, or in the case of an athlete to hardly train thinking that anything will happen, he will win.

It is the inner strength that leads the behavior towards the aim.

4. Discussion

Once assigned an own dimension to each attractor of the SFERA, it has been tried to understand how the acronym could be applied to the educational field, gaining efficient results. In fact the playful management of the method, allows to the kid who applies it, not just the opportunity to create new mental skills but also to make lighter the learning, giving benefits especially on the improvements of scholastic results.

The playful management of the method will allows the kid to improve his mental skills because the mental training has to be necessarily educated to allow the kid to face situations not just in the sport field but also daily: me, the other, the fun, the rules, the mistakes and the challenge.

To optimize so every single factor of the SFERA method through the game, have been proposed as mentioned earlier, exercise-game for children aged 6 to 12 years, bringing the benefit that each factor produces to stimulate new mental abilities.

In particular:

- Synchrony: Pendulum game, Hit the target;

The pendulum Game is useful to create in the child a motor image. He asks the child to keep the pendulum firmly between the thumb and index finger constantly thinking about what you want to achieve by the pendulum motion, setting a target that is on the ground. When the pendulum will start to move you can ask to reverse the direction of rotation. With this game, the child can understand that when his mind and body are perfectly connected (in sync), this can give rise to movement of the body.

Hit the target is rather beneficial for the child to learn how to focus on a specific goal. In fact, by focusing attention on target to hit, learn to listen to the inner voice that will suggest the right time to throw the ball. The game can be made in the open air such as a pitch, it will be positioned at the center of a network is not very high and behind this the target that the child will have to hit with a ball.

- Strength: Draw your hand, Centers the Basket, Admire and describe

Draw your hand, it is a little game of graphical activity that allows your child to identify with its strengths through the reproduction of his non-dominant hand on a sheet. The child will have to first observe and then draw it without looking at the paper. Finish drawing the child will have to cast a vote

based on how it feels to have led the design, what did you ask him if the vote expressed by him underestimates or overestimates the actual design.

The game Centers the basket, includes the launch of a sponge ball in the basket placed on the ground from a distance. Every time your child will carry a basket will get more and more point. It is important in this game, to determine the distance from which the child throw the ball as if it were wrong might not feel effective. Giving him the ability to shoot from distance established by himself, every point assigned will allow him to increase the sense of self-efficacy and in this way he will himself to get involved increasing more and more the distance from which to pull.

Also Admires and describe, is a game to raise awareness of their strengths outside of motor activity. The game requires observation and clear description of an object, of a flower, an animal or a picture on the wall. It is necessary that the child describing the object for at least 15 seconds. Afterwards, the children will be grouped in pairs and ask them to express opinions or appreciations on the other, and the other way around. That done, the children one at a time will try to admire first in front of a mirror and then pulling them together them into the circle you ask one of the sensations felt during the last financial year.

- Energy: Be careful it could fall, Nice grip;

Be careful it could fall, it's a team game to be played by modulating its own energy. The game is expected that the two teams are both equipped with a tarp that will govern all participants of the game. A draw, one of the teams will host on its towel a dozen balloons containing water and, to the beat the team with the balloons will launch one at a time with the right energy a water balloon to the other team , should instead try not to bring down the balloon but host it on your own towel.

Even Nice grip provides for the modulation of its energy. In this game, the child will throw with his hands a sponge ball to his partner or adult that is located in the middle of the playing area, drawn by a line on the ground. The aim of the game is to be able to keep the ball in play in their own area for as long as possible. In this way, and then modulating the own energy, the child will be understood that, if the stronger the return this will launch the ball first.

-Rhythm: Look how I'm swinging, Little drum ball;

Look how I'm swinging, it is a game designed to help the child to find his rhythm. We have to let the child sit on a chair and asked to imagine with closed eyes to be on a swing. Starting to swing, the baby will swing his torso back and forth, until it has found a nice pace. But to find his rhythm, the child will understand that this will be established once identified the intermediate condition, figuring that, if it is on a swing swinging too hard could fall and that if it goes too slowly may get bored.

Even Little Drums Ball is a game designed to find their own pace while dribbling a ball along a ladder of intensity ranging from 1 to 10. The child will start dribbling the ball (with his hand, with the fist, with two hands) slowly at first and then increase the intensity each time the ball touches his hand. Reached level 10 will start again from level 1.

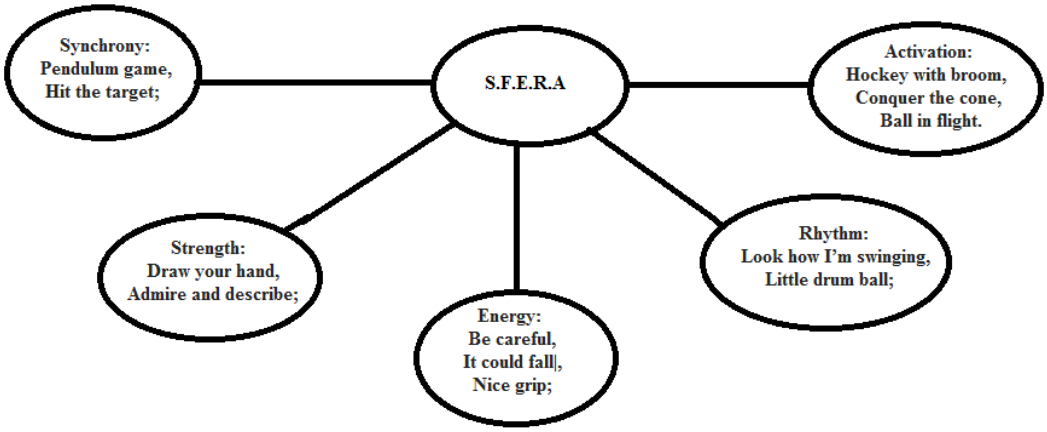
-Activation: Ball in flight, Hockey with broom, Conquer the cone.

Ball in flight, is the game that runs as if you really were on a volleyball, volleyball in fact, is also a sport driven by passion. The game area will be divided into two halves by a net field which, must be low enough to allow the launch of the ball for the small players. Each half can have two or four players. Upon receipt of the ball by the opponents, before returning it, the child must stop it with his hands, bounce it on the ground or crush it once and then return it to the opponent without using too much force. To win, you must respect the rules cited for use of a point every time the action is performed correctly.

Conquer the cone, it provides for the execution of the game with the kids all lined up behind a rope placed on the ground. In front of each child will be willing cones. Each child fitted with a small circle will have to try to hit the cone with the dominant hand, you need not cross the rope that shows the distance from which to conquer the cone. Each centered cone is worth one point, obviously gets the most points wins.

In the game Hockey with broom, simulating the hockey game, the kids will have to roll the ball with a broom small, and bring it on goal to score. You must make at least three passes to a teammate. The winner is carried out before the expiry of the time a certain number of goals.

Figure 1. Playful method scheme



5. Conclusion

The playful application of the method, can be regarded as a new means of effective research to obtain improvements in children's learning processes, making use of stimulants and productive activities, but, at the same time entertaining. Thanks to the contribution of the fun, fantasy and creativity, learning will be promoted and made light involving children and allowing them to have fun but at the same time get involved to improve. Even through the error in fact, your child can practice to arrive at the correct solution of the games.

This will be possible only if the child will be structured motivation needed to improve their skills, or to exploit them to the fullest. The entry into its sphere will make him aware of being part of larger spheres that enclose his surroundings and influences, or relationships, thanks to which the child is connected with the world(Vercelli G., 2006).

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DESIGNING, REDESIGNING AND IMPLEMENTING: HOW TO REDUCE DROPOUT RATES IN AN ITALIAN MULTICULTURAL MIDDLE SCHOOL

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Abstract

The presence of immigrant students in the Italian school system is now an established reality. Several international and national surveys have highlighted the performance gap between immigrant and non-immigrant students. Underachievement, dropout rates, and ineffective schools are unsolved issues for Italy. The school systems could play a central role in the promotion of authentic intercultural integration, designing real paths towards academic success for all pupils.
This paper reports the main results of an Action Research project, conducted from 2011 to 2014 in an Italian middle school with a high proportion (>30%) of students from immigrant backgrounds and/or at risk of dropping out. What are the goals of this longitudinal study? To encourage regular school attendance and to reduce dropout rates through an experimental integration year between middle and high school, combined with innovative, active teaching methodologies.
The presentation highlights the strengths and weaknesses of each stage of the process. It focuses on time, space, teaching strategies, and on relationships with parents, other classes in the school and on the school network.

Keywords: *Dropouts, equity, immigrant students, multicultural contexts, action research.*

1. Introduction

Decreasing national dropout rates is an important objective for all European Union (EU) member states, intent on promoting equality in their school and educational systems. Early school leaving takes a variety of forms: leaving before the end of an educational cycle, repeating years, evasion of compulsory schooling, irregular attendance, transfers from one school to another, pupils being older than average for their year, or failure to acquire basic skills during their educational career (Colombo, 2015; Santagati, 2015).

The phenomenon is so significant that, as early as the Lisbon Conference, the European Commission required that political strategies be put in place to reduce the percentage of students leaving school early to below 10% by 2010; this target was not met and has now been urgently reaffirmed in the strategic goals of the Europe Agenda 2020 (EU, 2010).

The situation in Italy is particularly serious: despite recent evidence of gradual improvement, it is still at the bottom of the table of 27 EU countries — with 17% of young people classified as *Early school Leavers*[1] (ISTAT, 2015). The majority of the young people who have fallen behind in their educational careers are "*post-migrants*", to use a term coined by Davide Zoletto (2012). A comparison of the percentages of *post-migrants* and Italian students in this situation reveals startlingly high levels of inequality: 34.4% versus 10.9% (MIUR, 2015b, p. 19).

Although the presence of foreign students in Italy is now a structural fact, recent national (MIUR, 2014, 2015a, 2015b; Ongini, 2015) and international statistics (OECD-PISA, 2010) still reveal a gap between their educational performance and that of Italian born students. This learning gap, while smaller, still exists between second generation immigrants[2] (in the 2013-14 school year this group accounted for more than half (51.7%) of all students born of immigrant parents) and their native Italian peers (MIUR, 2014, p. 3).

[1]The percentage of 18-24 year olds with - at most - middle school diplomas who are not engaged in any form of education or training - definition recently updated in *Early Leaver from Education and Training*.
[2]Using the definition given by the Italian Ministry of Education, the *Ministero dell'Istruzione, Università e Ricerca (MIUR)*, which defines students born in Italy who are not Italian citizens as "second generation", while the "first generation" was born abroad.

The statistics also reveal a tendency for foreign students to be channeled into professional schools and technical institutes: 37.9% of foreign students are at professional schools, 38.5% at technical institutes; this compares with 19.2% and 33.1%, respectively, of their native peers (ISMU, 2015, p. 65). And of course these foreign students are those at most risk of leaving school early, because these are precisely the educational establishments with the highest rates of high school dropout (MIUR, 2013, pp. 14-15).

There are clear national guidelines for schools (MIUR, 2014b; MPI, 2007) on how to support effective integration strategies, and the education system should be central to fostering equality, as many critical studies have noted (Malusà & Tarozzi, forthcoming; Suárez-Orozco, Suárez-Orozco, & Torodova, 2008; Tarozzi, 2014; Torres & Noguera, 2008; Ventura, 2012), proposing effective preventive strategies and networking activities (Catarci & Fiorucci, 2015; Colombo, 2011).

2. Context

The project was carried out in Trentino (Northern Italy) from 2011 to 2014 in a middle school with a high proportion (>30%) of students from immigrant backgrounds and/or at risk of dropping out. The path is based on local school legislation[3], which supports the projects and initiatives of individual institutions aimed at developing further paths to discourage early school leaving.

3. Objective

What are the goals of this longitudinal study**?** Encouraging regular school attendance and reducing dropout rates through an experimental integration year between middle and high school, combined with innovative, active teaching strategies. In particular: a) helping students to develop self-assessment skills, and to make informed decisions about their own futures; b) promoting the development of key study skills and strengthening their motivation to learn c) identifying and transferring good practice, tested in the action research project.

4. Methods

The methodology chosen was Action Research (AR), a participatory approach, which valorizes the role and self-determination of participants. Instead of doing research *on* people, AR researchers, in fact, do it *with* them (Reason & Bradbury, 2001), deciding the research question together, co-building methods of data collection and analysis and gradually implementing – in a cycle of action/analysis/action – their findings, in order to facilitate processes of social change which may also include a political dimension. The *Project Team* (PT) comprised the principal and 5 teachers – who had conceived the initiative – 2 researchers from the university of Trento and 2 psycho-sociologists from the "Studio APS" (Psycho-Sociological Analysis)[4].

Verbal, observational, and visual data were collected gradually: archival records and the gray documents (from 2011 to 2014), participant observations and video recordings over a school year, in-depth interviews with key informants (parents and teachers), field notes and elements of meta-analysis, which were shared with the PT.

5. Results[5]

The longitudinal research consisted of three steps: in 2011-12 a network agreement with 10 middle schools in Trentino region was reached; in 2012-13 the new project directly involved teacher teams and the students with immigrant backgrounds from 3 multicultural classes. The redesign of the 2013-14 experimentation enabled the implementation of micro-projects and the establishment of a first experimental class.

[3]Provincial Law no. 5/2006, art. 57, comma 1 «The Province can activate or support, including on the initiative of educational establishments, the recognition of projects involving the innovation of the school cycle, its structure and duration, the integration of training / educational systems, the continuity of the educational offer and school and career guidance »; art. 58, comma 1 «Elementary and middle schools can promote activities to encourage integration with high school curricula in order to develop initiatives to prevent early school leaving and to support students with special educational needs ».

[4]The PT included: Stefano Kirchner, Lina Broch, Maria Videsott, Barbara Baraldi, Claudio Bassetti, Claudio Bertoldi, Franca Manoukian, Claudia Marabini, Massimiliano Tarozzi e Giovanna Malusà.

[5]This article reports some of the results of research that I partially presented to the international congress of the Italian Society of Pedagogy (SIPED) at Brixen (BZ), Italy, December 3-5, 2015.

5.1. First phase - design

The first year (2011-12) was spent setting up the project: expectations, working hypotheses, the tools and methods for recruiting students, teaching and research methods, were all discussed, developing an increasingly rich proposal, shared in a network with 10 other schools in the province.

5.1.1. Expected target. The project's target group was identified as students who, at the end of the third year of middle school, are still struggling to consolidate the core competences indispensable for success at high school, not because of any cognitive difficulties, but for emotional and relational and/or socio-cultural reasons.

The approval of the students' teachers, and the informed consent of the students involved and their families, were identified as prerequisites for participation, in order that the experience be fully shared. A number of meetings between teachers, students and parents were organized, to build a constructive relationship and a learning pact that would allow the students to take responsibility for co-constructing and evaluating their own learning paths. The initial plan was to involve 10-15 students of both sexes.

5.1.2. The project "Trapezio" design. The PT drew up an educational proposal, which involved the deconstruction of the contexts of traditional learning. The proposal included a new organization of:

a) *space,* in a welcoming place, off school grounds;
b) *time*, not following a school timetable, avoiding lesson hours and 5 hour days;
c) *groups*, smaller than class groups;
d) *relationships,* establishing significant relationships with each and every student;
e) *content*, concentrating on 3 or 5 priority learning objectives, linked to transversal key competences;
f) *evaluation methods*, the students are engaged in a self-assessment program and at the end of the course are given a certification of achieved competences – no credits are assigned;
g) *ways of giving the students responsibility,* through providing the space and the tools to strengthen their autonomy;
h) *teacher collaboration,* with periodic planning meetings with, and monitoring by, the PT.

5.1.3. Student recruitment. The first attempt to recruit students did not produce the expected results. The network had informed the PT of 19 students who met the project's criteria, from 12 different classes, in 8 different schools. Meetings began with the students' teachers, the coordinating teachers, the parents and the students involved. At the end of this complex phase (May-June 2012), however, only 4 students had joined up, and the project was therefore revised.

5.1.4. Strengths and weaknesses. During the period of student recruitment the PT had pointed out some difficulties a) for the teachers – the lukewarm involvement of some staff, certain doubts about the identifying of target students, the asymmetric management of meetings with the families, a lack of funding for research; b) for the parents – different perceptions of the risks of failure at school and difficult relationships with their children; c) for the students – a lack of motivation to experiment with an innovative course, off the school grounds. The strengths which emerged, on the other hand, were the sharing of an innovative idea within a network of schools, the approval and trust of the parents and the unity of the PT.

5.2. Second phase – redesign and experimentation "*Trapezio*" experiences

Given the strengths and weaknesses outlined above, it was thought best to wait and then re-launch the project in the following school year (2012-2013), in order to have enough time to strengthen collaboration between the institutions belonging to the network, the principals, coordinators and students' teachers in particular. An experimental class group within one of the schools was envisioned, in order to facilitate contact between peers. At first the plan was to enroll the students in a high school, then in a middle school, with the idea of an integration year – which had never been formally approved by the local school authority – eventually being abandoned.

The redesigning of the new course (coined as "*Trapezio*" *experiences*) involved all the teachers and students of three of the class councils in the middle school which was acting as network leader. The experimental group was made up of 9 students from Year 2 of the middle school, with the consent of the students and their parents. Every Thursday and Friday morning two teachers worked with the group on transversal activities involving core language and math's competences, designed to fit in with the programs of the classes from which the children came. These activities were always attended by an

outside observer, who was coordinating the AR. In line with the requirements of the Ethical Code of Psychological Research (AIP, 2015), the room had a microphone on the communal work table and a fixed video camera which filmed the activity, in order to provide the RA project with data for discussion and analysis.

5.2.1. Reflections on the project. The designing and implementing of the project were crucial to both the solving – through *experiential laboratories* – of real life problems and to the development – through collaboration with peers – of a "stick with it" attitude, and confidence in one's own abilities, aimed at the gradual building of a "life plan". The students gradually co-built the setting of the classroom, either through *ad hoc* projects that arose out of the needs of the group (classroom, door, table projects), or "ordered" by an external figure, or in collaboration with the other classes.

Within each project the students were supported in the development of transversal competences. Although the work seemed mainly focused on mathematics, more closely connected to the students' real world, during the metacognitive stage, at the end of each day, linguistic competences could be strengthened, giving the students the opportunity to interiorize the specific language of the subjects and to improve their communication skills within a group and in public.

The teachers' behavior and the construction of personal relationships and even an alliance with the students were key elements of the project's approach. The strategies adopted, hard to categorize as a fixed set of behaviors and procedures, were constantly adapted to the events and needs emerging within the group, while maintaining an authoritative attitude and guiding the class towards the attainment of a successful, original result. Links were always maintained with the students' classes. There were moments when the children had to be firmly reminded of the task at hand, and of their own personal responsibility, others which necessitated emotional support, in attempts to respond immediately to some of the concerns which emerged (such as how to do the homework set, very bad reports in the first term) – all within an educational, instructive atmosphere. Practical experience characterized every learning stage.

5.3. Third phase - implementing

In 2013-14 the project blossomed into the creation of a full, experimental, first year class at a middle school. Although funding was reduced, other micro-projects were implemented in the school with the classes from the Institute and the group of 9 students were able to complete their "*Trapezio" experiences*, at the end of which all the students passed the state exam that concludes the middle school program, and are now at high school.

6. Concluding remarks

The promotion of innovative educational paths in schools has proven to be a particularly complex challenge, requiring time, patience and flexible policies capable of addressing the diverse needs currently emerging (Colombo, 2010). The path described in this paper, in particular, was an attempt to offer a response which seems to have proven too sophisticated for these, still relatively immature, political times at the local level. Constantly adapting their original design, the group of teachers tried to offer alternative ways of encouraging a number of at-risk students towards academic success. Nevertheless the ambitious project, developed through trial and error and "*attempted solutions*" (Nardone & Fiorenza, 1995) succeeded in making a small dent in practices that are deeply entrenched within the school system. During the project the problems of bridging the gulf between the two school cycles (middle and upper), which have crystallized into constraints that are hard to overcome, emerged very clearly.

Further questions remain on the ways still open to manage - without funding - an effective AR path in schools (Tarozzi, 2015), above all in experimenting with educational processes which have little political visibility.

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THE ROLE OF HIGHER EDUCATION IN ORGANIZATIONAL SETTINGS

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Abstract

The U. S. economic recovery relies on getting high-quality degrees into the hands of a larger, more diverse pool of people. Boards of institutions of higher education can help make higher education more productive by focusing on how to capture efficiencies, deliver instruction in new ways, and work smarter.

Boards should ask questions such as: 1) How can our institution target financial incentives to support graduating more students with high-quality degrees? 2) How can it use tuition and financial aid to incentivize students to complete their course work on time? 3) How can it implement low-cost, high-quality delivery approaches? 4) What business efficiencies can it achieve through joint purchasing, back-office consolidation, and other similar approaches?

Beyond college completion, colleges and universities should be concerned about learning outcomes. They should charge presidents and chief academic officers with ensuring that student learning is assessed and the data shared with the appropriate stakeholders.

Keywords: *Corporate learning, adult learners, workplace.*

"Education is how to make sure we've got a workforce that's productive and competitive.

Education is an economic issue when nearly eight in 10 new jobs will require workforce training or higher education by the end of this decade. Education is an economic issue when we know beyond a shadow of a doubt that countries that out-educate us today will outcompete us tomorrow."´

- President Barack Obama

1. Introduction

Without college-level learning, American workers simply won't have the knowledge and skills they need to succeed in today's global economy. Our country's long-term economic recovery will rely on getting a greater number of high-quality degrees into the hands of a larger, more diverse pool of graduates. College and university governing boards need to drive for major improvements in higher education, and leading the way in a movement the nation cannot afford to postpone.

Many feel that 60 percent of working-age people in the United States should have earned high-quality postsecondary degrees or credentials by 2025/2030. A growing number of countries have college-attainment rates that surpass that of the United States. Given that only about 40 percent of working-age adults in the U. S. have degrees there must be a commitment from higher education and industry to work together to enroll and graduate more students from college. Additional attention must be to the success of low-income students, students of color, first-generation students, and adult learners.

Those who enroll in college today in the U.S. run the gamut—racially, ethnically, and socially. They are recent high-school graduates, veterans, and second-career retirees. They are full-time resident students, part-time distance learners, GED completers, certificate seekers, evening MBA students, and many others. The postsecondary institutions charged with educating 21stcentury students are also diverse: They are independent and public, for-profit and nonprofit, small and large, two-year and four-year institutions. Yet many students do not obtain their degrees, in part because colleges and universities frequently remain anchored to a way of doing business that is similar to how higher education operated in the 19th century.

Many institutions, for example, focus on measuring the number of hours spent in seats as opposed to the learning and workforce-relevant skills gained while in those seats. Most federal and state support for higher education institutions is based on the headcount of the students brought in the door,

not those who walk out with a quality degree. Even given the diversity of institutions and their missions, most colleges and universities—especially public universities, which enroll more than 70 percent of all students in the U.S.—are rewarded and funded based on how many students enroll rather than how many graduate.

Serving the needs of diverse students and increasing their graduation rates will require significant changes in higher education's systems, attitudes, and administrative practices. And governing boards are distinctly positioned to address those changes. As Terrence MacTaggart notes in *Leading Change: How Boards and Presidents Build Exceptional Academic Institutions* (AGB Press, 2011), "To be sure, leadership from federal and state governments, as well as college and university presidents, is essential…. But boards, which hold ultimate responsibility for delivering educational value, should not sit idly by while their institutions and the nation's human capital diminish in comparison to our global competitors."

2. A More expansive responsibility

Boards are recognizing that higher education is facing unprecedented challenges as it wrestles with maintaining quality without increasing costs at a time when fewer resources are available. Not every institution's mission is the same, and some must focus more than others on the goal of helping more students—who enroll with differing levels of preparation for college-level work—complete their degrees at a lower cost. But no institution is sheltered from the current harsh economic realities.

Flagging financial support for higher education, and the persistent economic crisis that perpetuates it, creates true challenges for institutions and their boards. It is simply too expensive to scale the current system to meet the country's needs. According to the National Center for Higher Education Management Systems (NCHEMS), it could cost as much as $33 billion in some combination of new state appropriations or tuition increases for the nation to reach 60 percent attainment by 2025. But, at the very time that institutions are being called upon to increase enrollments and graduation rates, they are experiencing significant cutbacks in state appropriations and public resistance to higher tuitions.

Moreover, to measure student success, institutions often focus on the characteristics of incoming students—input measures—as opposed to analyzing the evidence of persistence, completion, and the actual learning that their graduates demonstrate. As a result, boards do not have data that help them evaluate the results of the investments being made at their institutions.

Yet many institutions are concerned about the urgent need to increase retention and completion, and they are willing and eager to consider how to deliver high quality education more effectively and efficiently.

3. 21st-century solutions for 21st-century students

What, specifically, can and should institutions of higher education in the U.S. do? They can help make higher education more productive by focusing on how to capture efficiencies, deliver instruction in new ways, and work smarter—without compromising the quality of the degrees and credentials they offer.

How can our institution target financial incentives to support graduating more students with high-quality degrees? Colleges and universities can increase the likelihood that students will complete their degrees by providing more structure and fewer options in the courses students must take to graduate, by clearly delineating the pathway for completion, and by providing more-proactive academic advising that helps signal when interventions are needed. Initiatives to improve graduation rates by limiting course options and building structured pathways to completion can cut the average cost for a degree by 11 percent, according to NCHEMS. Providing advisory programs that help students navigate early and effectively through clear education to- career pathways can cut costs by one-third.

It is helpful to look to concrete examples for guidance. In Ohio, Indiana, and Tennessee, for example, leadership is testing performance funding formulas, allocating resources based on a variety of indicators including completion rates, time to completion, and production of degrees aligned to areas of high need for the state workforce. Institutions can take a similarly hard look at how they allocate resources within the institution to high-performing programs. It is up to each college or university to define "performance" according to its mission and capacity. It is also up to them to think through the clearest pathways to a quality degree and provide the resources necessary to support it. But there is no reason that all institutions can't reconsider the array and number of core requirements, the advising structure, and the institutional-aid policies they offer in order to help students make informed choices as they work toward their degrees.

How can our institutions use tuition and financial aid to incentivize students to complete their course work on time? Research has shown that financial incentives make a big difference in moving some students toward graduation. Texas gives a $1,000 tuition rebate to students who take no more than three credit hours beyond the minimum number to complete their degrees. Florida significantly reduced dropped courses by requiring students in a special scholarship to refund the money if they withdrew after the drop/add deadline.

Some institutions are also exploring using off-peak tuition pricing to encourage use of building space in the evenings and on weekends. Community colleges, especially, have found this model appealing. Meanwhile, some large systems like the State University of New York have been experimenting for a number of years with offering reduced tuition and credit hour costs to students who attend on nights and weekends. Some feel that if the corporate sector involved itself to offer monetary incentives to students/future employees we could see a major impact/increase in degree completion rates.

4. Questions for university leadership to ask about educational quality at their institutions

- How does this institution define educational quality?
- Does the institution say what and how much students should learn? Where is this said?
- What kinds of evidence does the institution collect about student learning?
- Is the institution benchmarking performance against external standards as well as tracking institutional performance over time?
- How are assessment results used?
- What do students and alumni say about the quality of their educational experience?
- How do the institution's retention and graduation rates look over time, and how do they compare to those of other institutions?
- What does success look like for the types of students enrolled at this institution?
- Does the institution define college readiness—that is, the skills and knowledge that students need to be successful at the institution?

5. Learning for an educated workforce

In their leadership roles top administration at college and universities should ensure that students not only gain college degrees and certificates, but that they actually learn what they need along the way to become productive and skilled workers who can contribute to the American economy and a democratic society. A recent Gallup survey found that most Americans think getting a college degree is crucial to their economic well being, but they question whether colleges are able to deliver job-relevant learning. Thus, beyond college completion, they must be concerned about learning outcomes.

Colleges/Universities must consultant with workplaces and lead the way in reframing the conversation for its own institutions and, by extension, the national dialogue about producing more high-quality degrees. The board should charge the president and chief academic officer with ensuring that student learning is assessed and the data shared with the board and all involved constituents. Accordingly a board should know how assessment is conducted at its college or university, what the academic goals are, and how the institution is performing against such goals. A committee of the board, like an academic affairs or education committee, should provide the full board with summaries of the assessment information it receives, regularly reporting the data collected, its significance, the institution's responses to the data, and its progress over time. The focus should be on collecting data that measures not just inputs, like the number of students enrolled, but outputs— what students have actually learned in the course of their studies and also note if the outcomes are well suited to the American workplace.

The focus on quality as learning is redefining the enterprise of higher education from a focus on what is taught to a focus on what is learned, and that is a fundamental shift. Higher education in the U.S. must move away from "an outdated model of accumulated 'credit hours' signifying little more than time spent in a set number of formal courses." We must, align our decision making and design to the "current need for graduates who can adapt and expand existing knowledge and skills to meet new challenges and unscripted problems in every sphere of life—personal, economic, civic, democratic, environmental, global."

By concentrating not only on getting students access to an institution, but also on having them graduate with high-quality degrees, colleges/universities can reframe what they discuss, what data they review, and what they expect of the institutions that they lead and for which they serve as overseers. They can better serve the knowledge society by providing more skilled graduates, as well as confirm the

ways that higher education adds value for students, parents, donors, and policy makers. That will lead, in turn, to more support from those stakeholders— ultimately helping to sustain the institution and higher education in general. The nation needs boards, top administrators, and faculty that value the larger picture and view their institutions as contributing not only to improving the lives of students and communities, but also the nation as a whole.

6. What should students learn in terms of broad, integrated knowledge?

Broad higher learning should involve students in the practices of core fields ranging from science and the social sciences through the humanities and arts, and in developing global, cultural, and democratic perspectives. Broad learning should be integrated and furthered at all degree levels and should provide a cumulative context for students' specialized studies.

At *the associate level*, for each of the core areas studied, the student:

- Describes how existing knowledge or practice is advanced, tested, and revised.
- Describes and examines a range of perspectives on key debates and their significance both within the field and society.
- Illustrates core concepts of the field while executing analytical, practical, or creative tasks.
- Selects and applies recognized methods of the field in interpreting characteristic discipline-based problems.
- Assembles evidence relevant to characteristic problems in the field, describes the significance of the evidence, and uses the evidence in analysis of these problems.
- Describes the ways in which at least two disciplines define, address, and interpret the importance of a contemporary challenge or problem in science, the arts, society, human services, economic life, or technology.

At *the bachelor's level*, the student:

- Frames a complex scientific, social, technological, economic, or aesthetic challenge or problem from the perspectives and literature of at least two academic fields, and proposes a "best approach" to the question or challenge using evidence from those fields.
- Produces, independently or collaboratively, an investigative, creative, or practical work that draws on specific theories, tools, and methods from at least two academic fields.
- Explains a contemporary or recurring challenge or problem in science, the arts, society, human services, economic life, or technology from the perspective of at least two academic fields; explains how the methods of inquiry and/or research in those disciplines can be brought to bear in addressing the challenge; judges the likelihood that the combination of disciplinary perspectives and methods would contribute to the resolution of the challenge; and justifies the importance of the challenge in a social or global context.

At *the master's level*, the student:

- Articulates how his/her own field has developed in relation to other major domains of inquiry and/or practice.
- Designs and executes an applied, investigative, or creative work that draws on the perspectives and/ or materials of other fields and assesses the resulting gains and/or difficulties of including fields other than his or her own.
- Articulates and defends the significance and implications of his or her own specialized work in terms of challenges, trends, and/or developments in a social or global context.

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JOINT APPROACHES TO RESEARCHER EDUCATION: INSTITUTIONAL POLICY, TOOLS AND INSTRUMENTS

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Abstract

This paper presents a set of general guidelines how best to assist small but increasing number of staff / researcher collaborative and transnational partnerships within the context of joint supervision of postgraduate research students. In practice, collaborative partnerships may represent many types of activity, including those of providing a specialized advice within one's area of expertise, visit to a research lab, students exchanges and placements of varied duration. Research in the 21st century by its very nature is collaborative and academic collaboration whether at national and / or international level are common place. The primary focus and arguments of the paper it focusing not on various forms of collaborative activity, but rather on two types of collaborations - informal (limited) and formalized (extensive) collaborations. A plan (structure / focus) for this paper, includes discussion of i) benefits, risks and costs and nature of supervision of research students across institutions, ii) considerations when entering agreements for the joint supervision of PG research students and, iii) challenges in taking a policy led approach (including loci of decision-making). Against a back-drop of growing EC emphasis on Joint Degree Projects, and internationalization of doctoral candidate experience, this paper presents a policy development initiative and the associated methodology and practical tools (eg. policy structures, flowcharts, templates) which may assist higher education institutions support, in a sustainable way, collaborative and transnational partnerships for joint supervision of postgraduate research students. Research collaboration whether at national and / or international level is common place. In recent years doctoral education has changed: candidates go to other institutions for laboratory rotations, to undertake graduate training, and to access expertise. Their experience is increasingly mobile and internationalized, fuelled by EC initiatives such as Marie Curie. In parallel, institutions have begun to enter arrangements to jointly deliver programmes (most commonly at Master's level). Establishing joint degrees is an explicit goal in the Bologna process and EU funding is actively encouraging this model at doctoral level. As a result of these factors, doctoral candidates and their supervisors are increasingly seeking formal, institutional recognition of PhD programmes. Nevertheless, institutional and national commitments to the concepts of joint and double degrees vary significantly, terminology is confused, legal positions uncertain. Underpinning our research is recognition of a need for a University policy led approach, to ensure that faculty and students benefit from jointly engaging in research with collaborators in other institutions, but that risks and costs are appropriately managed.
Modes of inquiry/ data sources and evidence: This research paper is based on a case study of the proposal, negotiation and adoption of a policy within the framework of one higher education institution and the development of related guidelines, methodology and practical tools to enable the recognition of joint informal and formalized collaborations at an institutional level. These instruments of university policy facilitate a shared understanding across a University about the extent to which it is desirable to formalize co-supervision arrangements with other institutions, and bring clarity to the context in which a University can support joint supervision and joint award arrangements for research degrees.
Results, Conclusions: Why it is timely for a research paper on this chosen topic? Internationalization is a rising phenomenon globally (EC, 11.7.2013:2) and important in the context of *Erasmus* + in particular, (historically Tempus, Erasmus Mundus and Marie Curie). Against a background of increasing competition and overtures from HEIs in the USA, Asia, the Middle East and Latin America, higher education in Europe needs to be strategic in managing and capitalizing on increasing number of staff / researcher collaborative and transnational partnerships. However, research has indicated that many educational collaborations are unsustainable, and institutions are not clarifying their strategic intent. This paper discussed the approaches to practical instruments and tools relating to management of risk, ensuring academic standards and bringing clarity to the context in which a University can support joint supervision and joint award arrangements for research degrees.

Keywords: *Academic collaboration and its types, joint supervision, concepts of joint degrees/awards, postgraduate students, policy approach.*

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1. Background to the case study: setting the context for the policy development

In this paper the author reflects on her experience that took place a number of years ago, of the case study of the proposal, negotiation and adoption of a policy within the framework of one higher education institution and the development of related guidelines, methodology and practical tools to enable the recognition of joint informal and formalized collaborations at an institutional level. At the time, the author was working in the Graduate Studies Office in the capacity of a senior administrative research officer.

The need for this case study emerged from the changing institutional context of higher education. More specifically, increasingly academic researchers in many disciplines are collaborating on a collegial basis. This is particularly is the case now in the context of the supervision of aspects of doctoral candidate's work. The collaboration is occurring within and across institutions, nationally and internationally. And the collaboration is a key where a specific expertise is required for a minor aspect of the project. In situations, where the input of an external expert is significant, they may have been proposed as additional external supervisor. More recently there have been some changes in doctoral education that has become increasingly mobile and internationalized – for example, the doctoral students go to other institutions for laboratory visits, to undertake graduate courses, to visit the library and to access expertise. In parallel, the workload of academic staff has also increased, while resources and flexibility in use of time have reduced.

Another factor is that institutions began to develop arrangements to deliver programmes collaboratively. But these joint programmes are mostly happen and widespread at Masters level. Institutions also have begun to establish joint degrees, that is an explicit goal in the Bologna process and EU funding is actively encouraging this model at doctoral level. As a result of these factors, doctoral candidates and their supervisors are increasingly seeking formal, institutional recognition of PhD programmes that might include physical movement between institutions and/or multi-institutional input.

Among the challenges to the collaborative approach to doctoral supervision is that institutional and Institutional and national commitments to the concepts of joint and double degrees vary significantly. To provide an example- within the Irish higher education context, the Irish University Association (IUA) tends to prefer the joint approach (where one parchment is issued jointly) rather than double degrees (where parallel awards are made) with a view to avoiding double counting of credits. At the same time European funding agencies tend to use the terms interchangeably.

In order to provide guidance to academic staff in one higher education institution to develop collaborations at an institutional level and to be able to manage the process with ease, we have provided a policy document describing the process of research supervision and awards in collaboration with other institutions. In addition, the Graduate Studies Office developed and offered a framework for structuring and organising joint collaborations. Subsequently, the methodology and tools (graphs, templates and agreements) which explained mechanisms for joint informal and formalized collaborations were also developed and presented to academic staff.

2. Benefits, risks and costs and nature of supervision of research students across institutions

There is a number of the benefits of supervision across institutions that could be highlighted for the research students. These include- a broad training experience, entitlement to access the best expertise mix for the project and possibly recognition of their experience in a joint or a double degree thereby associating them with more than one University. Nevertheless, the concern with respect to individual students is to ensure that interactions across institutions are well planned and that there is clarity of expectations in relation to supervision arrangements, fees, funding, timelines, examination and the award.

Collaborations can enrich the research environment for graduate students, enhance opportunities for international engagement and strengthen links with strategic partners, promote research and interdisciplinary collaborations and help build the University's impact. However, there are very important considerations relating to management of risk, ensuring academic standards, potential dilution of the University 'brand', and the place of such partnerships in the context of quite targeted strategic plans for clustering, networking and internationalization. Negotiation of, and implementation of, joint PhD awards also consumes considerable time and resources. And at time the benefit gained could be limited. The dangers of a very open policy are that: ad-hoc arrangements could be entered into where student or supervisor expectations will not be met, students may not be adequately protected, the University becomes associated with an institution with which it would not wish to be linked, the funding is not satisfactory or the approach not sustainable. The conclusion to be drawn is that there is a need for a University policy, including a framework and related guidelines/criteria, to ensure that the research

students and staff continue to benefit from jointly engaging in research with collaborators in other institutions, but that risks and costs are appropriately managed.

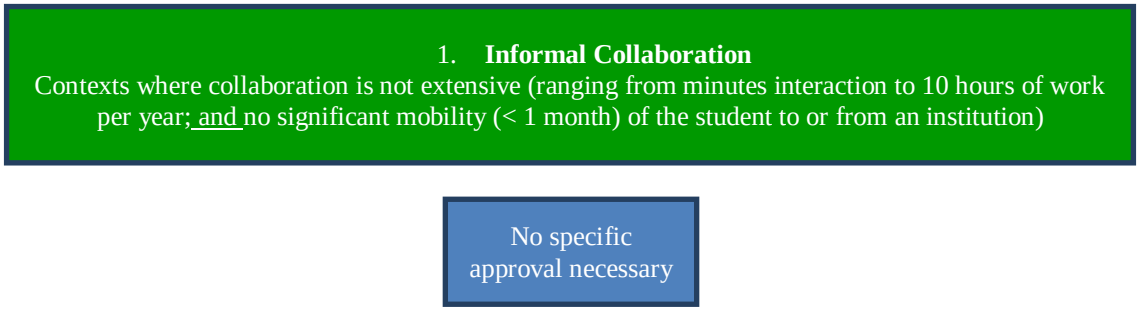
For these purposes, we proposed that it was intended to have a policy led rather than a reactive approach to supervision and joint award arrangements. This policy would underpin a shared understanding across the University about the extent to which it is desirable to formalize co-supervision arrangements with other institutions. The benefit of the policy would be the clarity to the context in which an institution could support joint supervision and joint award arrangements for research degrees.

3. Informal research supervision collaboration and considerations when entering agreements for the joint supervision of PG research students

At the most general level informal collaboration refers to activity where an institution's researchers engage in informal discussions with students of collaborators in the context of students' work and provide feedback or an expert opinion on any aspect of their work. The interactions in this case are not extensive and can range from minutes to a maximum of 10 hours of work per academic year.

Informal collaborations also reflect arrangements where student spends less than 1 month in an academic year in the partner university. In cases of informal collaboration the research award is awarded by one institution. In case of informal collaborations, no specific approval from the faculty is necessary (Figure 1).

Figure 1. Approval process for informal collaboration



4. Formal research supervision collaboration and Considerations when entering agreements for the joint supervision of PG research students

Formal arrangement might be necessary when collaboration between the researcher in one institution and those of other institutions is extensive. This would include cases of extended student mobility of a student (spending more than 1 month in an academic year in a partner university) or a high academic workload (more than 10 hours of work per academic year). Then a co-supervision arrangement may be entered into.

Information and the details to be provided by proposer(s) when seeking a formal joint supervision agreement in a respect of a research student where the award us being made *solely by the home institution* or the award is being made *solely by a collaborating institution* can be detailed in a useful diagram. In the first instance, the proposer seeking an agreement shall get the support at a School level.

In cases where the student mobility is significant, the agreement should be supported at a Faculty level. Advice of External and Strategic Affairs on appropriate level of review of a collaborating institution may be required.

The agreement, for example, will need to be signed by the relevant Executive Dean of Faculty of an institution, or by the Dean of Graduate Studies in part of a funded collaborative programme. The Registry will also need to be notified. While the approval process for co-supervision agreements will take place prior to student's registration in the university in most cases, it in no way supersedes the admission decision.

A flowchart below presents the process of nominating an external supervisor and pursuing a request for a formal co-supervision agreement (Figure 2).

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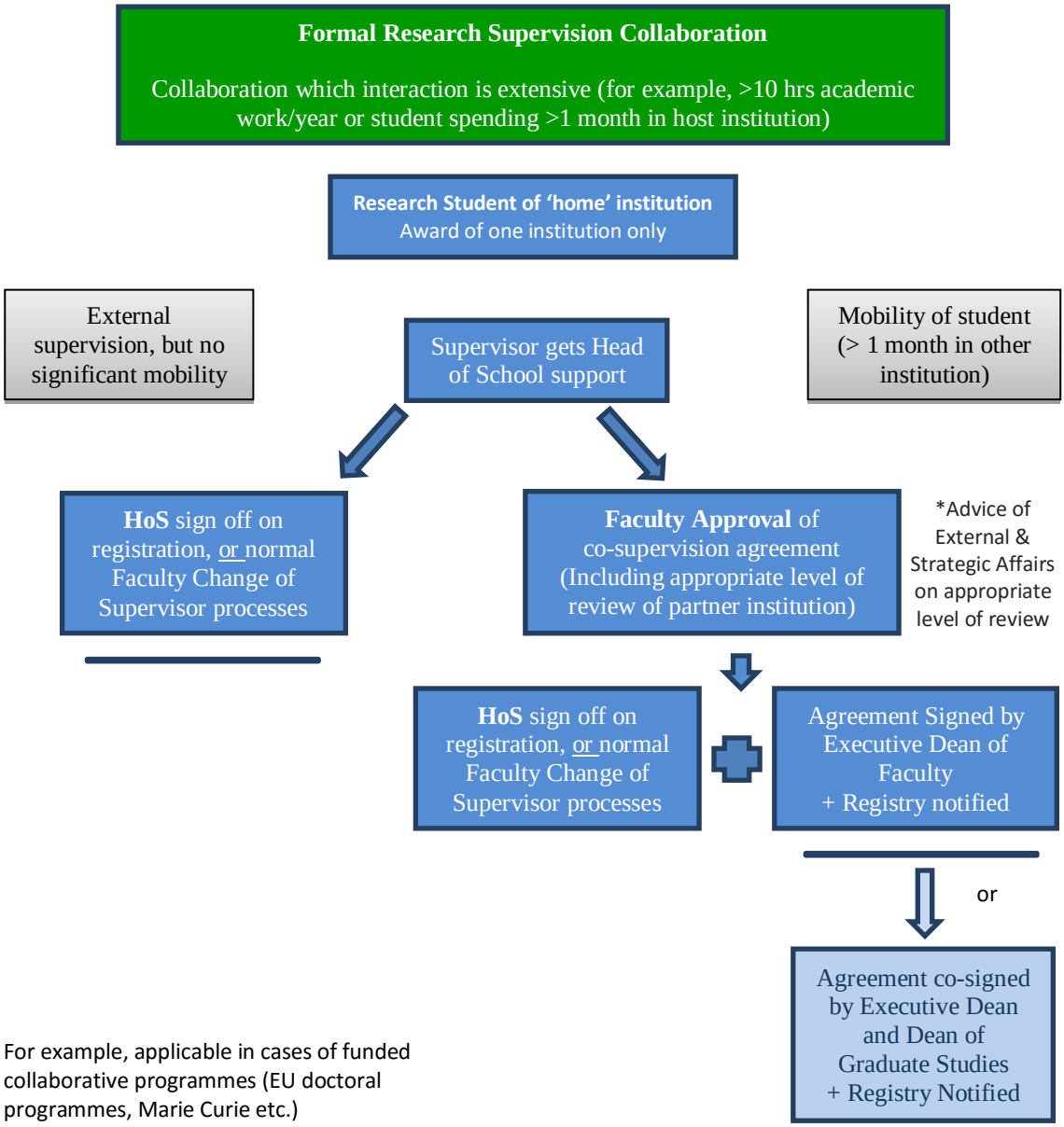
Figure 2. Approval process for formal research supervision collaboration



Nevertheless, as this paper is of limited length, the author cannot not discuss how to organize formal joint supervision for *an external research student* and neither the author can discuss how to organize a process *approval for a joint award* (these examples will be published in a more extended research paper elsewhere). The author would like to highlight though, for example, a co-supervision arrangement with a partner university and a student can be entered into in the case if an external student spending more than 1 month in an academic year in the institution.

5. Challenges in taking a policy led approach

The challenges in taking a policy led approach to joint collaborations at doctoral level can appear when a decision needs to be taken in regard to either single or joint award to a student at graduation. In the vast majority of cases it will be preferable that an institution registered students graduate with a one institution-only award. In turn, for the incoming external students, joint awards need only be considered by an institution in cases where the research student registers for at least one year in the accepting institution and when the candidate spends a minimum of 6 month at any other institution party to the award. Another challenge that academic staff might face, relates to specific information that need to be

provided by proposer(s) when seeking a *formal joint supervision* agreement in respect of a research student, where the award is being made *solely by a home institution* or the award is being made *solely by a collaborating institution*. This information could be usefully presented as a template, that could include the following details:
-Lead institution
-Proposing PI / Collaborating PIs
-Programme details
-Student details
-Plan for Collaboration
-Supervision and Progression details

6. Conclusion

There is much to be learnt from this project in terms of how to organize at an institutional level informal and formal collaborations to doctoral research students supervision. The author discussed the benefits, risks and costs and nature of supervision of research students across institutions, some considerations when entering agreements for the joint supervision of PG research students and, challenges in taking a policy led approach. To summarize, when developing a policy approach and a framework to collaborations at an institutional level, it is necessary to build upon a framework of categories of collaboration and to guide academic staff to the most appropriate type of collaboration to reflect their particular circumstance and the type of agreement or approval required (if and when appropriate).

At the most general level, higher education institutions are supportive of collaborations between the researchers and those of other institutions. In the spirit of collegiality this may include informal discussions with research students of collaborators, and provision of expert opinion on an aspect of their work. Informal collaborations generally result in the award by one institution. Informal collaborations happen when researchers engage in informal discussions with students, provide feedback, or comment on aspects of a student's work. These interactions are not so extensive as to justify appointment to the role of supervisor. In turn, formal collaborations refer to situations in which supervisors from more than one institution are formally appointed. When a formal collaboration takes place, a co-supervision arrangement with a partner university and student is entered into in cases where the student spends more than 1 month in an academic year in the partner university (this shall be drawn up at the time of registration, or at the beginning of the collaboration).

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Note of Ref: EC (2013) *Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions: European Higher Education in the world.* European Commission: Brussels, 11 July.

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CAN AN INVESTIGATION OF PROMOTION, RECOGNITION AND TENURE STRATEGIES AND STRUCTURES IDENTIFY STRATEGIES TO PROMOTE SERVICE-LEARNING PEDAGOGY WITHIN THE HIGHER ACADEMIC COMMUNITY?

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Abstract

At most universities in the USA today, a faculty member is expected to be engaged in teaching, research, and service. Each institution's focus may vary; some universities may place greater emphasis on teaching, while at others focus may be on research. While service activities are appreciated, it may not get as much recognition in a faculty member's evaluation for tenure and promotion at some universities. Thus promotion of "service-learning pedagogy" becomes challenging. Can this gap be bridged? Can an investigation of promotion, recognition and tenure strategies reveal any insights? Can this investigation lead one in identifying strategies to promote service-learning pedagogy within the higher academic community?

Four Kansas Campus Compact (KSCC) Faculty Fellows (henseforth known as the authors) located at four different universities in the state of Kansas undertook a research project to understand how the "scholarship of engagement" (Boyer, 1996) is evaluated at the institutes of higher-learning in Kansas. They started their research by conducting literature reviews on this topic to understand major trends and issues related to promotion of service learning. Based on these reviews, a survey instrument was developed and distributed online to Kansas Campus Compact (KCC) member and non-member institutions. The survey questions were developed to gain insights into how service learning activities are evaluated for promotion and tenure at universities in Kansas. This paper documents the results of their literature reviews. The detailed survey results are published as a separate article given the page limitation of this proceedings.

Keywords: *Higher education, service learning pedagogy, tenure evaluation, promotion, scholarship of engagement.*

1. Introduction

Service-learning in higher education has been intentionally supported in the state of Kansas since 2003 with the establishment of the Kansas Campus Compact (KCC) (What is Kansas Campus Compact, n.d.). KCC operates under the umbrella of Campus Compact with approximately 1200 member institutions in the United States (Who We Are, n.d.). The Kansas Campus Compact is incentivizing faculty research that contributes to the advancement of service-learning in the academy. A recent question posed by KCC was: What are the most effective promotion, recognition, and tenure strategies and structures for rewarding faculty for service learning and community engagement? In 2012, four faculty members teaching in the State of Kansas were chosen to address the response (KSCC Engaged Faculty Fellows, n.d.).

These authors were interested in this topic due to the rewarding teaching experiences they had as educators at an institute of higher learning, using service-learning pedagogy. While many colleagues in their state share this passion, these authors knew many faculty members who were involved in service through their professional disciplines and in the community but have not translated their service ethic to their teaching pedagogy. These authors also knew that many faculty came to the classroom prepared to do so from a traditional graduate education background, which in most cases does not prepare them for employing service-learning as a teaching pedagogy and learning method. Through this study, the authors set out to determine what are the common factors that are impeding the incorporation of service-learning as a teaching pedagogy.

2. What is service learning?

Service-learning is a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities (What is Service-learning?, 2013). Four key components of any service-learning experience are 1) preparation, 2) action, 3) reflection, and 4) assessment (Hofstetter, n.d.). Students need background about the selected community organization before their interaction. Preparation can take many forms including readings, discussion, journal writing, classroom visits from a community representative, etc. During action students will perform the service activity. The activity can be brief (a few hours) or ongoing (numerous hours over the semester). Reflection is primarily what separates service-learning from volunteerism or community service. Students must reflect critically on their attitudes and experiences as a result of the service-learning activity. Reflection can be written or oral. Assessment is "the process of gathering information in order to make an evaluation. An evaluation is a decision or judgment about whether an effort is successful and to what extent that effort has or has not met a goal." Service-learning experiences can be quite diverse among disciplines but must be meaningful to the course and for the student to truly achieve its intent.

3. Literature reviews

A review of the literature from 1993-2000 by Eyler J. , Giles, Stenson, & Gray, documented the positive effects of service-learning on students in the following categories: 1) personal outcomes, 2) social outcomes, 3) learning outcomes, 4) career development, and 5) relationship with institution (Eyler J. , Giles, Stenson, & Gray, 2001). With respect to personal outcomes, service-learning has a positive effect on personal development such as sense of personal efficacy, personal identity, spiritual growth and moral development as well as improving interpersonal development and the ability to work well with others, leadership and communication skills. Benefits of service-learning on social outcomes include: reducing stereotypes and facilitating cultural and racial understanding, increasing a sense of social responsibility and citizenship skills, and instilling a commitment to service both during college and after graduation. Both faculty and/or students reported a positive influence on learning outcomes from service-learning such as improved academic learning, and an improved ability to apply what they have learned in "the real world." Service-learning also contributed to career development. As a result of service-learning the institution benefited from a stronger faculty relationship with students, improved student satisfaction with the institution and a higher graduation rate by students involved in service-learning.

A recent online membership survey conducted by Campus Compact in the fall of 2012 gauged campus-based civic engagement during the 2011-2012 academic year (Campus Compact, 2013). Of the 1,120 member institutions surveyed, 557 responded for a 50% response rate. Of the member campuses that responded to the survey, 95 percent offer service-learning courses. Campuses offered an average of 66 courses, up from 64 in 2010. Some seven percent of faculty members teach service-learning courses, which has remained steady for the past three years.

Of the Campus Compact campuses that responded to the 2012 survey, an average of 44% of students participated in some form of community engagement during the 2011-2012 academic year, contributing about $9.7 billion in service to their communities. Both of these figures represent a steady increase from 2008 to 2012. The areas addressed by service-learning focus mainly on education, poverty (including hunger and housing issues), health care (including mental health, elder care, and nutrition), environmental sustainability, and service provided to children and others in need. All of these areas have increased in activity since 2008. Two additional areas that have seen accelerated growth are programs that promote access and success in higher education and programs to foster economic development. This growth exemplifies higher education's ability to innovate to meet emerging societal needs through service-learning.

3.1. External support and recognition for service learning activities:

Beyond the volumes of scholarship on service-learning, noteworthy bodies external to academic institutions have chosen to highlight, support and recognize service-learning efforts. The following three organizations are offered as examples of the varied types of external support being afforded to service learning on college campuses:

1) Campus Compact: was founded in 1985 and has at the core of its vision education of students on college campuses for a deepened commitment to the common good. The programs and resources provided by Campus Compact support efforts to initiate or enhance service-learning efforts throughout all levels of the institution. Over 1200 institutions are operating as state affiliates (Campus Compact, n.d.).

2) Carnegie Foundation for the Advancement of Teaching, added an elective classification category titled "Community Engagement" in 2006 (Carnegie Classifications FAQs, n.d.).

3) The *U.S. News and World Report* publishes Education rankings, and includes a section titled Academic Programs to Look For in Service Learning. Established in 2002, *U.S. News* is publishing a list of schools with outstanding examples of academic programs in eight categories that are believed to lead to student success. Service learning was chosen as one of the eight categories. (Best College Rankings and Lists, n.d.).

Given the decades of scholarly work on the concept and best practices of service learning, the thousands of institutions employing service learning at some level, and national external bodies evaluating and recognizing exemplary service learning efforts, the authors wondered what continues to hold up the proliferation of service-learning in institutions of higher education?

4. Conclusions

Institutional support is vital to making service-learning part of campus culture. This support takes many forms, from a curriculum requirement, to providing logistical and financial support, to reaching out to alumni. In the 2012 Campus Compact annual membership survey increased efforts were documented in all of these areas (Campus Compact, 2013). Survey findings for 2010 and 2012 indicated that many institutes of higher learning provides: 1) faculty development workshops/fellowships (70 vs. 79%); 2) curricular models and sample syllabi (64 vs. 76%); 3) reflection and assessment materials (67 vs. 75%); 4) rewards service-learning and community-based research in tenure and review (64 vs. 68%); and 5) encourages and supports faculty financially to attend and present at service-learning conferences (61 vs. 68%). Although support for faculty engagement in service-learning has increased, caution must be taken to ensure that the measures available on campuses best reflect the needs of faculty. As reported earlier, faculty teaching service-learning courses has remained steady (7%) for the past three years. Thus, increased institutional support does not guarantee increased adoption of service-learning by faculty.

It is equally important to understand the factors that deter faculty who do not use service-learning from doing so (Abes, Jackson, & Jones, 2002). The four factors that most strongly deter faculty from using service-learning were: 1) anticipate having logistical problems coordinating the community service aspect of the course; 2) do not know how to use service-learning effectively; 3) is not relevant to the courses they teach; and 4) have not been given or do not anticipate being given release time to develop a service-learning course. Abes, Jackson, & Jones, (2012) also explored the question: What might increase the likelihood that faculty who do not use service-learning will do so in the future? The categories of faculty most likely to use service-learning were health professions; social work, education, agriculture, human ecology; adjunct professors; assistant professors; females; comprehensive institutions; and social and behavioral sciences. The categories of faculty least likely to use service-learning were physical and biological sciences; math, engineering, and computer science; business; lecturers and instructors; and full professors. Their conclusion stated that "it is important to keep in mind that service-learning is not right for all faculty and courses, and should always be incorporated into a course in a way that will not reinforce students' stereotypes or harm the community. Nonetheless, service-learning's many benefits to the students, community, and institution serves to encourage development and implementation of effective strategies to increase the number of faculty and academic disciplines responsibly using service-learning." (Abes, Jackson, & Jones, 2002).

These authors conclude that incentives can greatly promote service-learning activities. The authors however; found that because administrators often do not know what the policies and practices are on providing incentives for service-learning at their institution, they cannot advise faculty clearly and therefore faculty members are not aware of the incentives. If administrators are informed about importance of service-learning activities and can provide incentives, they can create awareness about these incentives among their faculty and encourage them to include it in their curriculum. It is important to note that the administrators are the key, as they can present a unified and accurate voice as to how to support service-learning pedagogy at their institution. Since Kansas Campus Compact organization personnel can initiate partnership with the office of the President, they are in the ideal position to expand the awareness about the above mentioned disconnect and forge an alliance with the administrators to promote service-learning activities at the institutes of higher learning in Kansas.

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Workshops

DEVELOPING WISDOM IN SCHOOLS

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Abstract

The purpose – In as much we take the child out of his reality and place him into a classroom to learn knowledge and skills that we wisely impart to the student, the virtual global village takes the child out of the classroom with this knowledge and skills to apply it to real life 21st problems. In so doing, the teacher becomes aware of the personal knowledge and skills of the student as the student demonstrates his wisdom in self-learning. *Differentiating Methods* - Inquiry (virtual library), global discussion (chat round table room), group projects (model whiteboard room) and portfolio evaluation (virtual stage or performance room) do not fit within our present manner of instruction with presentations, learning exercises, homework assignment and tests. In the former, we require the teacher to listen to the student while in the latter, we expect the student to listen to the teacher. In introducing the virtual global village, we can now also do the former for a 21st century learner. *Design* – How you may ask? Through this workshop, those in attendance will learn how to guide the student in making problem inquiries about the present (early grades), the past (middle grades, the future (junior high) and human relations as well as globally discuss them, form groups to find solutions and assess one's own portfolio in doing so to the point of becoming ready for life upon graduation. *Aims* – Hence the workshop looks at what we have achieved, what still needs to be achieved and how we can change our educational system to bridge the gap. In doing this, it makes a distinction between the student listening to the teacher which is the nature of instruction and what universities have been doing for centuries and teacher listening to student in guiding the student through their own self-study on the problems of today which is the very purpose of global universities. *Procedure* – The introduction will deal with the old and new ways to deal with Hindsight, insight, foresight and "geosight" with a chart comparison. It will then proceed to examine how procedures change at various grade levels through four figures and feedback from audience from their own experience. These wave levels will cover present reality of the lower grades, past and present of middle grades, future wave of junior high and social adaptation of senior and higher grades.

Keywords: *Wisdom, hindsight, insight, foresight, geosight.*

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1. Introduction

My first experience of teaching wisdom in school came in the role of a principal and not that of a teacher. I found that by listening to student problems about their reality with questions like "Do you believe that is a wise reaction?", they went back to class better behaved. By lecturing, having them do exercises, homework assignments and even tests, the best that I could achieve like the instructor, is knowledge and the performance of certain skills in a reasonable manner. No matter how wise I evaluated my own performance, the only thing they learned was that it was a wise move on their part to listen to their teacher and especially their principal if they ever were to graduate from this school.

Looking back now at the activities that did improve their personal wisdom like field trips (hindsight), class debates on current issues (insight), group projects in sports and other extra curriculum activities (foresight) and science fairs or other exhibitions (geosight), it was those activities were I as a student, developed my own wisdom. Now that they are in decline, the first question of this work shop is "What is going to replace them? Or "What are the new waves in education as noted in the chart below?[i]

2. How is one to develop them through the grades? (for discussion)

As one divides the participants into the four levels of lower grades, middle grades, junior and senior high in line with what is being taught according to government guidelines, one can but observe a progression from present, to past, to future and then social wisdom. With this division are the following handout figures which explain how one can develop these wisdoms within these grades and discuss possible examples of what is being taught in each discipline at these levels with how they can be applied in using these strategies as illustrated on the next page.

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Table 1. Comparison Chart

Old Ways – an extension of instruction	New ways – a complement to instruction
Tourist Field trips by foot, bus or air flight where the guide did all the talking and answered very few questions from the class and a large part of the time was spent on getting there.	Wave 1.In Field trips by internet connection where the student as so many questions, they need to focus on which aspect they want to asks as the whole time is spent on inquiries that interest them.
Political debates on issues by visit to legislatures or watching televised debates both expect a one way conversation with no input by students	Wave 2. Global political debate through chat rooms where the student can voice his opinions based on prior research, does get the student to fully understand the problems.
Extra- curriculum activities which requires commitment to a group project is becoming impossible to do with buses leaving after the sound of the last bell.	Wave 3. Extra-curriculum group projects through shared chat room removes the bus barrier while extending the project to other schools who may also be interested.
Science fairs are becoming impractical with the very limited resources of any school and expectation of time by teachers and parents to support it and in many ways be caught in actually doing it because of time restrictions.	Wave 4. Presentation of group projects done through the net and supported by so many other students, seems the way to go in showing the creative wisdom of the students on a stage where everyone can have access.

Figure 1. Present wisdom

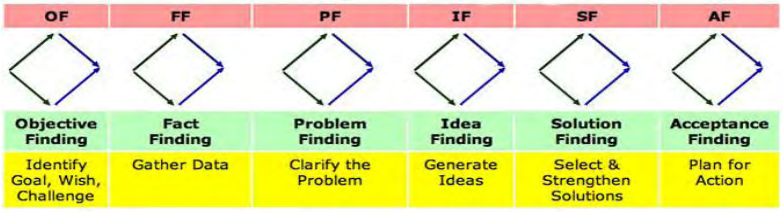
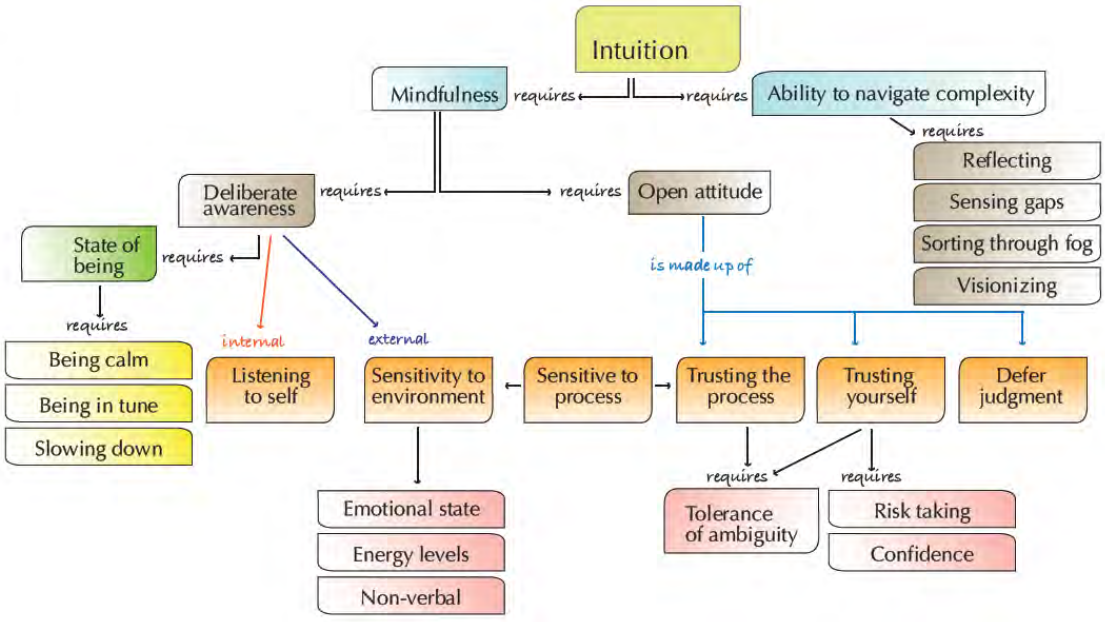


Figure 2. Present with past wisdom

Figure 3. Future with past and present wisdom

Figure 4. Social wisdom



3. Conclusion

The conclusion rest first in the hands of the participant groups from their discussion of its possible usage at their grade level and then in answering the original question "Will this further the development of wisdom in their students?"

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[i]On First part of wave - Active research Inquiry – developing Hindsight
Michelle H, Brooke P. and Todd S., The Odyssey Initiative www.odysseyinitiative.org
On Second part of wave – Inter-classroom global discussion –developing Insight Medard Gabel, Global Education 101 *www.gem-ngo.org/Globalization-101.html* and Importance of global education www.philaglobaled.org
On Third part of wave – tech projects. – developing ForesightTechnology trends in education. Chris Riedel02/03/142013 Speak Up Survey from Project Tomorrow, Julie Evans at the FETC 2014 conference http://thejournal.com/Articles/2014/02/03/10-Major-Technology-Trends-in-Education.aspx?Page=2#ctiZcDWChsJi8Llh.99
On Fourth part of wave - Subjective critical Assessment – developing geosight
The Changing Context for Education and its Assessment – Edmund W. Gordon, the Gordon Commission report (April 2013) on the state of assessment in America
www.gordoncommission.org

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TELL ME A STORY FROM THE AMAZONS, PLEASE!

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Abstract

In order to promote critical thinking while teaching English as a Foreign Language among Elementary School, High School or with undergraduate university students, we have used traditional folktales from the Amazons throughout different Creative Writing and Illustration Workshops using the Education for the Sustainable Development as a powerful tool. Most of the changes established throughout these workshops modifies the previous paradigms on our students while producing a creative production based on cross-cultural stories. The purpose of our workshop is to share this experience with other teaching professionals that would like to pretend to become students again and learn-by-doing. Firstly, we will introduce an icebreaker activity regarding our previous knowledge associated to the Amazons using exclusively maps and images. Afterwards, we will divide the whole group into an even number (preferably, maximum 40 members in 10 groups of four members) and hand in a different traditional oral tale to each group. Each group, while underlining the possible unknown vocabulary, must read the story they have been assigned. Then, our creative group production starts: by re-telling the major events of the story while illustrating a major image(s) that will support their re-storytelling. Several recycling materials will be handed in to each group to back their artistic response. Adding spontaneous changes are more than encouraged. Finally, all of the participants will share their illustrations and re-tell the folktale, reinforcing the importance of avoiding by means of globalization the extinction of local cultures and traditional folktales.

Keywords: *Education for sustainable development, creative writing, workshop, English as a foreign language.*

1. Education for sustainable development

This methodology is based on various theories such as Freire's pedagogy (2007), the constructivists theories originated in the psychology of Piaget (1981), or in the model of research-action developed by Bruner (1997). The Education for Sustainable Development also follows Vygotsky (1978), who considered education as a process of social interaction in which the adult guides the trainee and introduces them in culture. It conceives teaching and learning as an active and participatory process, where the teacher acts as a facilitator to assist in the construction of knowledge, basing the lessons on students concerns and interests. As Freire (2007) highlights, education must be a transformative process that takes participants on a journey that starts in self- awareness and is aimed at understanding the various elements and structures that have a decisive influence on their lives. They develop strategies, skills and techniques to participate responsibly in the development of their community, to influence and improve reality surrounding them. According to Mesa (2001) in this last period, there have been changes in the concept of creative educational practices and the importance given to this area of activities.

Currently, the Education for Sustainable Development has become an important component of policies and strategies of the various actors that make up the international cooperation and education system. After years of experience, it is clear now that it is impossible to commit actions that promote the development of students without a previous change of attitudes and values to ensure the consolidation and sustainability of these actions. Therefore, we define Education for Sustainable Development as a constant educational process that promotes understanding of the economic, political, social and cultural interrelations between North and South, promotes values and attitudes related to solidarity and social justice, and seeks ways of action to achieve sustainable human development. (Mesa, 2001).

The Education for Sustainable Development encourages teachers and students to participate in proposals for change to achieve a more fair world in which both resources and power are distributed equitably; it introduces people and collective resources to instruments (cognitive, attitudinal and affective) that allow them to influence reality in order to transform other negative aspects. Finally, it helps us to achieve a sustainable human development in our community, both at a local and international, individual and communal level (Argibay, Celorio and Celorio, 2005).

Bloom (1995) and Borrego and Parra (1995) insist that the main goal of teachers should be to motivate students in Literary Competence by means of the Education for Sustainable Development as an essential strategy. Since, it is through literature how students become aware that we are a manifestation of solidarity values within our society. It is also one of our greatest cultural representations. Therefore, teachers have the responsibility of increasing students' awareness towards literature.

2. Creative writing and illustration workshop - objectives

Through a specific Creative Writing and Illustration Workshop designed for the International Conference on Education and New Development END2016, a project grounded on educational and cultural innovation based on the CLIL model will take place. Through this initiative, we will coordinate various activities to promote the Education for Sustainable Development through local Brazilian culture (Amazonian oral tradition folktales) and using different foreign languages as essential tools to work the Literary Competition in addition to the Intercultural and Communicative Competences.

The main objectives of this particular workshop are:

1) to promote activities where the fact of learning a foreign language does not reside exclusively in the domain of the Communicative Competence but also to promote creative activities to know better the culture to which that specific foreign language belongs to;

2) to implement the Literary and Intercultural Competences integrating teaching English as a foreign language following the CLIL model (Richards and Rodgers, 2014) and;

3) to create a collection of creative writing and illustration interpretations of multilingual stories worked throughout the session in which the new learning of other cultures are reflected.

3. Creative writing and illustration workshop - method

All of this workshop tasks are strictly timed from the start in order to guarantee an optimal management of time and resources. The workshop will begin with (i) a 2-minutes brief ice-breaking introduction to the Amazons by means of stimulating photographs. Followed by (ii) a 3-minutes brief theoretical framework will also be described in order to introduce the main themes of the Education for Sustainable Development. The next step deals with materials (iii) that will be distributed while reduced groups will be organized to encourage cooperative work among all the participants. These will be involved in (iv) a 15-minutes creative process from the start and will be asked to carry out a task based mainly in the creation of an illustration by using recycled materials. The illustration of each will be based on a diverse Amazons oral tradition folktale that will find available in three languages: English, Portuguese and Spanish.

After the Brazilian folktale group interpretation and creative illustration period is over, all of the participants will be asked to form a circle shape in order to imitate nowadays oral tradition story-telling in the Amazons. During 10-minutes, (v) short-stories will be narrated while showing the illustration created. Finally, (vi) all of the participants will have 5-minutes to think deeply about the final results obtained, the workshop process and the relationship of this activity with the Education for the Sustainable Development.

4. Possible conclusions

For several years now, at the Universitat de València (Spain) researchers are studying the possibilities that Creative Writing and Illustration Workshops offer as innovative educational proposals with large projections in foreign languages classrooms (Haba-Osca, 2014). The results previously obtained from these projects were possible due to the collaboration between volunteer lecturers, Elementary and High School teachers and students from two countries: Brazil and Spain. Over four years, there have been Creative Writing and Illustration Workshops at the Universidade Federal do Amazonas Manaus (UFAM, Brazil), Faculdade Martha Falcao (DeVry Brazil), Nau Jove – Universitat de València (Spain) and Col·legi Públic La Llosa (Spain).

Previous results gathered suggest that the possible conclusions that will be forthcoming during the month of June 2016 in Ljubljana (Slovenia), suggests that these workshops promote the strengthening of relationships between different educators. Hypothetically, we should analyze the reality from a global dimension, providing analytical criteria, while it is open to participation and action-oriented. As well as to encourage scientific collaboration between universities and schools. On the other hand, Creative Writing and Illustration Workshops allow using and creating tools that promote access to other cultures while teaching foreign languages. In addition to the dialogue developed between students and teachers in the training workshop, this type of experiences serve not only to establish collaborations in various fields but also to enjoy and create in a class-model based activity and, even if very short, try to become students once more.

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THE ROCK STAR SOCRATIC SEMINAR WITH LIVE DIGITAL FEEDBACK

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Abstract

Participants will discuss the specific educational differences between "being an advocate" versus "advocacy" across local-to-international social, political, and economic platforms. The Inner/Outer Socratic Seminar will form the backbone of group discussion in addition to real-time, ongoing digital observations/conversation. Teachers participating in this presentation will take away detailed teaching methods that will introduce a hands-on, multi-tiered Socratic Seminar that can be transitioned from teacher control to complete student-centered management over the course of an entire year. Instructional methods that underpin deep reading & writing analysis of informational texts with collaborative participant-driven speaking and listening techniques will be shared both digitally and via hard copy. This seminar style can easily segue itself into something philanthropic, expanding beyond the traditional brick and mortar classroom.

Keywords: *Socratic, seminar, methodology, digital, authenticity.*

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1. Introduction

Teachers playing the role of students will identify and discuss the specific educational differences between "being an advocate" versus "advocacy" across social, political, and economic issues in local, state, and national communities, eventually creating and testing possible solutions for the aforementioned distinctions.

2. Design

The Inner/Outer Socratic Seminar will form the backbone of group discussion while real-time, ongoing digital observations/conversation will be created and projected electronically as a back channel for the entire group to see, thus fueling conversation for even those outside of the discussion circle. This *digital* conversation thread is integral inside the classroom setting, especially in terms of providing an avenue for those "quiet" participants who always have great suggestions but never verbally voice them. Consequently, precisely-timed cooperative-learning breakout sessions straddled throughout the seminar will also ensure 100% participation by the entire group.

3. Primary objective

Participants will engage in an inner-outer Socratic Seminar with *live* digital feedback, analyzing and evaluating the provided essential/driving/problem-based question.

4. Participant take-away objectives

Teachers participating in this presentation will take away detailed teaching methods that will introduce a hands-on, multi-tiered Socratic Seminar that can be transitioned from teacher control to complete student-centered management over the course of an entire year. Instructional methods that underpin deep reading and writing analysis of informational texts with collaborative participant-driven speaking and listening techniques will be shared both digitally and via hard copy. Plus, seminar participants will discover how easy this particular Socratic Seminar method can segue itself into something larger, like philanthropic community service endeavors that reach well beyond the confines of the brick-and-mortar classroom.

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5. Secondary objectives per common core standards/goals

5.1. Reading for information

RI.9-10.5—Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).

RI.9-10.3—Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.

5.2. Writing

W.9-10.9—Draw evidence from literary or informational texts to support analysis, reflection, and research.

5.3. Speaking and listening

SL.9-10.1—Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, teacher-led, student-driven) with diverse partners on grades 9–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

SL.9-10.4—Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

SL.9-10.1c—Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.

6. Potential philanthropic objectives

"Thinking Big" will be one of this presentation's mottos as participants will be motivated toward expanding their global perceptions through specific and targeted critical thinking, local-to-national and eventually to international peer sharing, participant-created calls to action, and assessment of seminar success.

7. Possible take-away forms of assessment

Student success will be assessed in the following manner (80% mastery or above):

- Participation in the Socratic Seminar (Formative Assessment)
- "Ticket Out of Class" Writing Prompt (Formative Assessment)
- Debrief the following day over the Socratic Seminar (Informal Assessment)
- End Unit Exam (Formative Assessment)
- AP-style Writing Prompt (Summative Assessment)

8. Newest wrinkles instituted for the rock star Socratic seminar

Students participate in Socratic questioning breakdowns during the school week as part of their bell work. This activity was created with the help of my students as we cited a need for practicing deeper lines of questioning, and they use a combination of provided and self-created Socratic questioning prompts ("The Six Types of Socratic Questions"). An analogy would be of a high school basketball coach who expects his/her players to make 80% of all free throws during games but never carves out any time for free-throw shooting during practice.

The Inner/Outer Socratic Seminar continues to form the backbone of group discussion while real-time, ongoing digital observations/conversations are now being created and projected electronically for the entire group to see; this is called a backchannel, and it fuels conversation for even those outside of the discussion circle. This *digital* conversation thread is integral inside the classroom setting, especially in terms of providing an avenue for those "quiet" participants who always have great suggestions but never verbally voice them. Consequently, precisely-timed cooperative-learning breakout sessions straddled throughout the seminar will continue to ensure 100% participation by the entire group.

Finally, students are transitioning toward using video as a means of assessing our Socratic Seminars' success. This was a student-initiated improvement, and we are in the process of developing criteria to measure the aforesaid. Documented video evidence of this can be found on the website www.rockstarsocraticseminar.org as students self-evaluate and group-critique their weekly individual and class performance.

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