

Education Applications & Developments
Advances in Education and Educational Trends Series

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FOREWORD

InScience Press is gratified to publish this book entitled *Education Applications & Developments* as part of the Advances in Education and Educational Trends series.

In this volume, a devoted set of authors explore the Education field, contributing to the frontlines of knowledge. Success depends on the participation of those who wish to find creative solutions and believe their potential to change the world, altogether to increase public engagement and cooperation from communities. Therefore, serving society with these initiatives and promoting awareness, as part of our mission, requires the reinforcement of research efforts.

These series of books comprise authors and editors work to address generalized research, albeit focused in specific sections, in the Education area. Contents show us how to navigate in the most broadening issues in contemporary education and research.

In particular, this book explores four major divisions within general Education, corresponding to four sections: “Teachers and Students”, “Projects and Trends”, “Teaching and Learning”, and “Organizational Issues”. Each section comprises chapters that have emerged from extended and peer reviewed selected papers originally published in the proceedings of the International Conference on Education and New Developments (END) conference series (<http://end-educationconference.org/>). This meeting occurs annually with successful outcomes. Original papers have been selected and invited to be extended significantly, reviewed, and authors of the accepted chapters requested to make corrections and improve final submitted chapters. This process has resulted in the final publication of 28 high quality chapters organized into 4 sections. The following sections’ and chapters’ objectives provide information on the book contents.

Section 1, entitled “Teachers and Students”, provides studies within educational programs and pedagogy for both tutors and students. Each chapter is diversified, mainly addressing thematics in teacher education, programs, curriculum and practice. It also explores student affairs (learning, experiences and diversity) and assessment.

Chapter 1: *Teacher education and professional development: Text production and school management in focus*; by Ana Luzia Videira Parisotto and Renata Portela Rinaldi. This chapter presents the results of a constructive-collaborative research on learning processes of teachers and school administrators, participants in a professional development program. This program involved researchers from two Brazilian universities in the State of São Paulo (one public and one private) and was sponsored by CNPq (Brazil’s National Council for Scientific and Technologic Development). Its data were collected by means of written narratives, interactive conversations, and questionnaires. In agreement with the chosen theoretical framework, teacher learning is herein regarded as an ongoing process, influenced by teachers’ personal beliefs, understandings, and knowledge of different natures. In addition, teachers and school administrators are believed to need support in order to develop professionally and continued education proposals involving a school-university partnership centered on demands arising from the school partners’ work setting are deemed ideal. This chapter focuses on data relating to the teaching of text

production and on the continued education of schoolteachers and administrators in view of implementing democratic-participative school management. Results indicate that participating teachers, administrators, and researchers have successfully constructed new professional knowledge and point to the importance of in-service education at the workplace.

Chapter 2: *Student perception of teachers' National Council for the Accreditation of Teacher Education and California Commission on Teacher Credentialing dispositions*; by Kimberly R. Hudson. The purpose of this quantitative study is to identify what relationship, if any, exists between (a) teachers' perception of their own moods and behaviors that align with National Council for the Accreditation of Teacher Education's (NCATE) teaching dispositions and California Commission on Teacher Credentialing (CCTC) standards within the classroom and (b) their students' perception of teachers' moods and behaviors that align with NCATE teaching dispositions and CCTC standards within the classroom. This study focused on students in Grades 9 through 12. This study also examined whether students' academic achievement, as measured by their course grades, affects students' perception of their teachers' in-class moods and behaviors. It gathered self-report data about (a) students' perceptions of the teacher's dispositions based on students' observations of teacher behavior in the classroom and (b) teachers' self-report about their own dispositions. These dispositions are conceptually equated with teacher attitudes and are based on the NCATE dispositions. The Student Perception Survey created by the researcher was used to gauge the students' perception of particular dispositions observed within the classroom setting. The National Council for the Accreditation of Teacher Education dispositions state there are certain attitudes and behaviors teachers should use in the classroom, which align with the dispositions measured by the Student Perception Survey. This method was selected to assess the relationship between (a) the NCATE dispositions as indicated by current observable moods, attitudes, and behaviors as perceived by students, and (b) student grades. The results of the study suggest that the disposition of belief of a student's ability to learn is being accurately perceived and being displayed by the teachers in the classroom. The findings also suggest that although the students like their teachers, the students perceive that their teacher's treatment as unfair whether it be toward themselves or other students, therefore the disposition of fairness is not being accurately displayed in the classroom

Chapter 3: *Academic transition and peer tutoring: A case study at the University of Padova*; by Lorenza Da Re and Giuseppe Zago. According to the European Space for Higher Education document by the Confederation of European Rectors' Conferences, research, teaching activities, and orientation/tutoring programs enhance the university's educational offer. Students entering the university who are not fully aware of the challenges ahead risk abandoning their endeavours. Cognitive-social approach theories highlight the importance of preparatory activities assisting students in making appropriate decisions and in facing new challenges. Like many European counterparts, the University of Padova (Italy) has initiated tutoring services including pre-enrollment orientation, freshman welcoming activities, ongoing tutoring initiatives, and outgoing orientation. "Open Day," an initiative organized by the University's Tutoring Service of the Teacher Education Program, is an aspect of that service. Junior tutors, students enrolled in second-cycle degree courses, organize the initiative each year by holding workshops for new students interested in various degree courses. In this chapter it is described the University's tutoring service in all of its manifestations and in particular focusing on the "Open Day" orientation

experience. This observational study falls within the context of the project promoted by the University whose aim was to analyse developments and trends in higher education, and to assist students in achieving academic success.

Chapter 4: *Levels of adjustment to college, gender and academic achievement in first-year Spanish students*; by M^a Fernanda Páramo, Carolina Tinajero, and M^a Soledad Rodríguez. The documented difficulties that emerging adults experience during the transition to university, combined with the changing needs at this stage of life, have brought increased international attention to the adjustment of first-year university students and their academic achievements. However, surprisingly few studies have addressed this relationship in first-year students in Spain. The present chapter explores the relationships between levels of adjustment, gender and academic achievement in a sample of 300 first-year university students in Spain. The Student Adaptation to College Questionnaire (SACQ) was administered to assess adjustment. Multivariate analysis revealed that students with lower levels of academic and institutional adjustment to college achieved less well academically than students with intermediate and higher levels of adjustment. The students' average grade prior to starting university was entered in the analysis as a covariate. Gender had no significant effect on first-year academic achievement. Academic adjustment is the dimension that best explains academic achievement in females and males. Nevertheless, female and male students differed with respect to the effects of adjustment on their academic achievement; no significant effect was observed for institutional adjustment in male students. Theoretical and practical implications for the study of students' adjustment to university and academic performance are discussed.

Chapter 5: *Primary teacher mathematics anxiety, teacher efficacy and mathematics avoidance*; by Sharon Jaggernauth and Madgerie Jameson-Charles. This exploratory study examines the relationships among mathematics anxiety, mathematics teacher efficacy, and mathematics avoidance, among 68 primary teachers in Trinidad and Tobago, using a self-reporting questionnaire. Stata12 was used to compute means and standard deviations, and to conduct correlation, means-difference, and regression analyses. High mathematics anxiety was associated with low teacher efficacy and high mathematics avoidance among both male and female teachers. There were no significant relationships among mathematics anxiety, mathematics teacher efficacy, and mathematics avoidance by age and years of teaching experience. Gender was a significant factor for mathematics avoidance, with males reporting significantly higher mathematics avoidance than females. While a regression model with teachers' gender, age, teaching experience, and mathematics attainment could not significantly predict mathematics anxiety, mathematics attainment significantly predicted mathematics anxiety, and mathematics anxiety significantly predicted mathematics teacher efficacy. Further research is imperative to determine if mathematics anxiety is problematic at the primary level, with priority to unearthing links between teacher anxiety and student anxiety, and how student achievement, attitudes and beliefs are affected by teacher mathematics anxiety. Such research should inform teacher preparation and development programs to strengthen teachers' efficacy beliefs by addressing teachers' mathematics anxiety by equipping teachers with tools to manage their anxiety and strengthen individual efficacy beliefs about teaching mathematics.

Chapter 6: *The teacher's development plan in the initial teaching degree*; by Susana Aránega Español. The teacher is a key factor in the teaching-learning process, with a complex profile combining varied types of knowledge, a wide range of skills, and the

teacher's own personality. In initial training a great deal of the knowledge and skills necessary to the profession are acquired, but such essential elements as personal and social competences are rarely explored to the depth they deserve. In this chapter it is presented an innovation project carried out with trainees on their initial teaching degree, aimed at developing the personal and social competences. This study includes a process of reflection designed to foster the habit of self-analysis a working teacher needs. In order to achieve this it's devised and carried through a four-phase sequence of activities through which a personal development plan was drawn up and assessed.

Chapter 7: *The influences and motivations for becoming a preschool teacher: Turkish case*; by Belkis Tekmen and Güler Küçüküran. Teacher candidates' motives for becoming a preschool teacher are very crucial for their success and satisfaction in their career. Acceptance and recruitment policies of the teacher candidates to the preschool teacher education program are current topics in Turkey for the improvement studies of the education system. This chapter aims to identify the factors influencing teacher candidates' career choices and to reveal if their perceptions change after entering the program. Data was gathered through semi-structured questionnaire and analyzed descriptively by content analyses. Participants were preschool teacher candidates from different education faculties attended the Preschool Teacher Education Student Congress (PTESC, 2014) hosted by Baskent University, Ankara. Finding a permanent job, having additional scores at the entrance, considering it as a female suited profession and interest in children care were some of the main motives declared by the teacher candidates.

Chapter 8: *The bridge between theory and practice*; by Güler Küçüküran and Belkis Tekmen. Practicum courses at the senior year of the preschool teacher training programs are essential to transfer theoretical knowledge into practice. Although the theoretical part of the preschool teacher training program applied in every education faculty in Turkey is mostly standard and prepared by the Higher Educational Council, there are differences related with the school characteristics, classroom teacher and the course advisor's expectations from the teacher candidates. In this study, daily activity plans prepared by the senior students of the preschool teacher education program from five different universities located in Ankara are analyzed by content analysis in terms of variables such as selected outcomes, activity types, materials, group activities, developmental areas focused and assessment methods. These variables not only show the instructional planning skills of the teacher candidates but also their teaching philosophy, creativity, interdisciplinary transfer and child care philosophy. It is expected that, by finding out these areas to be strengthened, both the theoretical and the practical dimensions of the teacher education will be improved.

Chapter 9: *Calculated questions and e-Cheating: A case study*; by Juan Carlos González de Sande. Many learning management systems permit to configure a questionnaire based on an existing item bank. This item bank should be large enough in order to assure that the students do not know the questions (and the corresponding right answer without any study) after several colleagues have solved the questionnaire. A way to minimize this problem is by creating a very large item bank (several thousands of items). In many engineering and science disciplines is an easy task to automatically generate random numerical variants of the same question. The answer of such question is numerical and it is obtained after some calculation using one or more parameters that are randomly assigned by the learning management system. This type of questions is called "calculated questions". Even using calculated questions, there are some students that correctly answer the questionnaire in such

a fast time that make the instructors think they have obtained some unfair advantage. During the time that some of these questionnaires was open, it has been introduced a new calculated question and followed the evolution of the wrong/right answers over time. The focus of attention is on the students that solved the questionnaire in a fast time. Results show that after a few hours and after the first tenth of students have answered the new question, a surprisingly high proportion of students that solve the questionnaire in a fast way, answer the new question correctly.

Section 2, entitled “Projects and Trends”, delivers chapters concerning, as the title indicates, education viewed as the center for innovation, technology and projects, concerning new learning and teaching models. Knowledge in different usabilities, communication, software and new methods of teaching and learning are used to compile these works.

Chapter 10: *HbbTV history and its educational possibilities: Teaching options in times of the Internet*; by Joan-Francesc Fondevila-Gascón, Pedro Mir-Bernal, Marta Carreras-Alcalde, and Swen Seebach. Hybrid Broadcast and Broadband TV (HbbTV) is a new device that combines common visual and audio media consumption like we know it with the possibilities of the Internet. As a consequence, HbbTV facilitates not only new forms of consumption, but provides us with new possibilities in education. Schools and other educational institutions like universities have started to explore the advantages of this new technology with regards to its ability to create more horizontal, creativity fostering dynamics. Within this chapter the authors demonstrate how HbbTV, as a convergence tool, provides useful results for students and professors when installed in the seminar room. The discussions are exemplified with results from the mixed method research. Final results point out that the HbbTV transforms educational space into a multimedia environment with completely new possibilities and challenges for students and teachers. On the basis of the analysis and possible results, the authors will give some recommendations for using HbbTV and multimedia technologies in teaching and co-learning.

Chapter 11: *Concept maps as knowledge-building and argument-systematizing tools: Experimenting with undergraduate students*; by Marcus Vinicius Santos Kucharski. In the second semester of 2012, a first experiment with concept maps (CMs) as pre-writing and collaborative work technology with 130 undergraduate students in Curitiba (Brazil) proved to be a powerful team-spirit and argumentative competence-building resource. Constructed over the principles of meaningful learning, andragogy, concept mapping and the efficacy of using CMs in collaborative working scenarios, the experiment showed noticeable quality gain in works presented by the study population in three different undergraduate courses, showing an average of 15% higher grades. The research design, application and a first discussion of its results are hereby presented.

Chapter 12: *Does creativity rely on expertise? How the Danish reform-pedagogical agenda is related to present attempts to understand and facilitate creativity and personal expression among children*; by Mikkel Snorre Wilms Boysen. According to creative theory, expertise is considered a precondition for creativity. The assumption is that the individual must master the common and accepted rules and techniques in order to create something new and valuable. Plenty of empirical documentation supports this hypothesis. However, real life cases demonstrate that this assumption may be too simple. Occasionally people achieve great success as creative individuals without much expertise. Additionally,

empirical studies show that expertise sometimes may inhibit creativity instead of promoting it. In a pedagogical setting these ambiguities seem to be further reinforced by contemporary trends such as technology, globalization and individualization. What are in fact the proper rules of, for instance, music, drama, and visual arts? Do we need to learn basic skills if we can apply technology? How can general rules, individual preferences and expressions coexist? In the chapter, the balance between creativity, learning and expression are discussed from several angles. Firstly, the author seeks to sketch a specific Danish historical inherited approach to creativity. Secondly, the author presents exploratory fieldwork that suggests new ways to understand and facilitate creativity among children.

Chapter 13: *A U.S. University's development of an inclusive early childhood education preparation program: The journey*; by Deborah G. Wooldridge, Mary M. Murray, and Dawn Shinew. This chapter focuses on a U.S. university's development of an Inclusive Early Childhood Education program. This innovative program is designed to prepare teachers to work successfully with all learners, including students with disabilities. Graduates of this interdisciplinary program earn three teaching licenses, one for general education classrooms, one for special education classrooms, and one for working with children ages birth to three years. The authors ground the program's development in the U.S. federal legislation that laid the foundation for increased access for and service to children with disabilities. In addition, the authors describe the philosophical underpinnings and curriculum for the new program, and identify the specific outcomes from this newly developed program. Preliminary lessons about this process that might assist other programs considering similar strategies are presented.

Chapter 14: *Evaluating MOCEP's pilot program in Lebanon in Palestinian camps*; by Ahmad Oweini and Ghassan Issa. This study purports to evaluate the piloting of the Mother Child Educational Program (MOCEP) sponsored by Arab Resource Collective (ARC) in Lebanon to measure the effectiveness of this home-based early intervention program on both mothers and their children, with respect to its proposed goals and objectives. Eighty-eight Palestinian mothers from six organizations/camps for Palestinian refugees participated in the study. The second and third phases of the program, training of mothers by trainers and program implementation on children, were assessed. The program's effectiveness was measured by way of two questionnaires completed by the mothers, one assessing children's performance and the other examining mothers' performance. Questionnaires were filled out in two stages: pre- and post- participation in the program. Results showed significant improvement in children's performance, the mother-child relationship, and enhancement of the home environment in a way that makes it more conducive to child development. This study has important implications for addressing the needs of Palestinian children through MOCEP. It also highlights the obstacles that impede its proper implementation.

Chapter 15: *Aspects of pragmatic communication difficulties in persons with symptomatic speech disorders*; by Kateřina Vitásková and Alena Říhová. The principal objective of the presented chapter is to introduce, from the theoretical point of view, the various specifics of disturbed pragmatic language level in people with Autism Spectrum Disorders (ASD). In the following part, mainly empirically, it will be present the particular results of research examinations (Disturbed communication skill and the impact of its symptomatology on inter-disciplinary cooperation of professionals and the affected family in a complex intervention (Pdf_2012_012). Communication deficits in selected forms of disturbed

communication skills focused on evaluating the partial determinants of verbal and non-verbal components of communication in special education practice, Faculty of Education at Palacky University (n. PdF_2013_021, main investigator: Kateřina Vitásková), the partial results of which map, and render an analysis of, speech and language therapeutic intervention in people with ASD. Towards the end of the chapter, the authors aim to acquaint the reader with a research focused on the global detection of pragmatics in people with ASD, considering the element of non-verbal communication (GAČR, Pragmatic language level in people with ASD, 14-31457S, 2014/2016, main investigator: Kateřina Vitásková).

Chapter 16: *Education for nurses in the context of sustainable development*; by Ruta Renigere. The aim of this chapter is to improve education for nurses in line with ESD by implementing the ecological approach in nursing studies. The objectives of the research are these: 1) to define and assess the theoretical basis of the ecological approach; 2) to assess the possibility of implementing the ecological approach; 3) to work out and approbate the course *An Ecological Approach in Patient Care*. “Basic Principles of Deep Ecology” by Arne Naess and George Sessions, “The Ecology of Human Development” by Urie Bronfenbrenner, and the five ESD pillars of learning to know, learning to be, learning to live together, learning to do, and learning to transform oneself and society constitute the theoretical basis of the ecological approach. The ecological approach also draws on Florence Nightingale’s observations about the significance of the care environment and theories of nursing related to the environment. The environment of nursing education and practice should be regarded as a complex system of learning, socialization, and culture that consists of subsystems which affect sustainable development. In that context, the observations of theoreticians of nursing studies on the effect of the environment on human health, a person’s autonomy in the care process, human experience regarding health and illness, as well as the union of art and craft in patient care, are significant. In assessing the possibility of implementing the ecological approach in nursing studies, the need to incorporate its principles in all courses of the study program and to work out a special course, *An Ecological Approach in Patient Care*, was evident. It would also be useful to work out and implement a professional development course for faculty members of colleges. The theoretical basis of the ecological approach, as well as the ecological competence model developed by the author and the study course *An Ecological Approach to Patient Care*, has been improved and approbated in the College of Medicine since 2009. The course is worth 3 credit points (according to the European Credit Transfer System – ECTS). Four groups of students and 180 students have taken this course. As a result, the ecological competence of nurses is being formed and developed. That, in turn, promotes the positive development of education for nurses and a healthy environment, as well as a holistic, patient-centered care and a subject-subject relationship in the care process.

Chapter 17: *Custom developed software to simulate the use of UV/Vis spectroscopy in quantitative chemical analysis*; by Emilia Bertolo and Simon Clay. Software which simulates the use of typical analytical chemical techniques provides students with additional ways of learning about these techniques. This chapter presents a free software package called UV-Vis-Sim, which can be used to simulate the use of an Ultraviolet/Visible (UV/Vis) spectrometer in quantitative chemical analysis. UV/Vis spectroscopy uses a simple linear model of absorbance, the Beer-Lambert Law. For quantitative information on a compound, the UV/Vis instrument must first be calibrated

using solutions of known concentrations: the calibration curve generated allows measurement of unknown concentrations of that compound. The software allows any compound to be analysed if its UV/Vis spectrum is known. The instructor version can be used to define constraints similar to those encountered in the lab. Students use the student version to “prepare” their set of standard solutions based on their own calculations. The program then measures the absorbance of standards and unknown sample(s). The results can be copied into a spreadsheet and the data treated following standard procedures. The data will be individual to the students, depending on their choices and calculations. The software was used in a problem-based learning exercise, to simulate the analysis of samples from a potentially contaminated river.

Chapter 18: *Exploring the views of pre-service teachers on the use of the e-Portfolio as a learning platform*; by Caroline Koh, Woon Chia Liu, Stefanie Chye, and Mingming Zhou. In the educational context, the e-portfolio provides a platform for social interaction between learners, allowing them to record, share and reflect upon their learning and achievements, thus encouraging greater ownership of learning. This chapter assessed users’ perceptions of the e-portfolio in a number of domains, with investigations on the e-portfolio’s effectiveness as a learning tool and whether it enhanced self-regulation and motivation to learn. The study involved around 326 pre-service teachers enrolled in the initial teacher education program at the National Institute of Education, Singapore. The participants used the open-access Google Site as the platform for their e-portfolios in the course of their one-year program. The institution provided the pre-service teachers with technical support and guidance on how to build, maintain and use their e-portfolios. A survey was administered at the end of the program to assess the participants’ perceptions of the e-portfolio in terms of its usefulness, and ability to enhance learner motivation. Generally, the study revealed that the student teachers understood the value of keeping their e-portfolios, and this was one of the key motivating factors for e-portfolio usage.

Chapter 19: *Written narratives: Potentialities for research and teacher professional development*; by Renata Portela Rinaldi and Ana Luzia Videira Parisotto. This chapter presents some results from an investigation conducted along with a teacher professional development program called “Programa de Desenvolvimento Profissional de Formadores e Professores dos Anos Iniciais do Ensino Fundamental no Local de Trabalho: uma Parceria entre Universidade-Escola – UNESP”. In light of this context, we seek to understand the contributions of this program based on a university-school partnership developed and implemented collaboratively at the school. The tools that were employed for investigation and continued education consisted of written narratives from the participating school administrators’ and teachers’ reflective journals collected at weekly in-person meetings with the researchers. Participants included administrators and teachers from a public school and researchers and undergraduate and graduate students from two universities (one public and one private) in the State of São Paulo, Brazil. The results indicate that written accounts are a useful tool for professional development by means of formative and investigative proposals and point to changes in the ways participants perceive themselves and others.

Chapter 20: *New methods of teaching: Interdisciplinarity approach and mathematical modeling*; by Olga Nikolaevna Kapelko and Georgiy Gennadievich Malinetskiy. Every epoch has its own specific style of education connected with contemporary instruments and tasks. The problems of our civilization differ from the ones of the previous epoch very much and demand new approaches in educational technologies. The situation in the

Educational field now is the following. It is divided into many parts of special disciplines. It is useful for learning; but in real life we deal with complicated systems and complicated problems. To find solutions to such problems we need to unite specialists from different specialties and fields of knowledge. In this chapter the authors want to discuss the preparation of students for interdisciplinary methodology during educational processes. The best way is to use mathematical modeling and the authors are using new methods of modeling connected with a synergy approach. It is also discussed the creation of the methodological base for using it in education.

Chapter 21: *What do we need for quality education: The introduction of collective reasoning into the educational process and pedagogy of the future*; by Alla Vasilievna Guseva, Ekaterina Kozina, and Olga Nikolaevna Kapelko. The pedagogy needs to realize a strategic goal of the education of human being. If we pose a question - is a person just a small part of a social mechanism that has to be equipped with the necessary special competencies to conform to its place or; should the personality be in harmony with his/her abilities when using their abilities and skills for the benefit of the society? The answer to this question lies in the understanding of the ways of a progress of pedagogical process. The authors argue that the progress of the development of educational systems is possible through the understanding of how individuals reason and think. The authors in this chapter use a special model of thinking created to help to develop the educational process. At the basis of the argument, pedagogy has always been and will be a socially-relevant science. Physiological, psychological and intellectual parts are always interlinked in the upbringing, formation and education of the student. These experiences collectively lead to the development of an intellectual activity and assist a better societal socialization and adaptation. Today the evolution of the humanity happens so rapidly that with each year's new complex demands are being placed on graduating students to obtain new qualities: constant readiness for change, lifelong-learning skills, the ability to adapt quickly to the changing environment and some degree of professional experience.

Section 3, entitled "Teaching and Learning", offers research about foundations in the education process itself, in various contexts, both for educators and students.

Chapter 22: *Strategy inventory for language learning: Findings of a validation study in Greece*; by Konstantinos Petrosiannis and Zoe Gavriilidou. Foreign language learning strategies are specific actions or techniques employed by the learner for the purpose of learning language, making learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations, according to Rebecca Oxford. The chapter presents a large scale project's (THALES: 379335) first phase findings regarding the validation of Rebecca Oxford's "Strategy Inventory for Language Learning" (S.I.L.L.) with a Greek sample of 1308 school-aged students from 16 schools representing 5 prefectures and 4 regions of the country. 46% of the students attended the last three grades of elementary school and 54% junior secondary school. Following a series of exploratory factor analyses we decided on a 29-item version retaining Oxford's factor structure. The confirmatory factor analyses revealed a marginal level of fit for the whole sample as well as the elementary school and secondary school sub-samples. The analyses indicated moderate to high internal consistency coefficients for the two- and six-category model of the SILL instrument. Based on these findings a number of analyses were performed regarding differences across all the six SILL first-order categories (memory, cognitive compensation, metacognitive, affective, and social strategies) and the two

second-order categories (direct and indirect strategies) in relation to gender and school level revealing significant differences. The results are discussed in relation to other similar studies and the next phases of the study.

Chapter 23: *Emotion socialization practices of early childhood educators*; by Christelle Robert, Sylvain Coutu, Diane Dubeau, and Annie Bérubé. Because emotional skills learned during the first years of life play a key role in children's adjustment and future academic achievement, the socialization of children's emotions has become an important topic in educational science. Children's preschool experience, in particular, has emerged as a major issue, our understanding of which needs to be extended and consolidated, especially with regard to the impact of adults. While studies have shown that parental socialization practices are related to the development of children's emotional competence, few studies have examined the role played by early childhood educators (ECEs), even though most children under the age of six attend daycare (70% in Quebec, Canada). To improve our understanding of ECEs' practices related to children's emotion socialization, 107 ECEs in Quebec were interviewed, using the Coping with Children's Negative Emotions Scale - Caregiver Version. Results revealed that the ECEs valued positive reactions to the expression of children's negative emotions, in particular, reactions that focus on problem solving. Some individual characteristics (work experience; educational background; perceived stress, job satisfaction and interpersonal reactivity) also appeared to be associated with the nature of the ECEs' reactions to the expression of negative emotions.

Chapter 24: *Emotional literacy education in a Hong Kong university: Reflection and proposal*; by Amy Lee Wai Sum. Since the 1970s, emotional literacy has been advocated as a part of the humanistic education project. While a set of abilities sounds commonsensical, there is a thriving international popular self-help literature business to indicate that our education system has not addressed the subject adequately. Although there have been quite a number of studies in the Western academia, proposing numerous ways to include emotional literacy in the curriculum, discussion in the Chinese education context has not been as active. Hong Kong has seen a lot of changes in its education system in the recent decades, but emotional literacy has not been an important focus of discussion. 2012 saw the change of university curriculum from 3 to 4 years, meaning that students enter university a year younger, after one public examination instead of two. Educators have noted the general emotional immaturity of the younger freshmen, and their inability to handle problems that come with this new identity. This chapter is a reflection on the present educational direction in Hong Kong, and to advocate a more helpful emotional literacy curriculum in the university.

Section 4, entitled "Organizational Issues", gives a glance on tools for implementing organizational learning and change. Themes vary from economic and social programs, as well as equity and values for the educational environment.

Chapter 25: *Reproduction of inequality through private out-of-school education*; by Derya Keskin Demirer. This chapter aims to explore economic and social implications of educational activities taking place outside formal school education. Parallel to the marketization of all public services, private education has become an essential part of education systems across the world. As an important element of this transformation process, out-of-school education has also become prevalent worldwide. While education has traditionally been perceived as an equalizer in societies with different levels of income

levels and social stratification, various forms of outside school learning have been creating opposite effects. Overwhelming scope of central examinations in the education system of Turkey has provided the grounds for the education institutions operating outside school such as private tutoring centers (PTCs), and other preparatory courses. Almost all students attend PTCs at some point during their education, at one level or another, for the hope in attending elite schools and universities. As expected, the ultimate purpose is to achieve a well-paid job and a comfortable position in life. However, only a limited number of PTC goers succeed in entering elite schools and universities as well as in getting well-paid jobs, due to high competition in both university entrance and labor market. This chapter argues that, with the diversity it created, and disparity in access among different social classes, outside school education contributes immensely to the reproduction of inequalities in Turkey, and intends to shed light on the complexity of the issue, beyond the framework of economic supply and demand model.

Chapter 26: *Four-dimensional modeling: A tool for implementing the arts education act in music education at a school in Taiwan*; by Hua Hui Tseng. In this chapter, the merits of using Cooper, Fusarelli, and Randall's four-dimensional model from 2004 as a tool for evaluating policy making when implementing the educational policies for arts education in Taiwan are explored. In 1997, the Arts Education Act directed the Ministry of Education (2000) to implement teaching art theory and techniques at schools, carry out artistic research and creation, and cultivate a diverse group of arts professionals. The reauthorization of the Act in 2000 as the Arts Education Act of 2000 (AEA) mandated that the aptitudes and strengths of gifted students be taken into account and follow the model of the Special Education Project. The evaluation methodology outlined by Cooper and colleagues is structured into a four-dimensional framework, namely, normative, structural, constitutive, and technical, and applied to the policy implementation process. The purpose is to show how the model can be applied to evaluate the implementation of policy using the case of implementing the Arts Education Law at the Tainan University of Technology, Taiwan. Each dimension is applied to analyze the implementation of the AEA policies at the TUT, and in particular, in music education. Application of the model is shown to be beneficial in so much as it provides a means for reflecting on policy implementation and a language through which educational policy in the arts might be constructively developed.

Chapter 27: *The Cosmodernity: A transcultural approach for the global citizenship education proposed by UNESCO*; by Javier Collado Ruano, Dante Augusto Galeffi, and Roberto Leon Inacio Ponczek. This chapter reflect about the "Global Citizenship Education" (GCE) proposed by UNESCO: creating a framework which respect the historic-cultural characteristics of each community and developing a critical consciousness that addresses common responsibility with the global problems of the world-society. A world-society which must develop a new awareness-identity of "Earth-Homeland", where the human being is seen as a same biological specie with the same evolution, because the future history of humanity requires knowledge evolution towards new transhumanists and transnational dialectics concepts in order to prevent future war conflicts. Thus, it is needed new education applications and developments to organize knowledge through a complex, creative, transversal, polysemous, transcultural and transpolitical epistemology that promotes GCE as the causal energy principle of the transformation process of the human being. Metaphorically, GCE has to represent the Big-Bang full of transformative energy in continuously expanding that interacts positively on the lives of people: generating a self-organizing cosmos of infinite potential for personal

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fulfillment and improving the quality of life in the communities. Then, the authors propose the Cosmodernity paradigm as transdisciplinary, transnational and transcultural approach to build a new horizon in the GCE proposed by UNESCO for the 21st Century: with the Constellation of Twinned NGOs-schools which develop altruistic educational projects of cooperation in all corners of the Earth-Homeland.

Chapter 28: *Using the Spelit analysis technique for organizational transitions*; by June Schmieder-Ramirez and Leo Mallette. The purpose of this chapter is to describe a new analysis methodology, and provide formats for use, in doctoral level curricula. The acronym SPELIT is an analysis methodology and framework to help understand an organization's environment from the social, political, economic, legal, intercultural and technical perspectives. Developed in the early 2000s, this methodology is sufficiently robust and can be used by undergraduate students, graduate students, and seasoned practitioners doing a market analysis, diagnosis prior to implementing transitions, or benchmarking in anticipation of an intervention. This study shows how this methodology aligns with many change theorists, such as Christiansen, Kaufman, Holcomb, and Cummings and Worley, theorists who stipulate benchmarking or diagnosing the current condition as a first step in the change process. One of the remarkable advantages of the SPELIT analysis methodology is that it can be readily adapted to unique organizations by adding or deleting environments, such as educational, ethical, historical, physical, religious, temporal, and security environments. This paper describes several different formats where the SPELIT analysis methodology has been incorporated at several universities, as incorporated into a doctoral level comprehensive examination curriculum where the students examine organizational transitions.

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Section 1
Teachers and Students

Chapter 1

TEACHER EDUCATION AND PROFESSIONAL DEVELOPMENT:

Text production and school management in focus

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ABSTRACT

This manuscript presents the results of a constructive-collaborative research on learning processes of teachers and school administrators, participants in a professional development program. This program involved researchers from two Brazilian universities in the State of São Paulo (one public and one private) and was sponsored by CNPq (Brazil's National Council for Scientific and Technologic Development). Its data were collected by means of written narratives, interactive conversations, and questionnaires. In agreement with the chosen theoretical framework, teacher learning is herein regarded as an ongoing process, influenced by teachers' personal beliefs, understandings, and knowledge of different natures. In addition, teachers and school administrators are believed to need support in order to develop professionally and continued education proposals involving a school-university partnership centered on demands arising from the school partners' work setting are deemed ideal. This manuscript focuses on data relating to the teaching of text production and on the continued education of schoolteachers and administrators in view of implementing democratic-participative school management. Results indicate that participating teachers, administrators, and researchers have successfully constructed new professional knowledge and point to the importance of in-service education at the workplace.

Keywords: teacher education, professional development, text production, school management, collaborative research.

1. INTRODUCTION

The school – the locus of education par excellence – is viewed as a space in which rights are secured. Thus, upon developing school activities, it is vital to take societal demands into account. In addition, professional preparation should not be regarded as merely providing people with a fixed body of knowledge to be applied throughout their careers. Moreover, it is necessary to devise and conduct initial professional education in such a way that it promotes professional flexibility and adaptation in order to overcome inequalities.

Along these lines, the school can no longer stay the same and teach only the basics, i.e., how to read, write, and calculate. It should also teach students how to exercise their citizenry in a globalized world. Schools should prepare students for life in fast-changing world, which demands the development of diverse knowledge and multiple skills. On the other hand, this new scenario also demands that teachers become citizens of the world in that they should develop personal, social, and cultural knowledge and skills in addition to those of a professional nature. Moreover, they should have thorough understanding and mastery of their teaching content.

Cunningham and Gardner (2004), in a survey titled “Becoming teachers”, highlight the need for careful attention to the long history of accumulated professional practice as a way of lessening teacher marginalization in education policies and practices.

In the last years, the idea that good teaching is more complex than the way it was thought to be at the beginning, is getting stronger. Teaching, each time more, has been recognized as a “complex knowledge mixture that encloses specific and pedagogic content, abilities to teach various students, and, the knowledge and understanding about the context where the teaching takes places” (Tatto, 1993, p. 87), opposing to the idea that anyone can teach. This new way of conceiving the teaching has resulted in a deep change of knowledge, abilities and dispositions teachers should have.

Many authors have studied the issue of professional development in association with curriculum innovations, emphasizing practical possibilities of change (Fullan, 1990; Garcia, 1999; Rinaldi & Parisotto, 2011).

As to the teaching of text production, making students discursively competent implies necessarily advancing learning situations capable of meeting these demands. In this sense, it is extremely important to promote continued teacher education based on teaching demands, results of external evaluations, and analyses of student performance. Thus, teachers should know their teaching content and be able to make it understandable to students by choosing the best examples and analogies, i.e., the best resources, in order to motivate them to learn. In addition, teachers should know how students learn and what they already know and make use of this information to devise activities and teaching materials that can foster student learning and meet the goals set by the school.

Given the complexity of this task, it is vital that teachers and school administrators participate in continued education programs so as to meet and exceed the demands placed by the community since they are responsible for teaching those that need to learn in new ways and from new perspectives.

To this end, we advocate that the school be organized in line with a model of democratic participatory management, thus featuring an organic relationship among team members and emphasizing the pursuit of common goals and collective decision-making (Libâneo, Oliveira, & Toschi, 2003). However, all team members must do their share of the work and consent to coordination and systematic evaluation of deliberations once decisions are made.

Several actions can be developed in a context of democratic-participative school management. It is important to bring all school stakeholders together when analyzing alternatives, making decisions, and bringing to fruition the most adequate solutions to challenges existing in the school. Nevertheless, this process should take into account that both solutions and decisions demand similar procedures such as collecting data and information on the situation to be analyzed (Libâneo et al. 2003).

Moreover, Libâneo et al. (2003) indicate that it is equally necessary to become skilled at research methods and procedures that can contribute to solving school problems, which in turn results in administrators producing knowledge about their work. A research activity implies:

[...] identifying a problem or issue through discussion, observation or action-reflection-action practices; defining ways and means of finding required information and data, e.g., interviews, questionnaires or a literature review in order to assess whether the actions in question have produced the anticipated results; analyzing the data to identify problems and demands, thereby supporting the action-reflection-new action cycle; and proposing intervention actions (Libâneo et al., 2003, pp. 401-402).

In view of a democratic-participative approach to management, we began work at the school in question by acknowledging the importance of its administration making decisions about existing problems and issues. To this end, the school team members got together in order to identify, analyze, reflect, make decisions, and implement solutions to their daily challenges.

2. BACKGROUND

This research - backed by CNPq (Brazil's National Council for Scientific and Technologic Development) - was conducted at a public school located in a disadvantaged neighborhood of Presidente Prudente, State of São Paulo, Brazil. It involved the participation of researchers and students from two universities (one public and one private) and teachers and administrators from the school in question. Participants got together on a weekly basis in order to develop proposed activities and continually appraise their outcomes.

This study adopted a qualitative approach, i.e., it was conducted with the purpose of fostering an in-depth understanding of the characteristics and meanings of collected data (Oliveira, 2007). This research is also of a collaborative nature in that it involves the participation of:

[...] researchers and teachers in both producing knowledge and interactively conducting the research itself, given that collaborative work requires that teachers and researchers jointly construct knowledges, thereby sharing professional development strategies (Ibiapina, 2008, p. 25).

Broadly speaking, a collaborative research design implies the establishment of ongoing conversation among researchers, teachers, and administrators, with emphasis on investigating, creating new knowledge, and searching for solutions to concrete problems of everyday school life.

The collaborative research framework conceives of teachers as active participants responsible for their own continued education, since it values their previously acquired expertise and their present working conditions (Cole & Knowles, 1993).

The participating teachers' work during the research was monitored by means of weekly meetings, a questionnaire, and oral and written narratives.

At the outset, institutional bonds were established and we began eliciting demands from the participants, i.e., schoolteachers and administrators. As to the teaching of Portuguese, teachers responded to a questionnaire, which informed the development of professional preparation workshops on theoretical-methodological aspects aimed at reflecting on the teaching of a mother tongue. These workshops were conducted at the school.

In this sense, we, in cooperation with the other participants, established a chronogram that included weekly meetings. Their goal was to provide continued education to the participating teachers by encouraging their reflection on language and strengthening important concepts such as text, reading, cohesion, consistency, text genre, and text evaluation.

In line with what Ibiapina (2008) claims to be the attributions of all participants, it was up to the researchers to elicit the teachers' learning needs as regards the teaching of Portuguese, specifically in connection with text production, assess their prior knowledge through a questionnaire, provide texts for collective study, tape and transcribe conversations, and revise them with the help of those involved. In turn, the participating

teachers imparted their learning needs, participated in the writing of and, as a result, endorsed contents to be addressed at workshops, responded to the questionnaire, often read educational texts in advance, collaborated with peers in reflective actions, and participated in revising transcripts of audiotaped conversations.

The work with the school administrators began by discussing topics that had come up during planning. At first, they pointed to violence and school-family partnerships as some of the issues that had been indicated by the community as a whole through discussion and observation of daily school practices. Based on this initial diagnosis, a questionnaire was conceived comprising eight open-ended questions involving previously diagnosed issues whose goal was to find out what the school stakeholders (students, parents, staff, faculty, and administrators) knew and thought of these issues.

After the data were collected, a study group comprising representatives from the school community (families, staff, faculty, and administration) and the university (researchers and graduate and undergraduate students) was established. The group's goal was to chart and analyze the collected data and agree on the theoretical framework to assist in understanding the elicited issues and in developing intervention proposals to overcome the identified problems. Participants met on a weekly basis at the school; the meetings were audiotaped or filmed and later transcribed.

The group work, regarding both the teaching of Portuguese and professional preparation of administrators and faculty, maybe regarded as continued education in that it was a "continuation of initial teacher education, aimed at their theoretical and practical professional, development and acquisition of a broader general culture and professional experience at the workplace" (Libâneo, 2001, p. 198).

Thus, continued education constitutes an opportunity for providing participants with life-long professional learning, not the kind deriving from information accumulation, but as their chance to rethink practices and construct new knowledge, a process made possible by analysis, reflection, discussion, and sharing of different experiences.

3. TEACHING OF TEXT PRODUCTION

This section presents conceptions of the ten participating teachers, who work with elementary school children on language, reading, text production, and textual cohesion and consistency, since these conceptions drive their teaching of reading and writing. The data presented in this article have to do with answers obtained through a questionnaire containing six questions on theoretical concepts related to the teaching of a mother tongue (Table 1).

According to the concepts articulated by the majority of participants, language is a "mode of communication," a structuralist perspective in which language is seen as a set of symbols that combine among themselves according to some given rules to produce and transmit a message to a receptor (de Saussure, 1969).

Language can be defined as a "mode of communication", an "expression of thought" or a "way of interacting". These three concepts are not mutually exclusive; each concept carries its own theoretical and methodological implications.

As regards the concept of language, four participants established a relationship between code and the social group that uses it to establish verbal interaction, whereas some still associated this concept to the writing code only.

Table 1. Theoretical concepts.

TEACHER	LANGUAGE	TONGUE	READING	TEXT	TEXT COHERENCE	TEXT COHESION
T01	Communication tool	Way people write	Decoding texts and information	Expressing ideas	Maintaining chain of ideas during writing	Mistakes in nominal and verbal agreement
T02	The way people communicate	Writing code	Meaning of meaningful graphic symbols	No answer	No answer	Organized text ideas
T03	Way people communicate through a text	Way people speak and write within a group	Act of decoding graphic signs	Set of developed ideas: stories, poems, etc.	Keeping the meaning of text	Organization of ideas
T04	Communication tool	Code used by a people	Decoding linguistic symbols to understand message	Message	Grammar elements employed to maintain meaning	Chain of ideas
T05	Communication model	Code used by a people	Act of decoding	Message	Grammar elements	Chain of ideas
T06	No answer	No answer	No answer	No answer	No answer	No answer
T07	Communication	Writing code	Decoding a code	No answer	Text agreement	Organization of ideas; triggering
T08	No answer	No answer	No answer	No answer	No answer	No answer
T09	No answer	No answer	Very important. It enlarges vocabulary and broadens knowledge	Information	Grammar elements	Organization of ideas, sequence of events
T10	Communication . In order to communicate people may employ visual, gestural language, etc.	Norms and rules constructed by a society, according to some written or spoken standard	Interpreting signs and signifiers produced by an author	Set of ordered ideas about a topic or issue	Grammar structures that help in organizing a text	Ordering of ideas, following a theme

According to de Saussure (1969), langue is “the social component of language, exterior to the individual, who can neither create nor change it; it only exists in virtue of some kind of contract established among community members” (p. 22).

With respect to the concept of reading, most participating teachers still view reading as a decoding process. This perception must be expanded, since decoding without understanding constitutes a futile and tedious activity. In this sense, Koch and Elias (2007) claim that there are reading conceptions focusing on the author and text in addition to the author-text-reader interaction. Hence, each reading conception is correlated to a different conception of language, subject, and text.

Likewise, Marcuschi (2008) emphasizes that textualization is established from the author-text-reader perspective. Marcuschi (2008) views the text as both process and product, whose interchange involves a linguistic setting (co-textuality) and a communicative situation (contextuality).

Overall, the concept of text expressed by the participating teachers is linked to content-related aspects. It is possible to notice the recurrence of terms that emphasize this content-related character in their answers; words such as idea, information, and message are frequently used.

In this sense, the text is no longer seen as a space for author-reader interaction, which goes against what the Ministry of Education [MED] (1997, p. 11.) recommends:

Discourse, when produced, manifests itself linguistically through a text. Thus, it is possible to affirm that a text is the product of an oral or written discourse activity that constitutes a meaningful and finished whole, whatever its extent. It is a verbal sequence composed of a set of relationships established by cohesion and coherence. This set of relationships has been termed textuality.

With respect to textual coherence, although it can be observed that some concepts are incomplete, the research participants did mention the importance of a text displaying some concatenation of ideas, meaning, textual organization, and maintenance of meaning. Some teachers did not respond and two of them emphasized the importance of grammar structures to promoting textual coherence. In complement to their answers, it should be noted that coherence is that which lends textuality to the text and is the product of a process of interaction among author, text, and reader.

As for textual cohesion, some misconceptions are noteworthy: one teacher mentioned that textual cohesion had to do with errors in verbal and nominal agreement, whereas another referred to 'textual triggering.' Two teachers did not respond. The other concepts mentioned relate to organized ideas and linked ideas. Here, too, there is a need to expand the concept; it is important that text-production teachers master textual cohesion mechanisms (semantic and syntactic connections), which are employed to structure the text and promote its consistency.

Thus, we emphasize that teachers' ability to reflect on their own performance and concepts guiding their practice constitutes a very important aspect of teaching. However, this ability is closely related to their training. In this sense, Schön (1987) argues that reflexivity provides teachers with flexibility to act in the face of classroom demands faced by them on a daily basis.

4. SCHOOL MANAGEMENT: NOTES FOR OVERCOMING EVERYDAY SCHOOL CHALLENGES

Working with the school administrators was a special moment; it was then that they, along with other members of the school community, i.e., faculty, staff, families, and researchers, began thinking about the accorded diagnosis and the best way of giving feedback and indications of intervention proposals to all those who responded to the questionnaire. This led the participants to jointly come up with an educational proposal to overcome or mitigate the two challenges brought forth at previous meetings: violence and school-family partnership.

In view of democratic participative school management, everybody agreed that it was essential "to ensure participation of the entire school community, since projects proposals imposed by the principal and/or pedagogical coordination are seldom legitimized by the whole group and, as a result, doomed to fail" (Franco, 2009, p. 173).

The study group was important in that it enabled reflection on and analysis of data collected through the questionnaire in order to coordinate the development of the educational project from proposals presented by each group of participants (e.g., teachers, administrators, and so forth). The weekly meetings provided participants with opportunities to rethink their practices as education professionals or parents, constructing new knowledge by means of analysis, reflection, discussion, appraisal of different viewpoints, and creation of preliminary versions of the proposal, which was discussed, improved, and sanctioned by

the school team. These meetings constituted opportunities for teamwork involving the school administration, faculty, staff, families, and university researchers and students toward the implementation of collectively made decisions.

The proposal comprised several actions, e.g., a theater group, indicators of action for collective living, valorization and encouragement of students, continued education for everyone (faculty, administration, and staff), strengthening of school-family partnerships through dialog with the latter, family involvement in planning and assessment of school activities and actions, organization of workshops and lectures addressing issues indicated by families, and supervising students' daytrips. Needless to say that a few challenges emerged as a result of dealing with so diverse a group, but the work was grounded on respect for differences and participation open to all group members.

5. DIRECTIONS FOR FUTURE RESEARCH

This study has effectively established a partnership between the school and academics. Moreover, it has fully met the demands placed by the school and successfully brought together its teachers' learning needs and our interest in the advancement of scholarship. Therefore, taking into account the reality of the partner school, other proposals will be drawn up based on the information obtained through this research.

This study enabled the development of research at the graduate and undergraduate levels and the dissemination of its results through journals, conference proceedings, and book chapters. Knowledge arising from this study can promote the development of continued education programs at the teachers' workplace, i.e., the school. In this sense, the research results will enable the construction of indicators of actions aimed at implementing continued education proposals capable of meeting teachers' real learning needs and the characteristics of their work setting, vis-à-vis the teaching of the mother tongue.

Shulman (1986) highlights the importance of collecting data on teachers' practical knowledge, collating and interpreting them in order to build a bibliography of cases capable of promoting reflection on teaching.

6. CONCLUSION/DISCUSSION

Regarding the teaching of text production, the results from this study point to participants' lack of knowledge of text production, which is to say that participants do not see the text as the locus for author-reader interaction. For the same reason, the conception of language that guides the participating teachers' work has a monological basis, which does not promote actions and effects of meaning amongst interlocutors, according to the communicative situation.

The interviewees demonstrated a significant lack of textuality standards and this can affect their evaluation of students' texts. In spite of claiming that they take idea development, paragraph structuring, spelling, punctuation, cohesion and coherence, suitability to writing mode, and absence of orality into account when evaluating students' texts, this may be compromised by the fact that they know text production standards only superficially.

The main role of elementary school teachers is to effectively teach students how to read and write, so knowledge of the mother tongue is essential for students to recognize possibilities for acting on, persuading, and convincing their interlocutors and this can only happen through language, which should be regarded as a mode of interaction, enabling the development of knowledge and exercise of citizenship.

Elementary school teachers' everyday practices comprise continual challenges whose solution cannot be found in recipe books. It takes a lot of study and the habit of seeking information. Therefore, the process of remedying inefficient teaching practices is slow; it cannot be limited to initial teacher education and does not depend on the teacher alone. It is necessary to establish fruitful bonds between universities and elementary schools and promote the importance of research and life-long learning.

As to working with the school administration and faculty, the following aspects seem necessary for the school to successfully perform its social function: well-prepared teachers with quality initial and continued education, one that enables them to clearly understand their goals and contents; content-specific methodology so as to provide learning conditions and to foster constant evaluation, i.e., enable teachers to judiciously prepare and develop their teaching plans; collective construction of the Political-Pedagogical Project, aimed at decentralizing and democratizing the pedagogical, legal, and organizational decision-making process; search for increased participation of school stakeholders; significant role of school principal and coordinators in promoting collective and collaborative work; availability of adequate work conditions so that all school personnel can perform their tasks successfully; and democratic management, enabling participation of the community in school activities and actions.

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Chapter 2

STUDENT PERCEPTION OF TEACHERS' NATIONAL COUNCIL FOR THE ACCREDITATION OF TEACHER EDUCATION AND CALIFORNIA COMMISSION ON TEACHER CREDENTIALING DISPOSITIONS

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ABSTRACT

The purpose of this quantitative study is to identify what relationship, if any, exists between (a) teachers' perception of their own moods and behaviors that align with National Council for the Accreditation of Teacher Education's (NCATE) teaching dispositions and California Commission on Teacher Credentialing (CCTC) standards within the classroom and (b) their students' perception of teachers' moods and behaviors that align with NCATE teaching dispositions and CCTC standards within the classroom. This study focused on students in Grades 9 through 12. This study also examined whether students' academic achievement, as measured by their course grades, affects students' perception of their teachers' in-class moods and behaviors. The study gathered self-report data about (a) students' perceptions of the teacher's dispositions based on students' observations of teacher behavior in the classroom and (b) teachers' self-report about their own dispositions. These dispositions are conceptually equated with teacher attitudes and are based on the NCATE dispositions. The Student Perception Survey created by the researcher was used to gauge the students' perception of particular dispositions observed within the classroom setting. The National Council for the Accreditation of Teacher Education dispositions state there are certain attitudes and behaviors teachers should use in the classroom, which align with the dispositions measured by the Student Perception Survey. This method was selected to assess the relationship between (a) the NCATE dispositions as indicated by current observable moods, attitudes, and behaviors as perceived by students, and (b) student grades. The results of the study suggest that the disposition of belief of a student's ability to learn is being accurately perceived and being displayed by the teachers in the classroom. The findings also suggest that although the students like their teachers, the students perceive that their teacher's treatment as unfair whether it be toward themselves or other students, therefore the disposition of fairness is not being accurately displayed in the classroom.

Keywords: student perception, dispositions, fairness, NCATE, belief.

1. INTRODUCTION

NCATE (2008) defines dispositions as "professional attitudes, values, and beliefs demonstrated through both verbal and non-verbal behaviors as educators interact with students, families, colleagues, and communities" (National Council for the Accreditation of Teacher Education [NCATE], 2008). Those verbal and non-verbal behaviors, because of the aforementioned reasons, not to mention any personal issues that an educator might have, could possibly be factors that affect quality of teaching or quality education in the classroom (Kozol, 2007). Students may perceive teachers' verbal and non-verbal behaviors either positively or negatively, which might affect students' ability to learn. Teachers' interactions with students, therefore, affect the student's aptitude to focus on current issues,

such as the concepts they are to learn or their education in general (Wong, Wiest, & Cusick, 2002).

NCATE (2008) made it the responsibility of each state to create additional dispositions based on the states own laws and regulations. Therefore in 2009, California Department of Education, along with the California Commission on Teacher Credentialing, created the California Standards for the Teaching Profession (CSTP). The purpose of these standards is to “represent a developmental, holistic view of teaching, and are intended to meet the needs of diverse teachers and students in California” (California Commission on Teacher Credentialing [CCTC], 2009, p. 3).

The problem, therefore, is if educational organizations throughout the United States are accurately evaluating teachers based on the NCATE dispositions. Furthermore, are educational organizations determining whether they are utilizing NCATE and state teaching and educational standards effectively in order to create an organization that is fair and driven by student need. More specifically, are organizations reviewing the NCATE dispositions for the teaching profession and the effectiveness of those dispositions within the classroom, with the aim of increasing the quality of education for students.

2. BACKGROUND

2.1. The Importance of NCATE Teaching Dispositions

Before NCATE defined their dispositions, many colleges of education already defined what could be termed *job-related soft skills* (such as promptness, effective verbal and non-verbal communication skills, positive attitude, organization, appropriate professional dress, and ability to work positively with others) on which they would evaluate candidates (Jensen, 2004). These behaviors were to address how educators were to perform their job. Sockett (2009) states that a disposition has three particular characteristics:

First, a disposition is a disposition to act (friendliness), not merely to “be” (closed to experience). Second, a disposition to act implies awareness of what one is doing (e.g., being friendly). Third, acting with awareness implies that a person acts with intention: That is, this specific act is intended as a friendly act (p. 292).

The NCATE (2008), founded in 1954, represents community educators and policymakers. In their response to No Child Left Behind and the shortage of well-prepared teachers, dispositions in teacher education were defined in order to provide a guide by which every teacher should be held accountable. Damon (2008) discussing the definition of dispositions that the term signifies beliefs and attitudes, which reflect a bearing on moral on a personal level to public fairness and impartiality.

The NCATE (2008) dispositions are defined as “professional attitudes, values, and beliefs that are demonstrated through both verbal and non-verbal behaviors, such as educators’ interactions with students, families, colleagues, and communities” (pp. 89-90). According to the NCATE, these dispositions were created, “to develop rigorous standards for educator preparation and to evaluate institutions according to those standards” (p. 6).

Those verbal and non-verbal behaviors, not to mention any personal issues that an educator might have, could possibly be factors that contribute to the lack of quality teaching or quality education in the classroom. The students could perceive these verbal and non-verbal behaviors as personal attacks, thereby restricting the student’s ability to focus on the current issues, meaning either the concepts they are there to learn or their education in general. Professional educators can make an important difference to student learning by thoughts of how they are disposed toward the students, reasons they teach, and curriculum (American Association of Colleges for Teacher Education [AACTE], 2010).

There are two primary professional dispositions that the NCATE (2008) requires all organizations to use to measure a teacher's performance: (a) fairness and (b) the belief that all children can learn. While the NCATE only lists the two professional dispositions, an amendment adds that each organization should base its own professional dispositions on their mission statement and conceptual framework. The California Commission on Teacher Education standards as well as other States educational organization standards is based on the NCATE dispositions for the creation of their own teacher evaluation processes.

Dispositions, in general, mean how teachers are inclined toward students, the curriculum, and the reason they teach. The way teachers educate, the curriculum that is taught, and the reasons the teachers teach, may affect the students' success. From review of the literature, studies show that student academic success is dependent not only on the students' ability but may also depend on parent involvement, difficulty of academics, lack of commitment, and teacher interaction in an educational setting (Jeynes, 2007).

One study conducted by Thornton (2006) describes dispositions and teacher quality. According to Thornton, within teacher preparation programs and discussions of teacher quality, knowledge and skills are essential elements; however, "dispositions remain neglected in teacher education" (p. 53). When describing dispositions and their role in teacher education, the researcher explains that the foundations of dispositions began in the studies of philosophy and psychology, where dispositions are the difference between thought and judgment. According to Ritchhart (2001), dispositions take a place between our emotions and our abilities in teacher performance and those actions which we are disposed toward.

Another concept surrounding dispositions is that they are directly related to teachers' actions and behaviors in a school setting (Thornton, 2006). The exhibited behaviors include (a) modeling positive actions and (b) positive marks on rubrics and rating scales that measure state teaching standards and national standards for expectations of beginning teachers. Thornton (2006) states that the language, for which these behaviors are expressed, was more about instructional practice than teaching dispositions. The researcher also states that because teacher education programs are replacing the terms *value*, *belief*, or *committed* when discussing competencies and expectations of teachers, the dispositions appear to be expected teaching behaviors and pedagogical practices.

Teaching professional behaviors such as "attendance, work ethic, preparation, punctuality, sense of humor, and appropriate dress" (Thornton, 2006, p. 55) are another view of how dispositions should be defined. Sockett (2009) describes dispositions as personality traits that are intentional and reflective:

First, without the manifestation of a disposition being intentional, it is difficult to see how effectively a teacher could undertake sustained reflection on his or her (intentional or unintentional) teaching actions and/or their intended or unintended consequences. For the reflection must in part be on the way in which the teaching acts actually did manifest the disposition (p. 298).

A 3-year study conducted by Thornton (2006) interviewed 16 teachers defined as high quality teachers and 120 students from an urban area. The results of the teacher interviews showed that the teachers who participated in the study articulated the original goals of the group of educators who planned for the summer session. Those teachers who complied with the plans were the teachers that the students mentioned when the researcher interviewed them. It was also noted that teachers who continued to work as they usually did "were those who were identified as less effective in the student and pre-service teacher interviews" (Thornton, 2006, p. 61).

Thornton (2006) set forth to define and identify technical and responsive dispositions in action by showing the differences among the way the teachers practiced. Thornton created the following definition:

Dispositions are habits of mind, including both cognitive and affective attributes that (a) filter one's knowledge, skills, and beliefs and (b) impact the action one takes in classroom or professional setting. They are manifested within relationships, as meaning making occurs with others, and they are evidenced through interactions in the form of discourse (p. 62).

Sockett (2009) and Thornton (2006) relay that dispositions are developed in action with awareness and intent. "Reflection on such actions is based on the intentionality of those acts, and judgment is always necessary" (Sockett, 2009, p. 295). Therefore, another way to describe the focus of this study is that it intends to use student observation and perception to determine the intentionality of the dispositions and how they affect student achievement.

2.2. Student Perception of Education

Studies have shown that a young learner's ability to achieve in school is not only dependent on the teachers' ability to perform but also other factors that may help or hinder student achievement (Totura et al., 2009). In Totura et al.'s *Bullying and victimization among boys and girls in middle school*, the researchers describe the home and school environment and the context that students perceive when exhibiting bullying behaviors or victim behaviors. For this study, 20 to 30 students completed student surveys that addressed internalizing and externalizing behaviors in relation to students' home life and the school environment.

The research showed that students who possessed support from family and school staff engaged in fewer problems in peer relationships because they were more focused on their academics, whereas those students who experienced a disruptive school environment or perceived a lack of support from home or school staff were more likely to be the aggressor than the one victimized. It is expected that students with internalizing and externalizing difficulties would be at particular risk for marginalization and negative peer relations if they report coming from families and school environments that exhibit supportive characteristics to a lesser extent or are disengaged from classroom activities, as evidenced by poor academic performance (Totura et al., 2009, p. 578).

Way, Reddy, and Rhodes (2007) discovered that during the sixth grade, students showed optimistic sensitivity toward teachers and peers; however, as the student's moves through middle school, their ideas changed for every year thereafter. For these students, teacher and peer support decreased. Gender specific and socioeconomic status was also observed. Initially, girls perceived teacher support to be positive but gradually experienced decreased support as they matriculated through middle school. Also, girls experienced less peer support more than boys as time changed. A change in students' perceptions of progressive teacher support was coupled with amplified depression warning signs and behavior issues (Way et al., 2007). Students do not always have or perceive the support that they sometimes need in order to guide them to academic success. "Because teachers are the primary adult figures within the academic setting, their impact on students is also important" (Wong et al., 2002, p. 257).

Attachment relationships that children form include teacher relationships as well as peer relationships that they might maintain through their lifetime and that help them further explore their environment. Wong et al. (2002) noted the importance and relevance of the student-to-teacher relationship and how important it is to student academic achievement

and motivation. Their research showed that when students perceived support from teachers, they achieved. Students felt support, showed academic effort, and were more likely to show interest in classroom activities. When there is a strong student-to-teacher relationship, the student shows progress for years to come. Conversely, the lack of teacher support resulted in negative student perception, negative attitude, and lack of interest toward learning.

Social support is the start of the student's perception of their educational environment. Walker, Foote, and Greene (2009) reported when students are comfortable in a setting, they feel included and are more likely to focus on the learning process and their abilities that make that understanding possible. Walker et al. also suggests that a teacher whose goal is to help a student achieve would experience growth by evaluating their classroom environment. A teacher evaluating their own environment, and then making changes based on their evaluation might find that the student's perception as well as behavior may change as result of those evaluated changes. This would encourage a sense of belonging for the students.

3. OBJECTIVES

The purpose of this quantitative study was to identify what relationship, if any, exists between (a) teachers' perception of their own dispositions and behaviors that align with NCATE teaching dispositions and CCTC standards within the classroom, (b) their students' perception of teachers' dispositions and behaviors that align with NCATE teaching dispositions and CCTC standards within the classroom at ABC School, and (c) whether students' academic achievement, as measured by their course grades, relates to students' perception of their teachers' in-class dispositions and behaviors. This study focused on students in Grades 9 through 12 at ABC School.

3.1. Statement of the Problem

The problem is that educational organizations throughout the United States need to accurately evaluate teachers based on the NCATE dispositions. Furthermore, educational organizations need to determine whether they are utilizing NCATE and state teaching and educational standards effectively in order to create an organization that is fair and driven by student needs. More specifically, organizations need to review the NCATE dispositions for the teaching profession and the effectiveness of those dispositions within the classroom, with the aim of increasing the quality of education for students.

Many studies have been performed to analyze teachers' application of NCATE dispositions within the classroom. Misco (2007) questions whether teachers have forgotten about the dispositions in their quest to prepare students for higher learning and life. This researcher suggests a framework where students gain dispositional knowledge through educational habits. Jensen (2004) studied how teachers are disposed to their students and reasons behind their love of teaching. However few studies have focused on student perception of teachers' application of NCATE teaching dispositions within the classroom. Clearly, student's perceptions of teachers' behaviors may affect their academic achievement and their affect toward teachers (Jeynes, 2007; Kozol, 2007; Wong et al., 2002).

3.2 Method

The Teacher Disposition Survey and the Student Perception Survey were created by the researcher using wording from two NCATE teaching dispositions, namely, fairness and the belief that every student can learn. Both surveys created by the researcher contain 32 statements that measure fairness and a teacher's belief in their students' ability to achieve. Using the Likert scale, both surveys contain questions about fair treatment, unfair treatment, belief in the students' abilities, and student-perceived dispositions of the teacher. This self-assessment was used to measure both teachers' perceptions and students' perceptions of in-class teacher disposition and behavior. Knowledge gained from this study of student's perception may assist educators in analyzing the effects of their in-class dispositions or behaviors and in creating additional means of assisting teachers in consciously utilizing more effective classroom dispositions and behaviors.

4. RESULTS OF THE SURVEY

4.1. Research Question 1

The survey given to teacher participants asks: What are teachers' perceptions of their own in-class disposition at ABC School, as measured by the Teacher Disposition Survey which aligns with National Council for Accreditation of Teacher Education (NCATE) teaching dispositions and California Commission on Teacher Credentialing (CCTC) Standards? Table 4 displays descriptive statistics for the questions, which are sorted from highest to lowest mean score. Each teacher participant rated each question on a 5-point scale from 1 = *strongly disagree* to 5 = *strongly agree*.

Table 1. Descriptive statistics for Teacher Perception Survey sorted by highest mean score.

Questions	<i>M</i>	<i>SD</i>
7. I typically allow my students to ask questions.	5.00	0.00
2. I believe I treat my students fairly when giving grades.	4.89	0.33
16. I care about my students' success.	4.89	0.33
1. I believe I treat my students fairly in the classroom.	4.78	0.44
31. I like being a teacher.	4.78	0.44
32. I like my students.	4.78	0.44
6. I typically make my students feel welcomed.	4.67	0.50
24. I listen when students have issues.	4.67	0.50
20. I praise or otherwise give recognition to my students when they do well.	4.56	0.53
21. I do not allow any students to mistreat other students.	4.56	0.53
23. I show my students that I care.	4.56	0.73
8. I believe I am fair.	4.44	0.73
11. I make my students feel comfortable to speak in class.	4.44	0.73
18. I believe in my students.	4.44	0.53
17. I have confidence in my students' abilities.	4.33	0.50
3. I believe I treat my students fairly when asking questions.	4.22	0.44

Table 1. Descriptive statistics for Teacher Perception Survey sorted by highest mean score (cont).

5. I interact with my students one-on-one regularly.	4.22	0.97
19. I differentiate instruction for students who may have trouble understanding the lessons.	4.22	0.83
25. I tend to be pleasant.	4.22	1.09
14. I help my students when they have problems.	4.11	1.27
22. My students know they can trust me.	4.11	1.05
30. I believe my students like me.	3.89	0.60
4. I believe I receive a fair response when students ask questions.	3.78	0.44
27. I treat all students the same.	3.44	1.42
28. I may embarrass students at times.	3.11	0.93
10. I sometimes I find myself ignoring certain students.	2.33	1.32
9. I often teach to only a select group in class that seems motivated to learn.	2.22	1.20
15. My attitude in the classroom does not affect the student's academic performance.	2.11	1.17
26. I tend to be angry or hostile at times.	2.11	1.17
12. I sometimes display non-verbal behaviors that may make the students feel uncomfortable.	2.00	1.32
13. I treat some students unfairly sometimes.	1.89	0.93
29. I sometimes take my emotions out on students.	1.89	1.27

Note: ($N = 308$). Ratings based on 5-point scale: 1 = *strongly disagree* to 5 = *strongly agree*.

Item 7, “I typically allow my students to ask questions”, was the highest rated ($M = 5.00$), along with item 2, “I believe I treat my students fairly when giving grades” ($M = 4.89$). Rating lowest was item 2, “I sometimes take my emotions out on students” ($M = 1.89$) and item 13 and “I treat some students unfairly sometimes” ($M = 1.89$; see Table 2).

4.2. Research Question 2

The student survey asked: What are students' perceptions of their teachers' in-class disposition at ABC School, as measured by the Student Perception Survey, which aligns with NCATE teaching dispositions and CCTC Standards? Table 2 shows descriptive statistics for the 32 student survey questions sorted from highest mean score to lowest mean score. The ratings were based on a 5-point metric scale (1 = *strongly disagree* to 5 = *strongly agree*).

Table 2. Descriptive statistics for Student Perception Survey ratings sorted from highest to lowest.

Questions	<i>M</i>	<i>SD</i>
10. I believe my teacher ignores me. ^a	4.15	1.00
1. I believe my teacher treats me fairly in the classroom.	4.08	1.08
4. I believe I receive a fair response when asking questions.	4.03	1.00
3. I believe my teacher is fair when asking questions.	4.02	1.00
7. I am always able to ask questions.	4.00	1.09
2. I believe my teacher treats me fairly when giving grades.	3.98	1.09
14. I believe my teacher helps me when I have problems.	3.95	1.08
5. My teacher interacts with me regularly.	3.92	1.04
12. My teacher does things that make me feel uncomfortable. ^a	3.92	1.19
24. My teacher listens when I have a concern.	3.91	1.02
21. My teacher does not allow other students to mistreat me.	3.89	0.94
11. I don't feel comfortable to speak in class.	3.89	1.12
31. My teacher seems to like being a teacher.	3.87	1.03
30. I like my teacher.	3.87	1.16
6. My teacher always makes me feel welcomed.	3.85	1.12
23. I believe my teacher is caring.	3.85	1.01
16. I believe my teacher cares about my success.	3.85	1.10
20. My teacher praises or recognizes me when I do well.	3.84	1.04
8. I believe my teacher is fair.	3.81	1.11
32. I believe my teacher likes me.	3.78	1.09
18. My teacher believes in me.	3.78	1.06
17. My teacher shows me that he or she has confidence in me.	3.74	1.08
22. My teacher is someone I can trust.	3.73	1.16
25. My teacher is pleasant.	3.72	1.14
26. My teacher is angry or hostile. ^a	3.71	1.17
15. My teacher's attitudes affect my academic performance. ^a	3.65	1.19
19. My teacher makes sure I understand the lessons.	3.63	1.18
13. I believe my teacher treats some students unfairly.	3.50	1.31
9. I believe my teacher teaches some students more than others in class. ^a	3.42	1.25
28. My teacher embarrasses students. ^a	3.40	1.30
29. My teacher takes his or her emotions out on students. ^a	3.29	1.31
27. My teacher treats all students the same. ^a	3.28	1.26

Note: (*N* = 308) 1 = *strongly disagree* to 5 = *strongly agree*.

^a Negatively worded items where *strongly disagree* was the most favorable answer.

The highest rated statements were Item 10, [reverse scored], "I believe my teacher ignores me" (*M* = 4.15) and Item 1, "I believe my teacher treats me fairly in the classroom" (*M* = 4.08). The lowest rated items were Item 27, "My teacher treats all students the same" (*M* = 3.28) and Item 29, "My teacher takes his or her emotions out on students" (*M* = 3.29).

4.3. Research Question 3

Is there a relationship between (a) teachers' perceptions of their own dispositions as measured by the Teacher Disposition Survey and (b) students' perception of their teacher's disposition as measured by the Student Perception Survey? The four subscales scores for the teachers were compared to the four equivalent subscale scores for the students. The specific correlations are as follows: fairness ($r = -.18, p = .001$), belief ($r = .06, p = .26$), Perception ($r = .17, p = .002$) and total perception ($r = -.03, p = .64$). Scale 1: Fairness showed a significant negative correlation ($r = -.18, p = .001$). The Teacher's perception of fairness is different than the student perception of fairness ($r = -.18, p = .001$).

For Scale 2: Belief, there was no significant relationship between Teachers belief score and students belief score ($r = .06, p = .26$). Scale 3: Perceptions, there is a significant positive correlation between the teacher's perception score and the student's perception score ($r = .17, p = .002$). For Scale 4, the total scale shows there is no significant relationship between the teachers' total score and the student's total score ($r = -.03, p = .64$).

4.4. Research Question 4

Is there a relationship between average students' course grades and their perceptions of teachers' dispositions as measured by the student grades from ABC School and the Student Perception Survey? To answer this question, the student's first semester grade was correlated with the four scale scores and the 32 perception ratings. For the resulting 36 correlations, nine were significant at the $p < .05$ level. The three largest correlations were the student's grade with: Item 29, "My teacher takes his or her emotions out on students" ($r = -.24, p = .001$), Item 9, "I believe that my teacher teaches some students more than others in class" ($r = -.16, p = .006$), and Item 7, "I am always able to ask questions" ($r = .14, p = .01$).

4.5. Additional Findings

The student's grade level (9th to 12th) was correlated with the four scale scores and the 32 perception ratings. For the resulting 36 correlations, 28 were significant at the $p < .05$ level. The three largest correlations were the student's grade level with: Item 2, "I believe my teacher treats me fairly when giving grades" ($r = .28, p = .001$), Item 22, "My teacher is someone I can trust" ($r = .27, p = .001$), and Item 30, I like my teacher ($r = .26, p = .001$).

4.6. Summary of Findings

Research question 1. What are teachers' perceptions of their own in-class disposition at ABC School, as measured by the Teacher Disposition Survey, which aligns with NCATE teaching dispositions and CCTC Standards as measured by the 32-item Teacher Disposition Survey? The data set for this research question was drawn from the Teacher Disposition Survey created by the researcher. According to the 4 subscales, the mean scores were Fairness, $M = 4.06$, Belief $M = 4.34$, Verbal/non-verbal dispositions, $M = 3.92$ and the total scale $M = 4.11$. The highest self-rated item was belief with a mean of 4.34. There were 10 questions teachers answered dealing with Belief that the students can learn.

The highest rated item among the teachers was item 16, "I care about my students success" ($M = 4.89$). Items 20, 21 and 23 were tied with a mean of 4.56, "I praise or otherwise give recognition to my students when they do well", "I do not allow any students to mistreat other students", and "I show my students that I care". The lowest rated items

were item 13, "I treat some students unfairly" ($M = 1.89$, reversed scored), and item 10, "I sometimes find myself ignoring certain students" ($M = 2.33$).

The lowest rated items, Item 13 and Item 10, show that the teacher respondents were in agreement that they believe they treat the students fairly and they do not to ignore students. However, it may be necessary for a teacher to briefly ignore a student who is exhibiting poor behavior when trying to teach in order to prevent class disruption.

The lowest rated subscale was perception ($M = 3.92$). This subscale included eight items. The highest rated was item 31, "I like being a teacher" ($M = 4.78$) and item 32, "I like my students" ($M = 4.78$). The lowest rated item within this subscale was item 29 ($M = 1.89$; reversed score), "I sometimes take my emotions out on students" and Item 26 ($M = 2.11$), "I tend to be angry or hostile at times".

Research question 2. What are students' perceptions of their teachers' in-class disposition at ABC School, as measured by the Student Perception Survey, which aligns with NCATE teaching dispositions and CCTC Standards? The data set for this research question was drawn from the Student Perception Survey created by the researcher. According to the 4 subscales, the mean scores were fairness, $M = 3.80$, belief $M = 3.82$, perception, $M = 3.73$ and the total scale $M = 3.79$. The highest self-rated item was belief with a mean of 3.82. There were 10 questions students answered dealing with belief that the students can learn.

The highest rated item among the students was item 10, "I believe my teacher ignores me" ($M = 4.15$.) The results show that the students agreed that with the statement. When students perceive the Teachers are available to help them it builds positive teacher student relationships. Teachers however are under tremendous pressures to meet district or state educational requirements and have limited time to pay attention to the personal needs of students.

The lowest rated item within the Belief Subscale for Students was item 13, "I believe the teacher treats some students unfairly" ($M = 3.50$) and item 19, "My teacher makes sure I understand the lessons" ($M = 3.63$). The findings suggest that students may feel that teachers do not always take their time when addressing students or making sure the student understands the lesson. Teachers are under constant pressure to pace their lesson according the state guidelines. The findings suggest that the disposition of belief of a student's ability to learn is being accurately perceived and being displayed by the teachers in the classroom.

The lowest rated subscale from the student survey was perceptions ($M = 3.73$). The highest rated items within the perception subscale was item 11, "I don't feel comfortable to speak in class" ($M = 3.89$). Also rated highly was item 30, "I like my teacher" and item 31, "my teacher seems to like being a teacher" ($M = 3.87$ for both). The data set suggests that the perception of the teacher is one that is positive in that the teacher is likable and they like their job. However, the data set shows that the students do not feel comfortable speaking in class.

The lowest rated item in the perception subscale was item 29, "My teacher takes his or her emotions out on students" ($M = 3.29$). The findings of this item suggest that some students felt the teacher displayed certain emotions in class and some did not. These emotions could have been positive or negative emotions however student could perceive them either way.

Research question 3. Is there a relationship between (a) teachers' perception of their own disposition as measured by the Teacher Disposition Survey and (b) students' perception of their teacher's disposition as measured by the Student Perception Survey? For research question 3, in addition to descriptive statistics, Pearson correlation analysis was applied to examine possible relationships between teacher's perception of their

teaching dispositions and student's perception of the teachers' verbal and non-verbal behaviors and how they relate to the NCATE teaching dispositions. For scale 1, fairness showed a significant negative correlation ($r = -.18, p = .001$). Teachers thought that they were fair whereas students thought differently. This could be due to several factors.

The data from scale 2, belief in student's ability to learn, showed there was not significant relationship between the teacher's belief and the student's perception of the teacher's belief in their ability to learn. The findings suggest that the disposition of belief in a student's ability to learn is being exhibited within the classroom.

For scale 3, perceptions, correlations showed that there was a positive significant correlation between the teacher's disposition and the student's perception of the dispositions ($r = .17, p = .002$). The findings suggest that the student's perception of the teacher was positive and that verbal and non-verbal behaviors are being exhibited within the classroom, which is aligned with NCATE and CCTC teaching dispositions.

Total 4 score showed that there was no significant relationship between the teacher's total score and the student's total score ($r = -0.03, p = .64$).

Research question 4. Is there a relationship between average students' course grades and their perceptions of teachers' dispositions as measured by the averaged students' course grades and the Student Perception Survey? For scale 1, fairness, student grades were significantly higher when they had a higher fairness score ($p = 0.04$), had a higher perception score ($p = 0.03$) and a higher total score ($p = .05$). When the students thought the teacher was fair, the students performed better. These findings suggest that there is a relationship between average student's course grades and the teacher's disposition within the classroom. This result should be interpreted cautiously, because this result may indicate that (a) positive teacher disposition results in greater student learning or that (b) negative teacher disposition is found in teachers who grade more strictly.

Additional Findings. A correlation between Grades 9 to 12 showed that students in higher-grade levels produced higher student survey scores. The additional findings suggest that with age come wisdom and a more mature understanding of their role as a student in the teacher-student relationship.

5. RECOMMENDATION FOR FUTURE RESEARCH

Little research exists on student perception of teacher dispositions. The researcher recommends the following future studies:

1. Replicated studies of student perception of teacher disposition with further focus on inner city or urban schools, gender-specific, ethnic-specific, age-specific, or economic specific study.
2. Contrast or comparisons of different states evaluation of the teaching disposition.
3. The relationship between student perception and administrator perception of the teaching dispositions.
4. Effective evaluations of teacher dispositions. NCATE has stated that it can be difficult to evaluate the disposition

Similar study to address the verbal or non-verbal attitudes and behaviors that teachers are to exhibit within the classroom.

6. CONCLUSION

The nation is calling for education reform. When considering education reform, educators should include evaluative practices that address the dispositions. This study has provided evidence that the dispositions are an important part of education and should be included when discussing educational reform. For future teachers, it is imperative that current educational leaders take steps to stress not only the importance of being knowledgeable but also creating positive relationships with their students. Specific courses should be dedicated to the dispositions not just curriculum and pedagogy.

This study further supports research that advances the importance of student perception in educational practices. Efforts should be made to address the issue of fairness early in a student's educational journey to prevent further destruction of the educational system and society. Students are dropping out of high school at an alarming rate. Their perception is important. If a student's perception is one of the reasons for this problem then leaders must further evaluate the verbal and non-verbal dispositions as well as teacher quality and effectiveness.

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Chapter 3

ACADEMIC TRANSITION AND PEER TUTORING A case study at the University of Padova

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ABSTRACT

According to the European Space for Higher Education document by the Confederation of European Rectors' Conferences (Finocchietti, Foroni, Palla, & Sticchi Damiani, 2013), research, teaching activities, and orientation/tutoring programs enhance the university's educational offer. Students entering the university who are not fully aware of the challenges ahead risk abandoning their endeavours (Chickering & Gamson, 1987; Álvarez Pérez, Cabrera Pérez, González Afonso, & Bethencourt Benítez, 2006). Cognitive-social approach theories (Lent, Hackett, & Brown, 2004) highlight the importance of preparatory activities assisting students in making appropriate decisions and in facing new challenges. Like many European counterparts, the University of Padova (Italy) has initiated tutoring services including pre-enrollment orientation, freshman welcoming activities, ongoing tutoring initiatives, and outgoing orientation. "Open Day," an initiative organized by the University's Tutoring Service of the Teacher Education Program, is an aspect of that service. Junior tutors, students enrolled in second-cycle degree courses, organize the initiative each year by holding workshops for new students interested in various degree courses. Here we describe the University's tutoring service in all of its manifestations and in particular focusing on the "Open Day" orientation experience. This observational study falls within the context of the (STPD08HANE_005¹) project promoted by the University whose aim was to analyse developments and trends in higher education, and to assist students in achieving academic success.

Keywords: peer tutoring, entrance counselling, tutor, drop-out, academic transition.

1. INTRODUCTION

The importance of educational continuity between the secondary school and the university system has been emphasized particularly over the past decade by European policy-makers. In March 2001 during the European Council Meeting held in Stockholm, the "Instruction" Council identified three basic objectives: (i) to increase the quality and the efficacy of instruction and teacher education in the European Union, (ii) to facilitate access to it, (iii) to open these systems to the rest of the world (Bertagna & Puricelli, 2008, p. 34).

¹ For further information see Zago, G., Girado, A., & Clerici, R. (2014). Successo e insuccesso negli studi universitari: Dati, interpretazioni e proposte dall'ateneo di Padova [Success and failure in university studies: Data, interpretations and proposals by the University of Padova]. Bologna, Italy: Il Mulino. The work describes the results of a study falling within the context of a strategic university project entitled: Learning Difficulties and Disabilities from Primary School to University: Diagnosis, Intervention and Services for the Community (STPD08HANE_005) developed by the Department of Philosophy, Sociology, Education, and Applied Psychology of the University of Padova. <http://www.unipd.it/ricerca/finanziamenti/finanziamenti-ateneo/progetti-strategici-ateneo>

The importance of providing support systems promoting student awareness as high school students/graduates approach the university and throughout their academic journey was also highlighted.

2. STUDENT NEEDS

Recent investigations (Rodríguez Moreno, 2002; Toscano & Monescillo, 2010; Lucangeli, Callegari, & De Gasperi, 2010; Johnston, 2013) have demonstrated that some students encounter difficulties during the transition from high school to the university systems. Those studies have highlighted the need to potentiate the flow of communication through a network which promotes the exchange of information and thus the transition from secondary school to the university. The transition may prove problematic for a variety of reasons: differences in teaching styles/methods at the university with respect to high school strategies; loss of reference points such as friends, classmates, families, teachers, and living situations; the difficulty in meeting new academic requirements.

In response to recommendations by the Council of the European Union (2001), many continental universities have begun to employ a variety of support systems in order to identify and meet student needs. The needs linked to student orientation can be classified into three types: (i) the need for general information about the university system; (ii) needs of an educational type such as requests for help to attain a higher level of knowledge and/or learning skills and/or to encourage the development of appropriate study habits and techniques; (iii) the need for a specific kind of counselling implicating individual, psychological and/or motivational support.

3. TRANSITION: A PHASE IN THE INTEGRATION PROCESS

The transition from high school to the university system is a crucial moment in the student's life course in view of the important decisions that must be made including, and most importantly, the choice of the course of studies to follow (Hernández, 2004; Álvarez, Bizquerra, Espín, & Rodríguez, 2007; Santana Vega, & Feliciano, 2009; Bertagna & Puricelli, 2008).

The experience can disorient anyone if the emotions characterizing that transition period and the doubts and uncertainties linked to it are faced without a conscious awareness of one's aptitudes, interests, abilities and proficiencies, and especially in the event the student foresees no prospect of being able to carry out a specific professional activity. The obstacles/difficulties encountered by a student who is not highly motivated can lead to the decision to abandon the university.

The first or freshman year is one of the most critical periods of the university experience and coincides with numerous social changes and emotional and psychological challenges. A lack of information just as an inadequate academic or cultural preparation can impede the student's integration into the university context and can lead to the decision to drop-out (Álvarez Pérez et al, 2006; Andreu, 2008).

Johnston (2013, p. 19) defined the transition as a concept composed of two faces of the same medal:

- The transition the student must make at the beginning of a university course of studies;
- The study programs and other activities through which the university furnishes student support.

The transition, according to Johnston (2013, p. 20), is then made up of different dimensions linked to personal, academic, economic, and social expectations which can be synthesized as follows:

- Cultural and community changes: the transition from high school to the university can implicate a change in social class, culture, social relations, at times, even in language.
- Academic changes: the student is faced with an entirely different situation with respect to the high school one. The teaching method and approach are different; the testing timetable and grading system are different. A different study method is unquestionably necessary. While students have more freedom in organizing their time, they are also held responsible for more academic material and at times may be expected to work in study groups.
- Social changes: when students begin the university they enter a new, larger community; some have moved to a different city distant from family and friends, and many encounter, for the first time, persons with a completely different cultural baggage.
- Personal changes: students must assess themselves realistically and learn to face ever more complex and challenging intellectual tasks. Students also need to learn autonomous living skills, to face economic pressure, and to manage stress.

Recent studies have demonstrated that many freshmen are unprepared for the transition and this can explain why entering a new educational system can lead to difficulties that can trigger course changes, study delays, or even the decision to abandon the university (Rodríguez, Fita & Torrado, 2003; Rembado, Ramírez, Viera, Ros, & Wainmaier, 2009).

4. EFFORTS TO CURTAIL THE DROP-OUT PHENOMENON

The drop-out phenomenon is considered a worldwide “social problem” involving all educational levels from elementary school to the university.

According to data gathered by the *Comitato Nazionale per la Valutazione del Sistema Universitario* (the National Committee for the Evaluation of the University System [CNVSU], of the nearly 285 thousand freshmen who enrolled in Italian state universities during the 2006-2007 academic year, approximately 232 thousand continued with their studies, meaning that the drop-out rate was 18.5%. The drop-out rate for students who enrolled in the 2007-2008 academic year was 17.5%, and for those enrolled in the 2008-2009 academic year, it was 16.7% (CNVSU, 2011, p. 56).

As hypothesized by some studies (De Beni, 2002; Smith & Naylor, 2001; Tinto, 1975, 1993), the interpretative key of this pattern could be the difficulty in autonomously managing study organization and in facing the transition to a new system. On the one hand, although students have fewer opportunities to verify and compare their learning skills, they need to adapt their study methods to meet the demands of the new educational system. On the other, those same students are required to manage their time, responsibilities/commitments, and spaces in a context that is more elastic although more challenging with respect to the high school one (Arcuri, Paggin, & Zago, 2002; Chickering & Gamson, 1987). The incapacity to organize their commitments and to adapt their study methods seems to be the major cause of stress when students enter the university and thus the cause of drop-outs and/or study delays.

As emphasized by Zago, Giraldo, and Clerici (2014) “... another risk factor for university failure is having a “weak” high school background (having attended a technical

or professional institute, a low final grade, an unsatisfactory scholastic record).” Those same authors went on to explain that “besides individual factors, aspects regarding the course of studies must be taken into consideration. The interventions and/or services created by the university should therefore be differentiated and measured just as students’ characteristics need to be analyzed and monitored” (p. 55).

Knowing which risk factors are linked to drop-outs or delays can lead the way to preventative measures and interventions for students most in need.

5. COUNSELLING AT THE TIME STUDENTS ENTER THE ITALIAN UNIVERSITY

The 341/1990 Italian law introduced peer tutoring in all Italian universities. This law aims to guarantee students “a fruitful participation in university courses of studies” also through counselling and tutoring activities.

In order to achieve these goals, the Conference of Italian University Rectors (CRUI) delineated university orientation and tutoring activities and distinguished four phases:

- Ingoing orientation - for students who are facing the university experience for the first time;
- Welcoming activities - for students who have just enrolled;
- Tutoring (ongoing orientation) - for students enrolled in a university course of studies;
- Outgoing orientation - for students who are about to or have just completed their course of studies (Conferenza dei Rettori delle Università italiane [CRUI], 1995).

Bertagna and Puricelli (2008, p. 63) delineated three types of “guidance needs” that students embarking on a university experience generally demonstrate:

- Information needs - students often require information about various practical aspects with regard to the university system;
- Learning assistance needs - students may require help in reinforcing their basic secondary school preparation or in learning more appropriate study methods/skills;
- Specific needs for specialized guidance and/or counselling aiming to aid the student to make informed, conscious decisions or with regard to emotional or interpersonal problems.

This work focalizes on the first phase (ingoin orientation), that is, on the needs of students entering into contact with the university system for the first time. An initiative designed and tested at the University of Padova and aiming to meet future freshmen’s needs for “information” is outlined here. In particular, we examined the role of the junior tutor, students enrolled in the second-cycle degree course of studies or Doctoral School Programmes who have demonstrated competence in their course of studies and who have followed specific training programmes. Under the supervision of their teaching professors, those tutors engage in interactive activities throughout the academic year and at an open house orientation experience at its beginning during which they place their own academic experience at the disposal of potential or new university students.

6. PEER TUTORING AT ITALIAN UNIVERSITIES

Considered a turning point with regard to activities assisting students, Law 341/1990 officially introduced the orientation and tutoring system into the Italian university system. Article 6 of that law specifies that “the statutes of the university must provide for

orientation courses for students enrolling in the university and must assist them as well as those students enrolling in post-graduate courses in creating their plan of study”.

In 2005, the *Istituto per lo Sviluppo della Formazione Professionale dei Lavoratori - ISFOL* (Observatory on Social Inclusion of the Institute for the Development of Workers' Professional Preparation) (Felice, 2005) published a volume analyzing some research projects concerning mentoring and tutoring activities carried out to support students and to reduce and prevent the drop-out phenomenon at Italian universities. The former reported that only 28 Italian universities offered services to support enrolled students. Information regarding supportive activities being offered students and especially with regard to those actions carried out by “veteran” students on behalf of newer ones was also outlined.

Peer tutoring, which can be considered an educational model for and between equals, has its conceptual and hypothetical roots in community psychology, and its methodological approach is linked to the theoretical contribution of socio-cultural animation and action research by Lewin who underlined the dynamic qualities of groups as a primary resource in the workplace and in the real world.

According to that model, as far as practices utilized to socially promote and support activities between equals in a scholastic environment are concerned, students are the true protagonists of every phase of work - from its ideation to its evaluation. Psychological as well as pedagogical approaches particularly in recent decades have tended to highlight the importance of social influences during childhood and adolescence. That explains why the potential of peer education as a prevention method and as a supportive strategy between equals has been so completely embraced in the didactic sphere (Astin, 1993). It has been seen, in fact, that communication between equals is much more efficacious than that between the adult and the child (or adolescent) especially in a troubled context. Some authors have stressed that students have the greatest influence on other students' affective development and that a university's judicious and imaginative use of peer groups can strengthen its impact on student learning and personal development. As a consequence, in recent years beginning in the United States and later in Anglo-Saxon countries, scholastic peer tutoring has spread extensively both at the high school as well as at the university level (Astin, 1977; Pellai, Rinaldin, & Tamborini, 2003).

6.1. Peer tutoring at the University of Padova

Italian universities have promoted over the past decade “actions to accompany and to support students along the way (*in-itinere*), with the objective of qualitatively sustaining their educational career not only from the point of view of content but also with regard to the developmental and personal progression of each student” (CRUI, 2000).

The University of Padova has set into motion tutoring projects rooted in the 2003 peer-tutoring model that was developed in the Anglo-Saxon world (Arbizu, Lobato, & del Castillo, 2005; Da Re & Zago, 2011) and adapted to other university environments in countries such as France and Italy as an instrument to contrast the dropout phenomenon (Pedicchio & Fontana, 2000).

7. INFORMATION ORIENTATION ACTIVITIES AT THE UNIVERSITY OF PADOVA: THE OPEN DAY WORKSHOP

The Orientation Service of the University of Padova was authorized to furnish “information and consultation while students select their programs of study not only with

regard to courses and didactic opportunities but also concerning services offered the students by the university” (Lucangeli et al, 2009).

“Open Days” were conceived as encounters at the beginning of the academic year for potential freshmen still endeavouring to decide on their course of studies. Students would be given the opportunity during the day’s activities to visit university buildings including study halls, class rooms, laboratories, libraries and other venues of interest; they would receive information about courses of study, future career and job opportunities, and specific details about the selection and enrollment process; they would also be able take a simulated entrance exam.

These encounters were and are organized to give potential students the opportunity to meet in a friendly atmosphere and on an equal footing (*au pair* or *alla pari*) a fellow student (tutor) who could/can answer their questions and help to work out doubts and fears.

8. THE EXPERIENCE OF THE TEACHER EDUCATION PROGRAMME: THE OPEN DAY WORKSHOP

Every academic year the Orientation and the Right to Study and Tutoring Services and the Tutoring Service of the Teacher Education Program of the University of Padova together organize an Open Day during the summer for students interested in the three-year first level course of studies and another for students about to enroll in the two-year second level one. Beginning two years ago (2012), the Open Day for the former was organized as a workshop.

This was done in order to respond to two necessities:

- to give future students the opportunity to interact on an equal footing (*alla pari*) with students (tutors) who are (*hic et nunc*) themselves enrolled in a course of studies that they freely chose, thus creating a communicative atmosphere in which a student can feel free to express doubts and perplexities without embarrassment or fear to someone who has shared a similar experience (Torre, 2006).
- to enhance the teaching experience and the skills and competences acquired by the tutors themselves; this serves to empower them by reinforcing their self-esteem and self-determination (Croce & Gnemmi, 2003).

The rapport thus created produces positive effects not only on the person who is being assisted but also on the tutor. Defined in the literature as the “tutor effect,” it has been found to enhance the individual’s self-esteem/image, sense of accomplishment, and competence (Barnier, 1989).

Open Day lasts approximately three hours and is made up of several parts: the first is managed by the presidents of the degree program and the professors who outline the courses offered by their departments. This is followed by a general presentation by the tutors regarding courses offered by the Teacher Education Program. The students are then divided into small groups depending, in part, on the number of degree programs being presented (each participant can sit in on a maximum of two workshops). While each workshop is structured in the same way, the content varies depending on the degree program involved. More specifically, the students are given information concerning pre-enrollment and enrollment and job/career opportunities linked to a particular course of studies. During that part of the session, which lasts an hour, students can also voice concerns, raise problems or pose questions and the tutor, who is acting in the capacity of a mediator, attempts to answer the questions fully and to put the students at ease. As there are only a limited number of participants, each student has the opportunity to ask questions of specific interest. Students can take a tour around and those who wish can take a simulated

entrance exam. At the end of each workshop the tutor asks the students to fill out a feedback questionnaire that also gathers data on the participants' age, gender and place of origin.

The main theoretical references are connected to the relationship between learning and doing (J. Dewey), the concept of "self-efficacy" (A. Bandura), the link between language and action (J. B. Bruner) and the impact of peer groups on student learning and development (A. Astin).

The bibliography that exists (Frabboni, 2004; Margiotta, 2003; Truffo, 2005; Zanchin, 2002) underlines how the workshop experience focalize attention on the educational rapport (in this case in the transmission and sharing of knowledge between the tutor-student and the potential-student) regarding motivation, curiosity, participation, sharing and metacognition of knowledge and socialization. With regard to the last aspect, the workshop's feature as a socializing space facilitates both the singular activities as well as peer-tutoring exercises and group activities through intentional interactive moments between persons of the same status and age.

9. SOME FINAL REFLECTIONS ON OPEN DAY

Two important considerations emerged from the study:

- the priority of adopting a preventative approach by organizing informative encounters for potential students. Orientation activities offering information and tools so that the future student can directly learn about the university environment have proved not only useful but absolutely indispensable;
- the significance in this context of the *peer tutoring* model which was created to encourage the relationship and dialogue between the student and the tutor. The student feels closer to the tutor because of the common age and status and because the tutor places his own experience at the disposition of younger charges. A student-tutor interaction that sustains and facilitates access to the university has been found to be a positive strategy. This is because a more expert student who is about to or has already completed a program that the new freshman is just embarking upon can give useful assistance because he knows what difficulties will be found and what advice can be useful. At the same time, the freshman approaching the university world has less difficulty relating to a tutor figure and feels free to express concerns or doubts.

The Open Day activity described here briefly can be defined a case study carried out within the Italian university context, an experience that can presumably be perfected and upgraded to make it even more in tune with students' needs.

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Chapter 4

LEVELS OF ADJUSTMENT TO COLLEGE, GENDER AND ACADEMIC ACHIEVEMENT IN FIRST-YEAR SPANISH STUDENTS

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ABSTRACT

The documented difficulties that emerging adults experience during the transition to university, combined with the changing needs at this stage of life, have brought increased international attention to the adjustment of first-year university students and their academic achievements. However, surprisingly few studies have addressed this relationship in first-year students in Spain. The present study explores the relationships between levels of adjustment, gender and academic achievement in a sample of 300 first-year university students in Spain. The Student Adaptation to College Questionnaire (SACQ) was administered to assess adjustment. Multivariate analysis revealed that students with lower levels of academic and institutional adjustment to college achieved less well academically than students with intermediate and higher levels of adjustment. The students' average grade prior to starting university was entered in the analysis as a covariate. Gender had no significant effect on first-year academic achievement. Academic adjustment is the dimension that best explains academic achievement in females and males. Nevertheless, female and male students differed with respect to the effects of adjustment on their academic achievement; no significant effect was observed for institutional adjustment in male students. Theoretical and practical implications for the study of students' adjustment to university and academic performance are discussed.

Keywords: SACQ, academic adjustment, institutional adjustment, first-year students, emerging adults, gender.

1. INTRODUCTION

Adjusting to university is a major transition in emerging adulthood (Arnett, 2000). Baker and Siryk (1984) have provided one of the most widely studied models of adjustment, describing adaptation as including academic, social, personal-emotional and institutional dimensions. According to recent data, these factors favour certain conflicts in the development and formation of emerging adults. During the first year at university, students are often confronted with a variety of new demands and challenges, and they may experience difficulties in developing a vocational identity in which processes of decision making, exploration and commitment are particularly important (Astin, 1993; Chickering & Reisser, 1993; Tinto, 1993). Such difficulties lead to a feeling of dissatisfaction and disengagement from university life, finally causing students to question their choice of study, to fail academically or to leave university (Abdullah, Elias, Mahyuddin, & Uli, 2009; Wintre, Bowers, Gordner, & Lange 2006). Analysis of the most recent edition of the Education at a Glance report (Organisation for Economic Co-operation and Development [OECD], 2011) has shown that in Spain more than 50% of students fail to complete university, and that much of this attrition (approximately 26%) occurs in the first year.

In this regard, Spain occupies one of the worst positions within the European Union. However, surprisingly few studies have examined this relationship in first-year students in Spain, relative to the number of studies carried out in other Mediterranean and European countries or other Spanish speaking countries.

1.1. Changes in higher education in Spain

The Higher Education System in Spain has undergone some important changes in recent decades. Access to higher education has been widened by the democratization of Spanish society, economic and technological growth, and the lengthening of the period of obligatory schooling, amongst other factors. These factors have led to the student population becoming somewhat large and diverse, which has affected the quality of teaching. In contrast to a few decades ago, students in higher education institutions come from a wider range of social backgrounds. The proportion of female students is also higher and the students are more diverse in terms of academic careers, cognitive abilities, knowledge bases, motivation and expectations. In addition, with the implementation of the measures associated with the Bologna Process in all countries in the European Union, the student role has become the focal point of the learning process, which demands increased levels of motivation, autonomy and self-regulation as well as greater responsibility for the educational trajectory by the students themselves. However, as higher education institutions have not given sufficient attention to this new reality, the greater democratization of the access has not been accompanied by greater academic success.

These considerations are particularly relevant in the context of the demands placed on Spanish Universities to adapt to the European Higher Education Area (EHEA). Thus, Spanish universities are required to recognise and respond to students' needs, respond to the needs of the labour market, assert themselves on the teaching job sector, increase the efficiency of Higher Education institutions and contribute to social mobility. The demands are aimed at making European educational and training systems world leaders in terms of quality.

Most Spanish students who access higher education are aged between 18 to 25 years old, financially dependent on their parents or other family structures and are free of obligations such as a full-time job, a mortgage loan, marriage or children. In Spain, the transition to adulthood is characterized by a prolonged stay in the family home. After Portugal and Italy, Spain is one of the countries where young people live in the parental home for longest. The Mediterranean pattern of transition is defined by prolonged stay in the parental home, an increasing rate of enrolment in higher education, delayed entry into the workforce and older marriage age (Fierro & Moreno 2007; Instituto de Juventud España, 2012). These social changes have led to a delay in the attainment of adult status (Del Barrio, Moreno, & Linaza 2006).

1.2. Changes in emerging adulthood in Spain

Spanish young university students experience a prolonged period of emerging adulthood that may significantly impact the quality of their adjustment to adulthood. Developmental outcomes of this stage of life will have significant effects on how young people adjust to adulthood. Originally considered as a time for the acquisition of adult responsibilities and roles, this developmental period now resembles adulthood in regard to social experiences, mainly through participation in university life, but does not entail the active exercise of adult duties. Thus, young people (between 18 and 25 years old) attending university face an important challenge: to combine the exploration and lack of definition that are proper of adolescents with characteristics demanded of independent adults (i.e. that

they are active, independent, able to use strategies, reflective and self-regulated), in an unknown and highly competitive environment that requires new behavioural, cognitive and affective patterns of responses.

Students may regard their time at university as an opportunity to engage in exploration and risk-taking behaviour before they are adults and have adult responsibilities (Dworkin, 2005; Ravert, 2009). University is therefore a time for making friends and establishing romantic relationships, engaging in frequent social gatherings, exploring new places, growing intellectually and affirming personality through self-expression (Buote et al., 2007; Cutrona, 1989; Hays & Oxley 1986; Schwartz, Côté, & Arnett, 2005; Swenson, Nordstrom, & Hiester, 2008). Such experiences should aid students to move toward autonomy and emotional independence, as well as achieving a sense of competence, managing emotions, interacting with others with increasing tolerance, developing a sense of purpose, and clarifying a personal and consistent set of beliefs (Chickering & Reisser, 1993).

However, not all emerging adults are able to master these developmental tasks and have a satisfactory experience in higher education. Over half of all college students will experience some type of difficulty in their transition to college (Buote et al., 2007), including academic problems (Wintre et al., 2006), emotional disorders or symptomatology, such as isolation, stress and depression (Cutrona, 1989; Ozen, Ercan, Irgil, & Sigirli, 2010; Torrente-Hernandez & Vazsonyi, 2012), relationship struggles with parents or friends (Hoffman & Weiss, 1987; Wintre & Yaffe, 2000), and alcohol or other substance use (Caamaño-Isorna, Corral, Parada, & Cadaveira, 2008). In this sense, the first year experience is critical in terms of adjustment.

1.3. Adjustment and academic achievement to university

The documented difficulties that students experience during the transition to university, combined with the changing needs of students, have brought increased attention to the academic adjustment of first-year university students and interest in improving graduation rates. The poor academic yield, the excessive amount of time invested in degree studies and student attrition are common problems in all European Union countries (OECD, 2011). It has been suggested that students often drop out of university for personal reasons, including failure to adjust to university life (Toews & Yazedjian, 2007).

Adjustment to university is multifaceted and involves an array of demands, which vary in kind and degree and require a variety of coping strategies or adjustments (Baker & Siryk, 1984, 1986, 1987). The important dimensions of adjustment to university considered in this study include the academic, social and personal-emotional adjustment of students, as well as institutional attachment (Baker & Siryk, 1987). Academic adjustment includes how well students deal with educational demands, such as motivation to complete academic requirements, academic effort and satisfaction with the academic environment. Social adjustment includes success in coping with the interpersonal-societal demands inherent in university life. Personal-emotional adjustment involves the psychological state of students and the extent to which they are experiencing general psychological distress. Institutional attachment describes students' satisfaction with the university experience in general and the quality of the relationship between the student and the institution. Thus, adjustment can be seen as a condition or state in which the students feel that their needs have been fulfilled and that their behaviour conforms to the needs of the environment (Salami, 2011).

Studies have demonstrated that adjustment among first year undergraduates has a strong impact on their academic achievement in the universities where the students are

enrolled (Baker & Siryk, 1987; Martin, Swartz-Kulstad, & Madson, 1999; Sennett, Finchilescu, Gibson, & Strauss, 2003; Wintre & Yaffe, 2000). In a study conducted in a local public university in Malaysia, Abdullah and colleagues (2009) found that the best predictor of students' achievement was academic adjustment; however, there was no significant relationship between academic achievement and student social adjustment or students' attachment to university (Abdullah et al., 2009, p. 501). It has been suggested that transition to university involves movement to a larger, more impersonal structure and increased focus on achievement and its assessment (Azar & Reshadatjoo, 2014; Wintre & Yaffe, 2000).

1.4. Gender differences in academic achievement

A great deal of research has been dedicated to determining how gender differences affect university students' ability to succeed in higher education. Studies exploring the relationship between gender and student's academic achievement to university have produced mixed results. Some studies have found that females outperform their male counterparts in higher education (Lawrence, Ashford, & Dent, 2006). Hyde and Kling (2001) state this to be the case irrespective of the measure of success used. Similarly, Betts and Morell (1999) report that sex remains a significant predictor of CGPA after controlling for various individual attributes such as ethnic background, pre-university grades and school attended. However, others studies, mainly conducted outside of the US have found that females can perform at levels equal to males (Mayo & Christenfeld, 1999; Naderi, Abdullah, Aizan, Sharir, & Kumar, 2009; Nori, 2002; Soares, Guisande, Almeida, & Páramo, 2009) but that higher pre-university grades in women should not be overestimated and are not necessarily predictive of applicants' subsequent college-level performance (Naderi et al., 2009; Soares et al., 2009).

The framework for a conceptual explanation of the variation mentioned for gender and academic achievement need to be explained in the context in which they occur and gender is, therefore, considered as a variable in this study.

2. OBJECTIVES

The aims of the present study were as follows: 1) To determine the relationship between students' level of adjustment and their academic achievement in first-year university students, and 2) To examine gender differences in this relationship, for all dimensions of adjustment.

3. DESIGN

The design for this study included gender and levels of adjustment to college as independent variables and is first-year academic achievement as a continuous dependent variable. Pre-university grade was also a continuous variable (covariate). ANCOVA analysis was used to test the main and interaction effects of categorical variables (gender and levels of adjustment) on the academic achievement while controlling for the effect of pre-university grades. As no significant main effects for gender nor a significant interaction were found, a separate ANCOVA for gender was conducted to test the main effects of levels of adjustment on academic achievement while controlling for the effects of pre-university grade.

4. METHOD

4.1. Participants

The participants for this study were 300 first year students who were drawn at random from 16 EHEA undergraduate degree courses within the five areas of study offered at the University of Santiago de Compostela (Sciences, Social Sciences and Law, Humanities, Health Sciences and Engineering). All of the students were selected from a larger sample, by applying the following academic and family-related criteria: first-time, first-year attendance at university undertaking full-time courses (60 credits), age less than or equal to 21 years, undertaking courses that were their first or second choices, single, and not employed (i.e., they were economically dependent on their parents).

The sample included 198 females and 102 males, which is consistent with the gender distribution of students in the university. The average age of the participants was 18.02 years ($SD= 0.52$). Most students (91%) came from intact families, and 75.7% were relocated from their parents' house.

4.2. Procedure

The participants completed a questionnaire that included a survey on personal and family data and one scale of adjustment, namely the Student Adaptation to College Questionnaire (SACQ, Baker & Siryk, 1984). The initial contact by e-mail informed teachers in different faculties of the University of Santiago de Compostela about the objectives of the study. Data were collected by two members of the research team in several classes during the first semester of the courses, with the prior consent of students and teachers, according to the deontological code of the Official School of Psychology. Students were informed about the purpose of the study and completed the questionnaires voluntarily and anonymously; assessments lasted approximately 30 min.

4.3. Instruments

The adjustment measure used was the Spanish version of the Student Adaptation to College Questionnaire (SACQ, Baker & Siryk, 1984). The SACQ consists of 67 nine-point Likert items that assess the quality of students' adjustment to college/university on the basis of a multifaceted concept of this process. Along with a global score for adaptation, the SACQ includes four subscales: academic adjustment, social adjustment, personal/emotional adjustment and general institutional attachment. The internal consistency of the Spanish version is .94 for the total score of SACQ, .90 for academic adjustment, .85 for social adjustment, .89 for personal-emotional adjustment and .84 for institutional adjustment (Rodríguez-González, Tinajero-Vacas, Guisande-Couñago, & Páramo-Fernández, 2012).

The students' academic achievement at university and the pre-university grades were supplied by the Academic Management Services of the University of Santiago de Compostela (range 0 to 10).

5. RESULTS

Table 1 provides descriptive information about the variables of this study. Spanish students obtained higher scores on institutional attachment (7.51) and social adjustment (6.71) than academic and personal-emotional adjustment. The mean of overall adjustment was 6.34. In the achievement variables, the students were admitted to university with a mean grade of 7.09 and finish their first year with a mean grade of 6.01.

Significant correlations were found between adjustment dimensions and achievement. All dimensions of the adjustment are significantly related to achievement (both the grade on entry and the grade at the end of the 1st year) except for personal adjustment (.49). In general, students with higher entry grades adapt better (academically, socially and institutionally) and their first year academic achievement is higher. The entry grade is more closely related to first-year academic achievement (.656) than to overall adjustment (.268).

Table 1. Means, standard deviations for adjustment dimensions, academic achievement and inter-correlation.

	Mean	Standard Deviation	Pre-university grade	First-year Academic achievement
Academic adjustment	5.80	1.17	.341**	.490**
Social adjustment	6.71	.98	.227**	.191**
Personal-Emotional adjustment	5.97	1.49	.062	.074
Institutional attachment	7.51	1.03	.221**	.296**
Overall adjustment	7.30	1.09	.268**	.346**
Pre-university grades	7.09	1.11		.656**
First-year academic achievement	6.01	1.55		

* $p < .05$. ** $p < .01$

Although females perform better on pre-university grade (7.21 vs. 6.85, $t=2.69$, $p=.007$) than males (6.12 vs. 5.80), gender did not have a significant effect on first-year academic achievement ($t=.78$, $p>.05$). Interaction between levels of adjustment and gender were also explored and found to be not significant.

A separate analysis for gender was conducted to test the main effects of levels of adjustment on academic achievement. Pre-university grade was included as a covariate because it was significantly correlated with first-year academic achievement. For this analysis, the SACQ scores were divided into three categories (low, moderate, and high). The ANCOVA results are summarized in Table 2.

Table 2. Mean Scores in academic achievement for levels of adjustment, F-values, significance levels and effect size.

	M					Covariate	
	Low	Moderate	High	F (p)	η^2	F (p)	η^2
Academic Adjustment							
Males	5.09	6.13	6.51	5.08	.094	51.07 (.000)	.343
Females	5.11	6.23	6.86	18.37	.159	130.55 (.000)	.402
Social Adjustment							
Males	5.67	5.49	6.30	1.59	.031	55.34 (.000)	.361
Females	5.70	6.24	6.46	.45	.005	148.29 (.000)	.433
Personal-Emotional Adjustment							
Males	5.78	5.78	5.83	.01	.000	57.66 (.000)	.370
Females	5.94	6.27	6.12	3.14	.031	172.06 (.000)	.470
Institutional Attachment							
Males	5.67	5.70	6.07	.80	.016	58.37 (.000)	.373
Females	5.34	6.53	6.54	5.69	.055	135.49 (.000)	.411

Level of academic adjustment had significant effects on academic achievement in males ($F=5.08$, $p=.008$) and females ($F=18.37$, $p<.001$). Eta values indicate that the effect size was .094 in males and .159 in females. Follow-up pairwise comparisons showed that students with lower levels of academic adjustment to university obtained lower grades than students with moderate and higher levels of adjustment. The effect of levels of institutional attachment was only observed in female students ($F=5.69$, $p=.004$) in the same way as academic adjustment. No significant effect was observed in the male students ($F=.80$, $p=.449$). Levels of social and personal-emotional adjustment did not have any influence on academic achievement. The effect of the covariate -pre-university grades- was significant in all dimensions of adjustment ($p<.001$), derived from the strong association between pre-university grades and first-year academic achievement. In females, pre-university grades explained more than 40% of academic achievement and in males more than 30%.

6. FUTURE RESEARCH DIRECTIONS

Assessing the mechanisms through which adjustment influences first-year academic achievement is important because numerous variables may intervene in the process and if not detected, this would lead to erroneous conclusions regarding direct effects.

Although not all findings need to be replicated across cultures, it is advisable to do so when cultural contingencies raise doubts about whether findings from important initial studies are generalizable. Spanish higher education practices differ from those in other countries in several notable ways: admission standards, patterns of socialization and reinforcement of gender differentials skills, and the socio-economic and professional student population. Understanding how the same factors can both help and hinder students as they adjust to college is useful to university personnel in developing, implementing, and evaluating activities and services aimed at facilitating students' academic performance. Developing a preventive approach involves taking into consideration that intervention by the educational institution should be made before the student reaches the stage of academic failure. This implies that a preventive approach on the part of the university should, on the one hand, identify students at risk of academic failure, and on the other hand, develop student guidance services that will help students improve their study habits and techniques, as well as attitudes of responsibility, effort and self-regulation.

7. CONCLUSION/DISCUSSION

In this study, some factors associated with student academic achievement appeared to be consistent across institutions and countries; however, there were considerable differences between our findings and those of other studies. The discrepancies may be derived from differences in cultural and educational backgrounds. Multivariate analysis revealed the following:

- Higher levels of academic adjustment had a significant (and positive) impact on academic achievement.
- Gender had no significant effect on first-year academic achievement.
- Female and male students differed with respect to the effects of adjustment on academic achievement.
- Institutional adjustment did not have a significant effect on academic achievement in male students.

Our results clearly illustrate a strong relationship between academic adjustment and academic achievement. Poor adjustment to university has many implications for students.

The development of academic predictors of academic success is a critical issue for educators. This is particularly relevant in the first year as research-based evidence suggests that there is a positive relationship between student academic performance and student retention rate. Enhancing student performance in the first year and increasing retention rates should be important priorities for universities, with focus on support, especially for students at risk. Students do not always seek help while trying to adjust to the demands of university life or when they have academic difficulties and may only seek assistance at a late stage.

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Chapter 5

PRIMARY TEACHER MATHEMATICS ANXIETY, TEACHER EFFICACY AND MATHEMATICS AVOIDANCE

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ABSTRACT

This exploratory study examined the relationships among mathematics anxiety, mathematics teacher efficacy, and mathematics avoidance, among 68 primary teachers in Trinidad and Tobago, using a self-reporting questionnaire. Stata12 was used to compute means and standard deviations, and to conduct correlation, means-difference, and regression analyses. High mathematics anxiety was associated with low teacher efficacy and high mathematics avoidance among both male and female teachers. There were no significant relationships among mathematics anxiety, mathematics teacher efficacy, and mathematics avoidance by age and years of teaching experience. Gender was a significant factor for mathematics avoidance, with males reporting significantly higher mathematics avoidance than females. While a regression model with teachers' gender, age, teaching experience, and mathematics attainment could not significantly predict mathematics anxiety, mathematics attainment significantly predicted mathematics anxiety, and mathematics anxiety significantly predicted mathematics teacher efficacy. Further research is imperative to determine if mathematics anxiety is problematic at the primary level, with priority to unearthing links between teacher anxiety and student anxiety, and how student achievement, attitudes and beliefs are affected by teacher mathematics anxiety. Such research should inform teacher preparation and development programs to strengthen teachers' efficacy beliefs by addressing teachers' mathematics anxiety by equipping teachers with tools to manage their anxiety and strengthen individual efficacy beliefs about teaching mathematics.

Keywords: mathematics anxiety, teacher efficacy, mathematics avoidance, primary teachers.

1. INTRODUCTION

Mathematics pervades daily life, and “those who understand and can do Mathematics will have significantly enhanced opportunities and options for shaping their futures” (National Council of Teachers of Mathematics [NCTM], 2000, p. 5). Mathematics undergirds many professions in fields like engineering, medicine, business, finance, technology, and most importantly, education. Despite this, educators are concerned with the many individuals who struggle with performing simple mathematical tasks, and who express frustration about not understanding the Mathematics they are taught (Kalloo & Mohan, 2012). This concern is also evident in the Caribbean where the pass rate in the Mathematics examination averaged around 40% from 2004 to 2013 (Caribexams, 2014). This suggests that 60% of Caribbean students struggle with Mathematics and have not attained the minimum required competence in Mathematics by the time they leave secondary school. Factors that affect student success and attitudes towards Mathematics include students' lack of self-confidence (Brady & Bowd, 2005); low levels of conceptual understanding of mathematical concepts (Uusimaki & Nason, 2004); and teachers instructional practices, content knowledge, and beliefs about Mathematics (Iossi, 2007).

Trinidad and Tobago, the southern-most Caribbean island, is regarded as the economic mecca in the Caribbean because of its significant deposits of oil and natural gas. It relies heavily on innovations in science, technology and business for economic viability, and its citizens should be competent and confident in their Mathematics ability to hold jobs related to the oil and gas industry. Growing concerns about student underachievement, particularly among males, and increasingly negative attitudes towards Mathematics (Trinidad and Tobago Ministry of Education, 2008) have not stimulated sufficient research into factors that influence these outcomes. The deeply-rooted high-stakes-assessment educational orientation that lingers from Trinidad and Tobago's colonial heritage, despite its independence from Britain in 1962, positions the teacher as the *sage-on-the-stage* well versed in traditional instructional. The resulting intergenerational legacy of Mathematics as product rather than process sacrifices conceptual for procedural understanding, and propagates Mathematics as *something* for *bright* people. Many students complete their schooling with compromised mathematical competence, confidence and efficacy. In reality, some of these individuals become primary teachers.

Novice primary teachers in Trinidad and Tobago have attained at least secondary-school Mathematics certification and have had little or no pre-service training. Within the last decade the government has invested heavily in pre-service training for primary teachers and now offers training for many teacher candidates annually. However, like elementary teachers elsewhere, primary teachers in Trinidad and Tobago have not had specialized training to teach any particular curriculum subject; yet, they are required to teach every examinable subject at the primary level, including Mathematics. Primary teachers are not necessarily those who like or enjoy Mathematics, or appreciate the beauty of Mathematics and its real-world applications (Buhlman & Young, 1982).

The 3 to 1 ratio of female to male primary teachers echoes loudly the perceptions about teaching and teachers in Trinidad and Tobago. This ratio also suggests a reduction in the number of male role models for boys in the classroom, and a resulting feminization of the primary classroom in Trinidad and Tobago. Primary teachers also face societal expectations that they can do Mathematics competently and can teach Mathematics effectively. As such, they are expected to have a deep and connected understanding and knowledge of Mathematics, and confidence in their own ability to learn the Mathematics (Wilson, 2009). Such expectations, though not unreasonable, may cause mental distress and affect their belief in their capability to teach Mathematics.

The current study was inspired by a group of primary teachers who were enrolled in an undergraduate education course at a university in Trinidad and Tobago. One female teacher explained, "I don't think I have the right mind for maths. Sometimes I exchange maths for language teaching with my co-teacher because I just don't feel comfortable teaching it". Her colleagues indicated their agreement, and reportedly had performed poorly at Mathematics as students. They attribute their beliefs about Mathematics to their school experiences, and their teachers' attitude and instructional approaches. They were not confident that they possessed the required content and pedagogical knowledge to teach Mathematics effectively. All of these teachers had been teaching for more than five years, and were Teachers College graduates. These teachers' comments raised concerns about what is happening in primary classrooms.

It is believed that elementary teachers hold negative attitudes towards Mathematics that affect their confidence to teach Mathematics, and that mathematics anxiety is prevalent among them (Malinsky, Ross, Pannells, & McJunkin, 2006). However, in the absence of empirical evidence it is difficult to say the same about primary teachers in Trinidad and Tobago. A more reasonable conjecture is that some primary school teachers in Trinidad and

Tobago are math-anxious, believe themselves to be less efficacious at teaching Mathematics, and may attempt to avoid teaching Mathematics. Even so, identifying teachers as math-anxious does not interrogate its influence on the teaching and learning environment. Much research on Mathematics anxiety has focused on adolescents, college-aged students and pre-service elementary teachers, leaving a gap in what is known about practicing primary teachers, and more specifically, teachers in developing countries like Trinidad and Tobago. Thus, this exploratory study sought to clarify relationships among the constructs of mathematics anxiety, mathematics teacher efficacy and mathematics avoidance of a group of primary teachers in Trinidad and Tobago to determine if their gender, age, Mathematics attainment at secondary level, and their number of years of teaching experience were factors for these three constructs.

2. REVIEW OF THE LITERATURE

Before undertaking this literature review, it is imperative to highlight the inconclusiveness of research findings about mathematics anxiety, teacher efficacy, and mathematics avoidance. While there have been general trends identified in some studies, others have contradicted them in some way. The disparity among researchers may be attributed to differences in research contexts, populations from which samples are drawn, the definition of the constructs, and the precision of the instruments used to measure them. The latter point has been highlighted most recently by Klassen, Tze, Betts, and Gordon (2011), who argued that the voluminous research about teacher efficacy has not resolved issues around the clarifying the construct, the lack of “attention to the sources of teacher efficacy, continued measurement and conceptual problems, a lack of evidence for the links between teacher efficacy and student outcomes, and uncertain relevance of teacher efficacy research to educational practice” (p. 21). This view may be extrapolated to the constructs of mathematics anxiety and mathematics avoidance. Hence, the following review of the literature reflects this tension.

2.1. Mathematics anxiety

Global concerns abound about falling student achievement in Mathematics and increasing negative attitudes towards Mathematics (Gresham, 2007; Malinsky et al., 2006). Learning and doing Mathematics arouse stronger emotions than other subjects (Hembree, 1990), and individuals develop attitudes and emotional reactions towards Mathematics quite early. Negative attitudes persist well into adulthood (Brady & Bowd, 2005) and affect individual success and attitudes towards Mathematics (Shores & Shannon, 2007). Mathematics anxiety is an intensely negative emotional reaction to anything related to Mathematics (Ashcraft, Krause & Hopko, 2007). It arouses negative feelings that compromise one’s ability to manipulate numbers and solve every-day mathematical problems (Richardson & Suinn, 1972). It is a learned emotional response (Austin, Wadlington, & Bitner, 1992) that is associated with teachers’ beliefs and attitudes towards Mathematics (Sousa, 2008), with instruction (Hasbee, Sam, Nur, & Tan, 2009; Uusimaki & Nason, 2004) and gender stereotypes (Good, Rattan, & Dweck, 2012). More than a dislike of Mathematics, mathematics anxiety comprises attitudinal, cognitive and emotional dimensions (Ma, 1999). It is rooted in emotional and cognitive fear of Mathematics (Tobias, 1978) and actual experiences of failure and inadequacy (Perry, 2004). It interferes with conceptual thinking and memory processes (Ashcraft, 2002), causing individuals to “perform less efficiently on tasks requiring working memory resources because their worrisome thoughts interfere with working memory, making them unable to fully utilize

their working memory capacity for task performance” (Ganley & Vasilyeva, 2014, p. 2). It initiates the development of negative attitudes towards Mathematics and avoidance of it (Tobias, 1987).

Math-anxious teachers experience feelings of tension; heightened nervousness; difficulty concentrating in noisy environments; extreme agitation at students; and negative self-talk (Levine, 1999). They struggle during lesson preparation and instruction (Gardner & Leak, as cited in Peker, 2009a, p.336) because of their compromised content and pedagogical knowledge, which foster negative attitudes towards Mathematics and low self-confidence for doing and teaching it (Pecker, 2009b). Hence, they rely on traditional teaching strategies rather than collaborative strategies (Swars, Daane, & Giesen, 2006). They often communicate and transfer their anxiety to the students (Gresham, 2008).

There is inconclusive evidence on the effects of teacher variables of gender, age and experience on mathematics anxiety. Whereas some researchers argue that females more math-anxious than males (Brady & Bowd, 2005; Ganley & Vasilyeva, 2014), others believe this difference is contrived (Mji, 2009). Hembree (1990) found no age-related differences in mathematics anxiety among. More experience teachers were also found to be less anxious about teaching mathematics than less experienced ones (Hadley & Dorward, 2011). It is therefore likely that continued experience and maturity on the job minimise teachers’ mathematics anxiety, or they employ strategies to help them manage their anxiety. However, researchers seem to agree that math-anxious teachers are less confident about teaching Mathematics (Bursal & Paznokas, 2006; Brady & Bowd, 2005); and have low mathematics teacher efficacy (Swars et al., 2006).

2.2. Mathematics teacher efficacy

Teachers often mirror the beliefs and attitudes of their own teachers. Teachers’ beliefs influence their behaviours and their decision making (Hart, Smith, Smith, Swars, & Tolar, 2007), as well as how they “feel, think, [and] motivate themselves” (Bandura, 1993, p.118). Self-efficacy beliefs are situation- or context-specific beliefs that influence how an individual interprets his or her ability to perform a task within a specific situation or context (Bandura, 1997). A particular self-efficacy belief, teacher efficacy, refers to teachers’ beliefs in their “capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context” (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998, p. 233). Mathematics teacher efficacy, then, may be described as teachers’ beliefs about their perceived ability to effectively teach Mathematics in their particular context, to all students in a way that they can learn. Teacher efficacy crystallizes early in teachers’ careers and is thought to become relatively stable once established (Hoy, 2000), but can strengthen with teaching experience (Wenner, 2001).

Teacher efficacy affects the way teachers feel about their work (Hoy, 2004). Highly efficacious teachers have positive attitudes towards their work, and are less math-anxious than those with weak efficacy beliefs (Gresham, 2008; Swars et al., 2006). They spend time planning their lessons (Allinder, 1995) and experiment with student-centered instructional strategies (Wenta, 2000). They manage their classrooms and are committed to teaching their students (Swars et al., 2006). They experiment with student-centered instructional strategies (Turner, Cruz & Papakonstantinou, 2004), and thus, positively influence student motivation (Perry, 2004) and academic achievement (Gibson & Dembo, 1984). Conversely, teachers with low teacher efficacy tend to become less tasks-oriented and motivated over time, and view themselves as less competent than their peers (Bandura, 1997).

The effects of teachers’ gender, age and teaching experience on teacher efficacy remain inconclusive. Cheung (2006) found that female teachers had stronger efficacy

beliefs than males, but Tschannen-Moran and Woolfolk Hoy (2002) and Yeo, Ang, Chong, Huan, & Quek (2008) found no relationship existed. Younger teachers have been reported to have higher teacher efficacy than older teachers (Robinson & Edwards, 2012), and teachers with more teaching experience have been reported to have stronger teacher efficacy than less experienced teachers (Cheung, 2006; Wolters & Daugherty, 2007); however, some suggest that teacher efficacy weaken through the latter years of teaching (Gu & Day, 2007; Klassen & Chiu, 2010) as teaching contexts change.

2.3. Mathematics avoidance

Though mathematics anxiety may be motivating and exciting to some, beyond a tolerable level it may cause others to avoid or attempt to escape from a situation involving Mathematics, including Mathematics-related careers (Gunderson, Ramirez, Levine, & Beilock, 2012). The cyclic nature of mathematics avoidance (Preis & Biggs, 2001) begins with a negative reaction to a mathematical situation that is usually based on prior negative experiences with Mathematics. Attempts to avoid any mathematical situations then follow, and lead to poor performance in Mathematics. This exacerbates the negative associations with Mathematics and leads to further avoidance. Enough repetitions of this cycle convince individuals that they cannot do Mathematics, and requires deliberate intervention is required to break the cycle. Math-anxious teachers avoid teaching Mathematics when possible (Trice & Ogden, 1986).

3. METHODOLOGY

3.1. Research design and procedure

This quantitative study explored interrelationships among mathematics anxiety, mathematics teacher efficacy, and mathematics avoidance of primary teachers, by age, gender, mathematic attainment at Ordinary level, and years of teaching experience. Non-probability purposive sampling was used to select a representative sample of the study-population. Prior to administering the Mathematics Beliefs Questionnaire five primary teachers were asked to comment on its layout, language appropriateness for Trinidad and Tobago, its length, and the applicability of items to the constructs being measured. All inconsistencies were addressed and the amended questionnaire returned to these teachers for further comment. Once the questionnaire was deemed satisfactory for the local context it was reproduced for administration. Participants were invited from 20 primary schools Trinidad. They were provided with the questionnaire, introductory letter, consent form and a manila envelope within which to place the completed questionnaire before returning it to the researcher. None of the initial five respondents were invited to be participants in the study.

3.2. Description of participants

The primary teacher population of Trinidad and Tobago has not changed substantially over the last decade. Primary teachers in Trinidad and Tobago range in age from 18-60 years. The most recent official figures indicate that the primary teacher population remains approximately 7,000 (72% female; 28% male), of which approximately 81% are trained (Education Policy and Data Center [EPDC], 2012). For this study, questionnaires were distributed to 100 primary teachers from six of the eight education districts in Trinidad and Tobago, who had been teaching for more than 2 years, and were practicing in the primary classroom at the time of the study. However, the authors acknowledge that math-anxious individuals are likely to be math-avoidant and may have avoided participating in this study.

There was an initial response rate of 72%, which was reduced to 68% because some respondents did not meet all the criteria. Participants in this study primary teachers whose ages varied from 30 to 59 years, with 44 (64.7%) of them age 30 – 39 years, 21 (30.9%) aged 40 – 49 group, and 3 (4.4%) aged 50 -59 age group. Of the 68 participants 44 (64.7%) were female and the remaining 24 (35.3%) were male; this distribution is closely aligned with the current primary teacher population in Trinidad and Tobago. Forty-three participants were teaching at the primary level for up to five years; 22 participants were teaching for between 5 and 16 years; and 3 were teaching for more than 16 years. Forty (58.8%) of the participants were in-service primary school teachers enrolled in an undergraduate Bachelor of Education (B.Ed.), while 28 (22.1%) already possessed a B.Ed. A further 43 (63.2%) participants possessed a Teachers College Diploma, with only 8 (11.8%) of these having specialized in Mathematics.

3.3. Description of instrument

The self-reporting questionnaire elicited responses about participants’ gender, age, Mathematics grade earned at Ordinary level and number of years teaching at the primary level. It comprised 33 randomly sequenced 4-point Likert-type items that constituted three subscales – mathematics anxiety (10 items), mathematics teacher efficacy (13 items), and mathematics avoidance (10 items). Items were adapted from Allen (2001) who designed his instrument to “define the constructs that potentially affect students’ attitudes, feelings, and beliefs with respect to Mathematics” (p. 47). The mathematics anxiety subscale comprised five positively-phrased items and five negatively-phrased items. The mathematics avoidance subscale was similarly comprised. The mathematics teacher efficacy subscale comprised five positively-phrased items and eight negatively-phrased items. Sample items are provided in Table 1.

Table 1. Sample Items for subscales on Mathematics Beliefs Questionnaire.

	Sample Item
Low anxiety	I don’t worry about my ability to solve maths problems.
High anxiety	My mind goes blank and I can’t think clearly when doing maths
Strong efficacy	I understand maths concepts well enough to effectively teach them.
Weak efficacy	I don’t believe that I have the necessary skills to teach maths.
Low avoidance	I look forward to teaching math.
High avoidance	I avoided taking math classes after I left secondary school.

Responses for each item were *strongly disagree*, *disagree*, *agree* and *strongly agree*, and were scored from 1 – 4, respectively, for positively-phrased items and reversed scored for negatively-phrased items. Item and subscale scores are interpreted in the Table 2.

Table 2. Summary of item and subscale scores and their interpretation.

Score range	Interpretation of range
score < 2.5	low anxiety / low avoidance / weak efficacy
score ≥ 2.5	high anxiety / high avoidance / strong efficacy

3.4. Data analysis

Stata12 was used to analyze the data collected. Means and standard deviations for each item and for overall mathematics anxiety, mathematics teacher anxiety and mathematics avoidance were computed. Pearson product-moment correlations coefficients were computed (i) to determine the nature of the relationships between positively- and negatively-phrased items comprising the subscale for each of the three constructs, and (ii) to determine the nature of the relationships among the three constructs themselves. Univariate analysis of variance (ANOVA) were computed to determine whether there were significant differences in mathematics anxiety, mathematics teacher anxiety and mathematics avoidance by participants' gender, age, and years of teaching experience at the primary level. Finally, regression analysis was conducted to determine if collectively, gender, age, teaching experience, and Mathematics grade would significantly predict mathematics anxiety, and whether mathematics anxiety significantly predicted mathematics teacher efficacy.

4. FINDINGS

4.1. Descriptive statistics for each construct

4.1.1. Mathematics anxiety. Of the respondents, 58.8% felt at ease during Mathematics courses, and 51.5% felt at ease during Mathematics tests. Approximately 35% were not bothered about taking more Mathematics courses in the future. While 62% were not worried about their problem-solving ability, 76% experienced a sinking feeling when trying to solve a difficult Mathematics problem. Approximately 12% of respondents felt uncomfortable and nervous about Mathematics, and 13% felt uneasy and confused about Mathematics.

4.1.2. Mathematics teacher efficacy. Of the respondents, 97.9% continually found better ways to teach Mathematics, while 10.3% believed that they did not know how to motivate students to engage in Mathematics. Of the sample, 97% understood Mathematics concepts well enough to teach Mathematics effectively, and 85.3% believed that they could teach Mathematics effectively. However, 7.4% did not believe they had the necessary skills to teach Mathematics, and 10.4% believed that they did not teach Mathematics as well as other subjects. Although 97% welcomed and could answer students' questions about Mathematics, 16.2% did not believe that they could help students who were experiencing difficulties in Mathematics, and 13.2% believed that they were ineffective at monitoring their students' Mathematics activities.

4.1.3. Mathematics avoidance. Of the sample, 92.7% looked forward to teaching Mathematics, but 7.3% did not want to teach Mathematics in the future. More than half of the sample (64.7%) did not participate in Mathematics competitions at school, and 64.7% did not assist others with Mathematics homework. As much as 72.1% did not select Mathematics as their area of emphasis, and 22.1% chose an area of study that did not require Mathematics. Approximately 73% of respondents took Mathematics classes that they were not required to take, and 7.4% dropped Mathematics courses because they experienced difficulty with them.

4.2 Relationship between constructs

Pearson's product-moment correlation coefficients were significant between positively- and negatively-phrased items. Moderate to strong inverse relationships were observed (Table 3) for mathematics anxiety ($r = -.708$, $p < .01$), mathematics teacher

anxiety ($r = -.534, p < .01$), and mathematics avoidance ($r = -.483, p < .01$). These findings indicated internal consistency among items related to each construct.

Table 3. Pearson's product-moment correlations for positively and negatively phrased items.

	Mathematics Anxiety (-)	Mathematics Teacher Efficacy (-)	Mathematics Avoidance (-)
Mathematics Anxiety (+)	-.708**		
Mathematics Teacher Efficacy (+)		-.534**	
Mathematics Avoidance (+)			-.483**

** Correlation is significant at the 0.01 level (2-tailed)

Pearson's product-moment correlation coefficients indicated significant associations among constructs (Table 4). The moderate positive association between mathematics anxiety and mathematics avoidance ($r = .618, p < .01$) indicated that teachers who reported lower mathematics anxiety also reported lower mathematics avoidance tendencies, a finding that is consistent with those of Kelley and Tomhave (1985). The moderate inverse relationship between mathematics anxiety and mathematics teacher efficacy ($r = -.550, p < .01$), suggested that highly math-anxious teachers believed themselves to be less efficacious than teachers with low mathematics anxiety (cf. Swars et al., 2006). Further, the moderate inverse relationship observed between mathematics teacher efficacy and mathematics avoidance ($r = -.609, p < .01$) suggested that teachers with strong efficacy beliefs were less math-avoidant than those with weak efficacy beliefs.

Table 4. Pearson product-moment correlations for constructs by gender.

	Mathematics anxiety	Mathematics avoidance
Mathematics avoidance	0.618**	
Mathematics teacher efficacy	-0.550**	-0.609**

** Correlation is significant at the 0.01 level (2-tailed)

4.3 Differences between and within constructs

Low mathematics anxiety ($M = 2.28, SD = .28$), low mathematics teacher efficacy ($M = 2.26, SD = .25$) and low mathematics avoidance ($M = 2.03, SD = .27$) were evident among teachers surveyed (Table 5). While male teachers reported higher mathematics anxiety ($M = 2.32, SD = .208$) than females ($M = 2.25, SD = .280$), both males ($M = 2.15, SD = .234$) and females reported low mathematics avoidance ($M = 1.97, SD = .274$). These findings contradict Brady and Bowd (2005). Males ($M = 2.25, SD = .229$) and females ($M = 2.26, SD = .263$) reported similar weak mathematics teacher efficacy (cf. Ghaith & Shaaban, 1999).

Table 5. Descriptive statistics for constructs by gender.

	Male		Female		Overall	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Mathematics Anxiety	2.32	0.208	2.25	0.280	2.28	.28
Mathematics Teacher efficacy	2.25	0.229	2.26	0.263	2.26	.25
Mathematics Avoidance	2.15	0.234	1.97	0.274	2.03	.27

Univariate ANOVA indicated that gender was significant only for mathematics avoidance (Table 6). Males teachers ($M = 2.15$, $SD = 0.234$) reported significantly higher avoidance than females ($M = 1.97$, $SD = 0.274$), $F(1, 66) = 6.865$, $p = 0.011$, which contradicts the findings of Kelley and Tomhave (1985).

Table 6. Univariate ANOVA for age and teaching experience (equal variances assumed).

	Gender		Age		Teaching experience	
	$F(1, 66)$	p	$F(2, 65)$	p	$F(2, 65)$	p
Mathematics Anxiety	0.127	.282	1.711	.080	1.109	.341
Mathematics Teacher efficacy	0.004	.953	0.884	.418	1.165	.318
Mathematics Avoidance	6.865	.011	0.111	.896	0.383	.683

4.4. Regression analysis

Regression analysis was proceeded by ensuring that the predictor variables were independent and normally distributed. No outliers were identified, and homoscedasticity across observations was observed. Multiple linear regression (enter method) indicated that collectively, gender, age, teaching experience, and Mathematics grade did not significantly predict mathematics anxiety, $F(4, 63) = 1.848$, $p = 0.131$. The overall model predicted 9% of the variance in mathematics anxiety. However, only one of the four predictor variables, teachers' Mathematics attainment, contributed significantly to the prediction of mathematics anxiety ($\beta = 0.347$, $p < 0.05$). Further, simple linear regression confirmed that mathematics anxiety was a significant predictor of mathematics teacher efficacy ($\beta = 0.66$, $p < 0.05$).

5. DISCUSSION AND RECOMMENDATIONS

The study sought to explore the relationships among mathematics anxiety, mathematics teacher efficacy and mathematics avoidance among a small sample of primary teachers in Trinidad and Tobago. While research on mathematics anxiety, mathematics teacher efficacy and mathematics avoidance has been undertaken globally, such research focused on teachers outside of Trinidad and Tobago, resulting in a knowledge gap about teachers in Trinidad and Tobago. The study attempted to address that perceived gap, though in a limited way, given the limited size of the sample considered.

That mathematics anxiety was present among participants is unquestionable, as it is among any other group of individuals. However, mathematics anxiety among primary teachers in this study's sample was low. One explanation is that the teachers surveyed were practicing classroom teachers, and in their experiences with teaching Mathematics may have found strategies to manage their anxiety. Overall, respondents reported positive feelings about Mathematics. Those who reported high mathematics anxiety also reported low mathematics teacher efficacy and high mathematics avoidance, while those who reported low mathematics anxiety also reported strong mathematics teacher efficacy and low mathematics avoidance. These findings are consistent with the literature on mathematics anxiety and with the researcher's observations and informal interactions with primary teachers. However, it was unexpected that male teachers in this sample were more math-anxious than females, and significantly more math-avoidant than females. Trinidad and Tobago still positions mathematics as a male domain and teaching as a female

profession. While it is not possible to conjecture outside of this study sample, these findings may be indicative of the declining male achievement in Mathematics and the increasingly underwhelming presence of male teachers in primary classrooms in Trinidad and Tobago. It is also possible that sampling bias may have skewed the findings in the direction noted. However, the findings on gender differences in mathematics anxiety and mathematics avoidance warrant further investigation given lingering gender stereotypes about Mathematics that favour males in Trinidad and Tobago.

Mathematics attainment significantly predicted participants' mathematics anxiety. Sousa (2008) associated anxiety to conceptual understanding of Mathematics rather than ability, and ability is often measured by attainment. Further, Goulding, Rowland and Barber (2002) linked conceptual understanding to effective Mathematics teaching. Implicit, then, is that Mathematics attainment is indicative of conceptual understanding of Mathematics, which potentially influences teachers' mathematics anxiety and teacher efficacy beliefs. While it is not certain that this generational passing-on of attitudes and beliefs has occurred, it does raise questions about the Mathematics that these primary teachers know, how they know it, how they came to know it, and what pedagogical practices they employ to teach Mathematics. Peker (2009b) attributed negative attitudes about efficacy to teachers' self-confidence, and content and pedagogical knowledge, and when teachers' self-confidence to teach Mathematics declines, so too does their mathematics teacher efficacy (Godbey, 1997). It is important, then, to further clarify the connection among these constructs since primary teachers are required to teach Mathematics regardless of their confidence, competence, effectiveness, or desire to avoid it.

Though the results of this study do not suggest that mathematics anxiety is problematic among the teachers in this sample, or even at the primary level in Trinidad and Tobago, further research is imperative to determine if it is, and to identify its contributing factors. Hence, a national study is recommended, using at least a mixed-method design to investigate mathematics anxiety in the Trinidad and Tobago context. Priority should be given to teachers' early classroom experiences with Mathematics to determine if these experiences have affected females and males differently, how these experiences are manifested in classroom relationships between teachers and students and in the ways mathematics is taught and learned. Research must probe students' perspectives to provide a holistic understanding of mathematics anxiety, and to unearth links between teacher and student anxiety, and its influence on student achievement, attitudes and beliefs in Trinidad and Tobago.

Mathematics teacher efficacy is another critical component of the teaching and learning environments and with growing concerns about falling student achievement in Mathematics and its link to Mathematics instruction, research into the factors that affect how teachers teach is imperative. Further research ought to investigate the sources of teacher efficacy information to which teachers are most attentive in their practice, and how they use (or do not use) this information to inform their practice. Research designs that include methods outside of the quantitative paradigm are important and relevant, especially since there remain conceptual issues around measuring the construct of teacher efficacy, and there must be explication of the processes by which teacher efficacy develops and evolves over time, and how these beliefs can be strengthened (Klassen et al., 2011). Teacher efficacy research, specific to the teaching of mathematics, is critical as well, to build teachers' competence and confidence in their ability to teach Mathematics effectively.

Research about mathematics anxiety and teacher efficacy must be driven by, and inform teacher preparation and development programs to strengthen teachers' efficacy beliefs (Bandura, 1986) by addressing teachers' mathematics anxiety. Research should

inform the development of appropriate training courses that focus on content, methods, pedagogy and the psychology of how Mathematics is learned. Training must provide teachers with opportunities to reflect on their attitudes and beliefs about Mathematics and Mathematics instruction, and equip them with tools to manage their anxiety and reduce its long-term effects in the classroom. Training that provides appropriate experiences that equip teachers with realistic and effective strategies to strengthen their efficacy for teaching Mathematics should increase the number of efficacious primary teachers in Trinidad and Tobago. Since highly math-anxious teachers have low mathematics teacher efficacy beliefs, addressing their anxiety strengthens their teacher efficacy beliefs (Bandura, 1986) to break the cycle of mathematics anxiety and its effects.

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Chapter 6

THE TEACHER'S DEVELOPMENT PLAN IN THE INITIAL TEACHING DEGREE

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ABSTRACT

The teacher is a key factor in the teaching-learning process, with a complex profile combining varied types of knowledge, a wide range of skills, and the teacher's own personality. In initial training a great deal of the knowledge and skills necessary to the profession are acquired, but such essential elements as personal and social competences are rarely explored to the depth they deserve. In this paper we present an innovation project carried out with trainees on their initial teaching degree, aimed at developing the personal and social competences. Our study includes a process of reflection designed to foster the habit of self-analysis a working teacher needs. In order to achieve this we devised and carried through a four-phase sequence of activities through which a personal development plan was drawn up and assessed.

Keywords: personal competences, personal-practical knowledge, teacher training, higher education.

1. INTRODUCTION

Although recent trends have tended to shift the focus of the teaching-learning process, the teacher is still the cornerstone of any planned education course. Proof of this is that the figure of the teacher is still the main subject of many studies (Bain, 2006; Schön, 1998; Shulman, 2005; Perrenoud, 2004a, 2012; Elbaz, 1981), all of which attempt to answer from varying approaches questions such as: What does a good teacher need to *know*? What do good teachers *do*? How is *what teachers do* linked to *what students learn*?

The figure of the teacher is far too complex for us to answer these questions simply. However, although to a certain extent we remain in the dark, these studies can offer guidelines helping us to understand what the key factors in the educator's training and professional development are: i.e. specific knowledge (Zambrano Leal, 2006) and skills (Zabalza, 2007; Perrenoud, 2004b) that are blended and demonstrated in practice (Mas Torelló & Tejada Fernández, 2013).

In this practice we find a combination of different forms of knowledge (Clandinin, 1989; Connelly, Fullan, & Clandinin, 1985; Shulman, 2005) which, although indissociably bound together, can be broken down into: subject knowledge; the way the latter is put across; professional experience; and the teacher's own self-knowledge. Thus we can talk about expert or subject knowledge, didactic-pedagogical knowledge, experiential-practical knowledge and personal-practical knowledge.

Expert knowledge refers to the understanding all working teachers have of their subject: an awareness grounded in an in-depth familiarity with the discipline allowing them to go much further than mere formulaic repetition. This deep subject knowledge enables teachers to give detailed explanations accompanied by examples, analytical and synthetic exercises and other tools which can guide students towards a better understanding.

It is a type of knowledge which is acquired throughout the teacher's career and is indispensable to it (Medina Moya & Jarauta Borrasca, 2013).

To be effective, the teacher must also know how to adapt her/his expert knowledge to each and every classroom situation (Bereiter & Scardamalia, 1986), and to do this other types of knowledge are required: pedagogical-didactic knowledge and practical-reflexive knowledge. Without these latter types of knowledge, practice tends to get bogged down in a vicious circle of constantly repeated tried and tested models.

Pedagogical knowledge enables teachers to adjust their practice to each particular situation and endows them with the strategies, methods and other tools they need for appropriate planning and assessment of their teaching.

Experiential knowledge, underpinned by the types of knowledge previously mentioned, promotes reflection on practice, guides decision-making, and drives innovation and planning based on valid pedagogical principles.

All these different types of knowledge combine to make up the teacher's professional knowledge. Yet practical knowledge cannot be uncoupled from personal (Elbaz, 1981). The teacher's self-awareness and awareness of her/his role as a teacher play a key part in the development of practice. The way the teacher thinks, her/his ideas, heritage and experience, shape a teaching persona which in turn influences practice. This unique persona unites all the other types of knowledge into one way of seeing and working since they are all interpreted and put into practice through the optic of the self and its background.

The teacher's self or personal knowledge is thus a key factor in the process; however it is not always given the importance it deserves.

In teacher education, expert or subject knowledge and pedagogical-didactic knowledge are implicitly and universally seen as indispensable; but the same does not always apply to personal knowledge. Yet for those undergoing training the first two types of knowledge are not the most important ones.

When we questioned trainees and trainers on the characteristics of a good teacher¹ (looking back on their experience as students and remembering teachers who had helped them), responses centred on personal and relational attributes and qualities, in contrast to any other type of knowledge or skills.

Thus it seems clear that all the different forms of knowledge are of vital importance, and from this we can infer that any teacher, in becoming a professional, must acquire them all in the course of training. Therefore a comprehensive integrated training for future educators should include all of these types of knowledge.

In the development of the EEES and all that this has entailed in the reshaping of higher education, reports have been published (González & Wagenaar, 2003; Delors, 1996; Agència per a la Qualitat del Sistema Universitari de Catalunya [AQU], 2009) which foresee such an integrated training for students and which describe it in terms of *competences*. In the Tuning report (González, & Wagenaar, 2003), these competences are defined as those which "represent a combination of attributes reflecting knowledge and its applications, aptitudes, technical skills, responsibilities, etc" (González & Wagenaar, 2003, p. 80).

There are various authors (Perrenoud, 2004a, 2012; Le Boterf, 2001; Mas Torelló, & Tejada Fernández, 2013; Zabalza, 2007; Cano García, 2007) who in discussing the competences judge personal competences to be indispensable, since they have a specific or transversal nature and are considered inseparable or indissociable from the rest.

¹ The sample consisted of 128 students from the UB and 200 professionals from a range of different fields on trainer training courses.

When we analyse the personal competences outlined in these documents we can identify and understand some of the underlying qualities and skills involved, namely: empathy, assertiveness, accessibility, responsibility, patience, enthusiasm, creativity, management of emotions, self-awareness, self-confidence, communication skills, the ability to observe, plan, organize, improvise, guide, motivate, and converse without dominating, and the possession of ethical values, amongst others. All of these are qualities identical with those emerging from research.

Since we are aware that the figure of the teacher is a key factor in the educational process and that her/his relationship with students is either motivating or demotivating, we cannot leave such an important dimension of practice to self-training. The role played by the educator is fundamental in students' construction of their learning. A teacher is simultaneously an expert, facilitator, guide, mediator, coach, mentor and communicator, and is both reflective and critical, bringing into play a whole spectrum of knowledge, skills, attitudes and personal qualities which are all blended in her/his practice.

In their initial training student teachers acquire abundant knowledge combining the scientific side – knowledge necessary for putting across the specific contents of the field – with the pedagogical side, including the pedagogic-didactic understanding which allows their interventions to be as focused as possible and skills enabling them to take decisions, work in teams and manage time, emotions, and information; on the other hand very few personal qualities or attitudes of respect, tolerance or professional ethics are taught which might help them to relate to those around them more effectively.

For both students and teachers the human and personal factor is considered paramount in establishing favourable relationships, whether between teachers and students or among teachers themselves. Some studies reflect this, for example: "I have often asked myself whether many of the problems which schools suffer are really produced more by disturbances in the emotional balance and maturity of teaching staff, and less by their lack of psycho-pedagogical or subject knowledge" (Imbernón, 1994, p. 18).

Building a form of integrated pre-service training which can raise trainees' awareness of their personal qualities and/or help them to develop these is the challenge which drives our work as teacher trainers. If we are to be true to this broad principle, all the competences we have discussed above should not only feature in the curriculum but also play an essential role in teaching practice and its assessment.

Despite this, on university teacher training courses the development of the personal/relational competences is still strictly limited, and their assessment almost non-existent.

This analysis of the current situation led us to design and carry out an innovation project integrating all the knowledge, skills, and attitudes which teachers should be aware of and proficient in.

The study presented here is an account of this innovation project, put into practice on two higher education training courses, both at the University of Barcelona, Spain; one on the Primary School Education Degree and the other on the Degree in Education. Below we explain how the project aimed at developing trainees' personal and social competences was carried through.

2. OBJECTIVES

Our objectives were framed around the acquisition and assessment of teachers' self-awareness, and more specifically awareness of the personal competences an educator should have.

The general objective was two-sided: on the one hand we wanted trainees to observe and appraise the personal competences needed by a teacher, and on the other we wanted them to acquire tools for analysing and developing their own personal competences.

The specific objectives were:

- To identify the personal competences an effective teacher has.
- To recognize the qualities implicit in these personal competences and what is required to develop them.
- To promote self-awareness in the qualities identified.
- To provide strategies for the assessment and self-assessment of personal competences.
- To enhance trainees' personal skills.
- For trainees to learn to manage their own personal skills.

For trainees to acquire the habit of reflecting on their own behaviour as educators (or future educators).

3. METHOD

The two subjects in which the study was carried out were both in their third year, one from the Degree in Primary School Education and the other from the Degree in Education, with 65 and 72 students respectively.

In both subjects the same design and strategies were applied. The project activities were not concentrated into a specific part of the course but, in order to optimize their transversal impact, spread over the whole semester during which our research was carried out. The project was divided into the following phases:

- Identifying teaching competences;
- Identifying trainees' own competences;
- Setting objectives;
- Assessment.

3.1. Identification of competences

This first phase was designed to enable the trainees to identify, analyse and assess in various teachers the competences and qualities relevant to their work. To achieve these objectives we devised the following activities:

- A brainstorming session in which we asked trainees (firstly individually and then in groups) to list the qualities of a good teacher. After debating the results, each trainee put the qualities agreed on by the group into a grid.
- Trainees watched a video of various teachers in action, where they could clearly observe the qualities and faults of each. This was followed by another brainstorm leading to a second list of qualities to add to the first.

These two activities enabled us to discover a good deal of the features defining an effective educator. Each trainee then organized and detailed these in a grid which served as a basis for subsequent observations and tasks.

- Direct teacher observations: starting from the qualities previously identified and the grid completed so far, we asked trainees to observe and analyse the performance of their teachers from other subjects. They were also asked to add further qualities they remembered from previous teachers.
- Documentary review of personal competences, analysing regulations and other legal texts, along with studies and works by a range of authors. The results allowed us to

confirm some of the qualities already described and enumerate others which had not previously emerged from our observations.

- A small number of voluntary interviews with other professionals: two teachers and school directors. These in-depth interviews enabled us to complete the initial list of competences.

Once the information-gathering stage had finished, the competences compiled individually were shared and a single collective list drawn up. The resulting grid of competences and qualities is shown below under 'Results'.

3.2. Identification of trainees' own competences, aiming to have each trainee analyse their own competences

Basing themselves on the competences gleaned from the previous phase, each trainee was asked to observe and analyse their own competences.

To promote these observations we programmed and engaged in individual and collective activities such as oral presentations, group assignments, debates, case studies and materials design, in the course of which trainees could use the grid to identify their own strengths and weaknesses. These activities formed part of the subject syllabus and were double-sided, combining course studies with individual observation.

Peer assessment was also encouraged in some of these activities, and proved interesting, since the image each trainee had of her/himself was not always that seen by their colleagues. For many it was the first time they had been made aware of some of the competences they should have, as well as their weaknesses. This required individual monitoring of some trainees.

A grid was drawn up in which each student individually could compile the competences they had observed in themselves, or that others had observed in them, in comparison with the ideal teacher. By way of an example we show here how one subject was approached. It was divided first into sub-topics which were then shared out among small groups of trainees for them to work on. Once they had completed their tasks we asked each group to make an oral presentation about their part.

Subsequently each group member filled in a two-column grid of strengths and weaknesses, reflecting the communication skills observed in the presentations and in the group work.

Also, as the audience of the presentations, trainees observed their colleagues' performances and tried to identify at least one strength and one weakness in each.

Finally every speaker collected feedback from her/his colleagues and added this new information to their personal grid. To help them they used the grid drawn up in the first phase as a model.

This same procedure was followed in tasks actively encouraging trainee participation.

3.3. Objective-setting phase

After completing the self-observation, each trainee noted her/his objectives in terms of strengths to be optimized and weaknesses to be addressed.

For each area trainees decided to develop, they sketched out the strategies they would use to achieve their objectives, differentiating between short- and long-term approaches. The complete process is shown below under "Results".

3.4. Assessment phase

The objective of this phase was to verify whether trainees had achieved their objectives. In designing our assessment of the development plan we took the following dimensions into account:

- The actions to be assessed;
- When assessment was to be carried out (before, during, and/or after);
- What tools were to be used;
- How results would be evaluated;
- What would be done if any objective had not been reached.

Changes in skills and attitudes were observed, although one semester was too short a time to see appreciable development in all trainees. However, determining how assessment would be carried out allowed us to close the circle of design, and provided trainees with tools for independent self-evaluation later in their careers.

Figure 1. Phases in the drawing up of the personal development plan.



To assess the innovation project as a whole and to enhance its future functioning, the following instruments were used:

- Discussion groups made up of trainees from the two groups participating in the project.
- A trainee satisfaction survey.

A guided written account of what trainees had learned from the process.

4. RESULTS

During the successive phases of the innovation project and through the activities involved (brainstorms, teacher observations and bibliographical review), the “ideal” competences of a “good teacher” were observed and analysed. In the students’ view, they were:

Table 1. Competences, skills and qualities of a good teacher.

Competence/knowledge	Definition	Skills/ Qualities
Expert knowledge	Having specialized knowledge of the subject taught and knowing how to apply this knowledge in different situations.	Cognitive skills: analysis, synthesis, organising, establishing interrelations.
Problem-solving	Finding solutions to problems or difficult situations arising in the classroom or outside it.	Cognitive abilities, decision-making skills, communication skills, strategic skills.
Communication	Being willing to communicate and having communication skills (active listening, dialogue and explanation)	Accessibility, patience, tolerance, ability to listen, speak, read and understand and write in all registers, open to dialogue
Creativity	Ability to be creative in any language.	Having initiative Proactive
Ability to innovate	Able to identify a problem situation, take the initiative, seek various solutions, be proactive.	Analytical Able to summarize Open Active
Information management	Mastering ICTs and using them in the teaching-learning process.	
Ability to improvise	Able to change plans or reorganize themselves in response to unforeseen circumstances.	Proactive, Adaptable
Leadership	Able to act as a leader without being authoritarian.	Respectful Ethical Assertive Friendly Motivated and motivating
Empathy	Understanding the other and what s/he is experiencing	Active listening skills
Responsive to diversity	Being respectful of all types of differences and helpful with difficulties	Tolerant Respectful
Ethical	Fulfilling regulatory and socially recognized standards and principles	Humble, unpretentious
Responsibility and commitment	Involving oneself and committing oneself both individually and collectively	Responsibility Taking on commitments Persevering
Knowing how to plan and organize	Ability to plan and organize both for oneself and others	Time management skills Efficacious and efficient Organized
Demanding	Being demanding with oneself and others	Personal management skills Ambitious Consistent Critical
Reflection	Ability to reflect	Self-analysis, establishing interrelations
Self-confidence	Confidence in oneself and others	Confidence Enthusiasm
Control	Ability to manage emotions	Control, self-knowledge Well-balanced

It was very important for trainees to define the meaning of each competence and associate each with its corresponding skills and qualities. Completing this task fostered self-observation. The individual development plans were drawn up on the basis of the qualities and competences previously identified.

The tables below, drawn up by one trainee (C.J.), exemplify the steps we have described above and allow us to observe the results obtained.

Table 2. Competences self-observation.

Strengths	Weaknesses
S1. I am creative; I find it easy to improvise. S2. I have empathy. S3. I am responsible and committed.	W1. I get very nervous when I have to perform in public. W2. I feel unsure of my knowledge and communication skills. W3. I suffer from stage fright and stutter without noticing. W4. I use 'OK' a lot as a filler. W5. Stage fright makes me use exaggerated gestures and adopt rigid postures. W6. I need to enunciate better so that students can understand me. My colleagues say that sometimes I'm difficult to understand, and that when I speak faster this gets worse. W7. It's difficult for me to organise everything to have it all ready on time.

From the above analysis of his strengths and weaknesses, the trainee designed his personal development plan:

Table 3. Personal development plan.

	To maintain		To develop	
	Qualities	Strategies	Qualities	Strategies
Short-term	S1.Creativity	Prepare creative and motivating presentations.	W1. Nerves W2. Insecurity	Prepare classes properly
	S2.Empathy	Take much greater advantage of tutorials and group assignments.	W3. Stage fright W5. Repeated use of 'OK' W6. Mastering body movements	Practice in public and allow myself to be assessed. Record and observe myself on video. Do enunciation exercises.
			W4. Diction W7. Lack of organization	Look for times during the week to get organized.

Table 3. Personal development plan (cont.).

Long-term		Attend courses on new methodologies.		Seek advice from various professionals.
		Assess myself regularly using written and/or audiovisual records and compare these through time to observe differences.		Read and practice to expand my vocabulary.
				Make my own dictionary with useful words for my everyday classroom language.
				Attend acting classes to improve my diction.

Taking the step from individual and group self-analysis to writing down specific objectives and strategies for achieving them was decisive in this trainee's learning process.

C.J.'s suggestions for assessing the competences he had identified were the following:

Table 4. Evaluation of development plan.

Evaluation of development
Record myself on video/audio and keep a notebook. Analyse my notes systematically to pinpoint changes.
Write a report on myself every term or year to evaluate my development and add new competences not previously included.
Start a blog to write about my most important personal experiences in the field.

We drew our conclusions using both the results of the trainees' development plans and their own assessment of this tool.

5. CONCLUSIONS

From our analysis of the trainees' development plans and from their assessment of the innovation project it can be concluded that:

- Almost all our objectives were achieved, namely:
 - Trainees developed a good awareness of their own skills, attitudes and competences.
 - Trainees raised their awareness of the personal qualities and knowledge a teacher needs.
 - Trainees acquired strategies for observing and developing the competences they will need in their professional development.
 - Trainees engaged in building an action plan which could be extremely useful for them in their future careers.
- Trainees as a group successfully analysed how the personal qualities affect teachers' practical and expert knowledge.

- From the results of the satisfaction surveys and discussion groups we saw that trainees valued very positively not only our approach to the subject, but also the learning they had achieved through it, both because of the task sequence which enabled induction of the competences, and due to the self-analysis involved in completing the tasks.

All trainees stated that a subject of this importance should be explored in greater depth and throughout the degree. A more systematic treatment would not only allow them to assimilate personal competences but also to internalize self-analytical strategies on a personal level.

- On analysing trainees' written accounts we noted a significant change in:
 - The concepts trainees had of the teacher and her/his role.
 - The value given to their persona and to the personal qualities and competences needed for effective teaching.
 - The influence of the qualities in trainees' learning.
 - The degree of autonomy achieved through taking part in an experiential process rather than through theoretical learning. Self-analysis, reflection, induction and observation are strategies little used in university classrooms but indispensable in developing certain teaching competences.
- Despite the considerable difficulty they had in embarking on a complex process, for which they had no previously established habits, some trainees assessed the experience very positively. Thus we see the need to incorporate more assignments of this kind into teaching degree studies in order to boost the development of the competences in their other areas.

Both the positive evaluations received and the results of assessment suggest that working on the personal competences development plan is beneficial, and that this would also bear fruit if it were applied not only at one specific time during the course, but implanted transversally across the whole range of credits making up the degree.

5.1. Weaknesses of the Project

As weaknesses of the project we could draw attention to the following:

Due to the duration of each of the subjects in which the project was implemented (one semester) it was left slightly incomplete. Most of the activities planned by trainees for developing their professional qualities and competences were designed for the medium and long term, and the two subjects into which the project was concentrated finished before we had time to track and assess the resulting changes.

It was not possible to assess the transference of knowledge acquired in trainees who had completed their degree and started working as teachers. This could have provided us with evidence confirming the project's validity, but was not possible within the limits of the study; however, it can be foreseen in the near future.

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Chapter 7

THE INFLUENCES AND MOTIVATIONS FOR BECOMING PRESCHOOL TEACHER: TURKISH CASE

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ABSTRACT

Teacher candidates' motives for becoming a preschool teacher are very crucial for their success and satisfaction in their career. Acceptance and recruitment policies of the teacher candidates to the preschool teacher education program are current topics in Turkey for the improvement studies of the education system. This study aims to identify the factors influencing teacher candidates' career choices and to reveal if their perceptions change after entering the program. Data was gathered through semi-structured questionnaire and analyzed descriptively by content analyses. Participants were preschool teacher candidates from different education faculties attended the Preschool Teacher Education Student Congress (PTESC, 2014) hosted by Baskent University, Ankara. Finding a permanent job, having additional scores at the entrance, considering it as a female suited profession and interest in children care were some of the main motives declared by the teacher candidates.

Keywords: preschool teacher candidates, teacher education, motives for choosing a career, external and internal influences.

1. INTRODUCTION

Choosing a career is one of the important decisions to be made in our circle of life. This kind of a decision needs a specific maturity level since it affects whom and how we will live with, which values and ideals we will share (Özyürek & Kılıç-Atıcı, 2002; Çermik, Doğan & Şahin, 2010; Hamamcı, Bacalı, & Doğa, 2013). While planning the qualified human resources, authorities pay great effort to help the individuals decide accurately about their career and develop positive attitudes towards their professions (Bozdoğan, Aydın, & Yıldırım, 2007; Tekmen, 2012). Like the other professions, initial or entry motivation to become a teacher is, however, just the first step in becoming a teacher. Once a teacher candidate enters an initial teacher education program, what sustains or enhances that motivation plays an important role in their success. Further, what sustains or enhances commitment to teaching in terms of the value placed on teaching as a profession and intended retention in that profession is also significant to investigate to improve the teaching (Darling-Hammond, Chung, & Frelow, 2002; Tekmen, 2012).

In Turkey, career choices are made generally according to the university entrance exam results and mostly unintentionally. Therefore, the young adult feels conflict between his or her choice and parents' expectations from them. They not only have to decide on their future profession at an early age, but also have to get a score that will allow them to begin their training for it, if the profession requires a higher education degree, which mostly does. Because of the high demand to the best paid and prestigious jobs, it requires so much effort to get the expected scores in these nationwide exams. The two important phases of preschool teacher education system in Turkey are the acceptance of the candidates and the

recruitment policy of the graduates, which have a great effect on the motives of the preschool teacher candidates (Tekmen, 2012).

It is the teachers, as the leaders of educational transformation, who will primarily enable preschool education to be perceived as an indispensable requirement and the quality of preschool education depends mostly on the teachers and the training received by them (Kavak, 2010). The expectations from the preschool teachers are high due to the importance of the early years of human life. In the recent decade, preschool education and preschool teacher education has gained both political and public priority that result in the increase demand for the preschool education and preschool teacher profession.

1.1. Acceptance to the preschool teacher education program

After graduating from secondary education, students take a central and nationwide entrance exam to have a score to be used to be placed in a higher education program at a university. They can make up to thirty choices from top to down as a ranking list according to their score and major at their high school graduation. At the placement of the candidates, their entrance exam score and major at the high school graduation are the two important variables. In addition to that, in order to support to continue ones high school major, some additional scores are given if the candidate prefers to follow the same major in the higher education. For example, if the graduate of a vocational teacher high school prefers to enter to faculty of education, some additional scores are added to the entrance exam results. This affects the vocational high school and vocational teacher high school graduates preferences of the preschool education programs specifically. The additional score policy mainly aims the continuity in education and to balance the scores between different types of high schools graduates. Vocational teaching high schools (besides the general culture and fundamental science courses, some educational courses are included in the program), vocational high school for girls (there are general culture courses, child development and education courses in the program, but the fundamental science courses are limited).

1.2. Preschool teacher education program

Preschool teacher education in Turkey can be defined as four-year bachelor's degree program in the elementary education departments of the education faculties that gives preschool teacher diploma upon graduation. Preschool teacher education programs in Turkey are reformed in 1998 by Higher Education Council. The courses include general culture, content knowledge and educational knowledge. Beside the theoretical courses, there are practicum courses in the last year of the program. In order to be able to graduate from the program, required total credit score must be taken and teaching practice course must be successfully completed. The students graduating from preschool teacher training programs are qualified as preschool teachers without any other graduating exam.

1.3. Recruitment of the preschool teachers

After graduating as preschool teachers, there are mainly two ways to continue to the profession, either under private schools or government schools. In this case, there is still a huge demand to the preschool teachers so that it is relatively easier to get a permanent position in a government school than other teacher professions, because the recruitment system works with the obtained base score taken from the Civil Servant Selection Exam. If the demand is high, the needed base score to be recruited to the civil positions is easier than the areas of other education fields.

2. BACKGROUND

In the relevant literature, there is a solid background on the qualities of being a good teacher, however “what and how” of becoming a good teacher is a rather vague issue. Defining the professional maturity is the first step (Bacanlı, 2008), such as, to be consistent about the level and qualifications of the field, to be realistic about one’s abilities, interests, personal characteristics and the social class. In addition, skills such as problem solving, making future career plans and search for appropriate professional pathways are also other indicators of reaching professional maturity. However, there is research (Bacanlı, 2008; Çakır, 2003; Germeijs, Verschueren, & Soenens, 2006; Hamamcı et al., 2013) indicating that most of the young adults have irrational decisions on career planning. They do not have enough knowledge about the career opportunities and requirements, so that they have difficulties in making decisions about their future jobs and are more prone to their parents’ or friends’ influences. On the other hand, there is also research (Bastick, 2000; Boz & Boz, 2008; Kniveton, 2004; Kyriacou & Coulthard, 2000; Saban, 2003) advocating that choosing a career can be evaluated under three categories namely, social utility including desire to serve the public and the country, intrinsic values such as humanity, interest in human relationships and development, and extrinsic values such as occupation assurance, social security and working conditions. In addition, it is believed that the socio cultural and economic status is also influential in career choice. Perceiving teaching as a profession “suitable for females” is also a factor supported by research in different cultures (Foster & Newman, 2005; Saban, 2003). Another point stated in the research is in developed countries, mainly altruist and intrinsic values, in non-developed or developing countries extrinsic values are affective in choosing career (Bastick, 2000).

In addition to the above mentioned factors, teacher selection policy decided by the governments is also one of the critical factors on career choice in Turkey. For instance, university placement system requires both academic success and ranking preference. Therefore career choice is also affected by the system itself whereas the education policy of a system influences the individuals’ career choices directly or indirectly (Tekmen, 2012). Giving additional points to encourage the students follow their high school majors in the higher education or the recruitment policy of the graduates, which was mentioned in the introduction part of this chapter, are other influential factors on making career choices.

With regard to teaching and teacher education, motivations may, therefore, determine what attracts individuals to teaching, to the extent they engage with their courses, whether they complete their education programs and continue their occupation.

3. METHOD

In order to decide on the sampling strategy, first thing considered by the researcher was to find the “information rich” data sources for the purpose of the study and to reach the ones “who knows more about the subject” (Patton, 2002). In this respect, both purposive and convenience sampling were taken into consideration. Consistent with the purpose of the research, preschool teacher education program students of the education faculty were taken as the data source for the research.

Participants were 107 teacher candidates from 18 different universities attending the preschool teacher education program who attended 9th Preschool Education Student Congress hosted by Baskent University. During the data collection, aims of the study were reminded, and participants’ consent was taken. Furthermore, before the data collection process, the participants were ensured that the information they provide would be kept

confidential and their identities would not be revealed by any means of the study as well as in the possible future publications.

When building a framework for the questionnaire, the literature on the preschool teacher education and the research questions of the study guided the questions development process. Open ended questions included in the questionnaire were as follows:

What was your ranking of the program in the list required for national university entrance exam?

What / who affected your ranking mostly?

What are the reasons behind your ranking?

Are you satisfied with your selection and why or why not?

Are the reasons behind your selection have changed after entering the program?

Can you consider teaching as a satisfying career? Why or why not?

Can you describe the requirements of being a preschool teacher in your own words?

Before the implementation of the data collection, an intensive pilot study was carried out, which aimed to ensure if the questions are directly addressing the research questions of the study, and to sustain the clarity of each question and probes. A descriptive content analysis was conducted to classify the responses and construct the subthemes of the results. Internal validity is sustained firstly through ‘member checks’, by sharing the coding patterns and going over the data by some peers as well as by some experts in the field to consult whether the data is perceived in similar way in the eyes of the researcher and other parties (Creswell, 2012, p.196).

4. RESULTS

The majority of the participants were females (81) only whom 26 of them were males, and they had graduated from a wide variety of high schools all over the country. Three types of them were Vocational Teaching High-Schools, Vocational High-Schools for Girls and Anatolian Vocational High-Schools. Vocational school graduates were the majority (76).

Table 1. High school type.

High school	Male	Female	Total
Vocational Teaching High-Schools	10	17	27
Vocational High-Schools for Girls	-	26	26
Anatolian Vocational High-Schools	5	18	23
Other High schools	11	20	31
Total	26	81	107

In addition, their ranking order of the program preferences also varies. According to the responses, four categories for the ranking order are, first three, last three and others including the ranking other than these two categories. Among the 107 participants, 35 of them responded that they put the preschool teacher education program at the top of their ranking during the program selection at the university entrance (higher education candidates can select 30 programs they want in this required list). 19 of the participants gave the answer that they listed this program as their top three choices while 11 participants indicated that this program was their last three choices in the ranking list (rest of them put this choice in the middle ranking of the list).

Table 2. Ranking order.

Ranking	Male	Female	Total
First three	2	17	19
Last Three	6	5	11
In between	18	59	77
Total	26	81	107

4.1. Reasons behind the ranking

Data showed that there are different reasons affecting the career choices of the teacher candidates. The most popular answer given to this theme was to take care of children and support their development (33), feeling suitable for the profession and perceiving themselves as easy to communicate with little children (21). The convenience of finding a permanent position as a teacher in the government schools and “employment assurance” (30) were the other most frequent answers given for the motives behind their preferences (Table 3).

Table 3. Reasons behind the ranking.

Reasons	N
To take care of children and support their development	33
Convenience of finding a permanent position	30
Feeling suitable for the profession	21

Other reasons were related with the comfort of the working environment, loving to take care of little children, believing the significance of this profession. Some of the interesting answers are given below:

- “I believe I can do this job”*
- “to be comfortable in the future years”*
- “less working hours”*
- “want to catch the education at the very beginning”*
- “having more holiday time”*
- “being the first teacher in children’s life”*

Some types of Vocational High Schools encourage their graduates to continue in related Higher Education Programs by giving additional points in the university entrance exam. Having additional score which serves as an advantage to enter the preschool teacher program because of the high school they graduated from.

- “getting additional score”*
- “being a vocational high school graduate”*
- “my major at the high school was same”*

On the other hand, those who mentioned that they were influenced by someone or something when choosing the program indicated their “parents” as the most influential (24) source for their choices. As it was mentioned in the background part, parents had big influence on the young adults’ career choice in many cultures. As it is indicated in the answers of the participants, parents consider teaching as a decent job and guide their children to be teachers, especially they encourage their daughters to become preschool or primary school teachers.

Other than the mentioned answers categorized, there were other interesting answers such as:

“a film I watched”

“my friends were planning to be a teacher too”

“I chose accidentally”

When it comes to the recruitment of the education faculty graduates, it is considered as the responsibility of the government in Turkey, and because of the demand to the preschool teachers, teacher candidates felt comfortable about finding a permanent position. Participants' answers to that recruitment question supported the common perception. Their answers to the question where they thought they would work after graduation from the faculty were such as;

“I want to work at government schools; I do not want to worry about unemployment”

“I want to be under the government roof, I do not believe they pay enough respect to the teachers at the private schools”

However there were also idealist answers given to the same question:

“I want to work for public, I want serve and reach to the rural areas that need more support”

4.2. Satisfaction of the teacher candidates with their selection

This theme was the least answered one in the questionnaire. Only 68 of the participants among the 107 answered to this question and results were given in table 4 below.

Table 4. Satisfaction with their selection and reasons for losing their motives.

<i>Satisfaction</i>	<i>N</i>
Felt more positive about the profession	23
Changed their mind in a negative way	17
Satisfied with their selection	15
Have not decided yet	13
Total	68

Among those who replied the question, the majority of them described themselves as satisfied with their selection and felt positive about the education they were having (38). Participants who indicated that they had changed their mind and felt more positive about the profession mostly gave reasons about the positive change. Their understanding the significance of the field improved and felt more responsible for the future generations (23).

However, rest of the answers (17) indicated that they changed their idea in a negative way after entering the program. Some interesting quotations for this theme are given below:

“not so prestigious”

“not as easy as it was to find a permanent position”

“I thought it was much easier to be a preschool teacher”

“there are lots of requirements and expectations from teachers”

“it is a hard work to be a good teacher”

In addition, there were answers showing that they were not sure or haven't decided yet (13). Among the reasons they gave to change their mind, "low economic status of being a teacher" and "lack of respect to the preschool teachers" were the most common ones.

4.3 Teaching as a career

Participants' opinions about the teaching were mostly positive and indicated the significance of the profession. They explained that they were aware of the requirements and the expectations of the public from a preschool teacher. However, as one of the replies summarized their concern about their future career below; they were reluctant because of the low income status of it, although they agreed on the moral satisfaction part.

"morally satisfying, but not have the prestigious status it deserves"

5. DISCUSSION

Today, with the transfer to the technology age, the improvements in science and technology, makes it inevitable for the individual to be qualified with so many kinds of requirements. For this reason, countries conduct studies for developing quality teacher training programs for preparing the well-educated and competent teachers. Developing a system to choose the right candidates for these programs should be one of the important issues. This study mainly aims to reveal variables that may be linked with preschool teacher candidates' career choices. To take care of children, to be responsible of their education and development, feeling suitable for the profession were the mostly desired reasons for a preschool teacher candidate to choose his or her career, but on the other hand the second mostly given motivation for choosing this profession was "convenience of finding a permanent position", which has nothing to do with the qualities of becoming a good preschool teacher.

Results imply that teacher candidates make their career choices according to their university entrance exam scores. In addition to that, intrinsic factors such as caring for children, belief about meeting the requirements of the profession, and extrinsic factors such as parents, friends, job stability, working conditions are found to be affective on their making career choices. In fact, teaching is a profession that has high public responsibility that should be chosen consciously and purposefully. In another research supporting this result, the perception of the academicians at the preschool teacher education programs of education faculties in Turkey were investigated and it was found that academicians in these programs do not believe in the accuracy of the selection policy of the teacher candidates (Tekmen, 2012). They did not believe the selection system was sufficient enough to reach the most appropriate candidates for the profession. They indicated the need for the additional exam to determine their skills and attitudes to the profession before accepting the candidates to the programs to train them.

Teacher education programs should help to prepare teachers to understand what it means to be a teacher, since students generally enter programs with an incomplete and unarticulated initial view of teaching (LePage, Nielsen, & Fearn, 2008). For this reason, educational system needs improvements to provide the candidates the opportunity to decide about their career more wisely and on a rational base. Moreover, teacher education programs should place more emphasis to the activities and practices that would increase the candidates' positive attitude towards the profession.

Another topic to be discussed about the results is the difference between number of the girls (81) and the boys (26) establishing the participants (107) of the study show that the program is preferred by the girls mostly and therefore, it is consistent with the belief that

this career is seen as a “female profession” in Turkey. Similar results were found in the study of Saban (2003), that the two third of the primary school teacher candidates were females who attended the program. In a research undertaken in Canada, the ratio of male primary school teachers to the female teachers was found to be lower than one to ten (Gosse, Parr, & Allison, 2008). This result is described in many of the related studies as, teaching is perceived as a “female profession” and preferred mostly by females and therefore the male candidates attending the teaching programs felt like they had entered a field that belong to females (Foster & Newman, 2005; Mulholland & Hansen, 2003; Tekmen, 2012). In addition to that, the term called for “preschool education center” in Turkish is “anaokulu”, which means “school of the mother” and that might be another cause for the perception that the profession is mostly suitable for females.

When it comes to the attitudes to becoming teacher in general, there is also a similar situation. In the research conducted by Özder, Konedrali, and Zeki, (2010), the attitudes of male and female teacher candidates were compared and found that there was a significant difference between their attitude scores towards the teacher profession. In the relevant literature, there are many examples supporting the same findings. The attitudes towards the teaching profession studies stated that females candidates had more positive attitude towards the profession than the male candidates (Çapri & Çelikkaleli, 2008; Güneyli & Aslan, 2009; Baykara-Pehlivan, 2004; Temizkan, 2008; Üstüner, Demirtaş, & Cömert, 2009).

On the other hand, teacher candidates participated to the current study are generally graduates of the child development programs of the vocational high schools which implies that the education system in Turkey, also has influence on the career choice of the students as mentioned in the introduction part of this chapter. However, in a research undertaken by Özsoy, Özsoy, Özkara, and Memiş (2010), the teacher candidates were graduates of, general high schools 41%, Anatolian high schools 22.6%, foreign language high schools 21.3% and only 11% of them were vocational high schools. This indicates that there might be variations according to the teacher education program, since the participants of the study were chosen from a different teacher training program other than preschool and primary teacher education programs.

In addition, the chance of entering other undergraduate programs without the additional score gained by choosing these teacher training programs is low for a child development high school graduate and therefore it becomes a motive to choose preschool teacher education program in higher education. The number of the participants (54) who ranked the preschool teacher education program at the top three of their university placement list makes us think that they chose the teaching career purposely but on the other hand, results also showed that they were graduates of vocational school which provides them additional scores at the university entrance exam. Similar results were also found in related research (Özsoy et al., 2010), and it implies that because of the requirements and the important status of the teaching profession, the choice of the candidates should be more conscious and intentional. Such professions as teaching require high responsibility and awareness, and most of all needs those who have the required qualifications for becoming a teacher. The educational system should be designed to provide the most suitable and capable candidates to the teacher education programs.

The reasons mentioned by the teacher candidates about their career choice are divergent, but most repeated reasons are willing to take care of children and the job security, which were indicated in the research carried out by Eskicumalı (2002). In his study “willing to take care of children” was also one of the frequent answers given by the teacher candidates (23%), following by “less working hours and long holiday season”

(37.1%). In the related literature there are other similar results supporting the findings of the current study (eg: Brown, 1992; Özder et al., 2010).

However, it should not be missed that there are some other interesting reasons given by the candidates namely; “ the movie I watched”, “we choose it as a group with my friends”, “accidentally” and “my score was fitting”. These quotations indicate that when making their career choices, not all the teenagers are conscious or rational about their choices. Moreover, they are not totally aware of all the career alternatives and leave the responsibility of choosing their future career to others such as friends, relatives or parents. Parents are one of the top influential factors according to the results of the study and followed by teachers and friends. These findings also support the findings of Kniveton (2004) and Hamamcı et al. (2013). In their study students were found to be mostly affected by parents, teachers and friends.

Another theme searched in the current study was, if the candidates were satisfied with their choices or not, and they were mostly consistent with their choices. Among the answers of the 107 teacher candidate participated in the study, 68 of them mentioned either they were satisfied with their choices or not decided yet which could be investigated for further research. This may lead us to think that they made their career choices willingly and informed. In Hamamcı et al.'s (2013) related study, university students were found to trust their decisions about their career choices and had positive attitude towards their education. However, these positive thoughts about their future profession are somehow failed as they began the practicum courses. In our study participants were concerned about the requirements of the teaching and felt less confident about being competent, especially at the third grade, where they began the practicum courses and made visit to schools. They also mentioned about perceived low prestigious of the teaching in their responses and losing motivation about their choices. This might indicate that preschool candidates are not well informed, not aware of all the requirements, status of the teaching profession while they are making their career choices and moreover they do not have a rational and solid self-awareness about themselves.

This study is conducted with limited number of preschool teacher candidates from different universities in Turkey and there is no intention of generalization, but provides useful information about their perceptions about the teaching profession, their reason of choosing this career and their awareness about teaching. In conclusion, this study provides an understanding of what attracts those aspiring to be preschool teachers. Same results were found in the research carried out from the academicians' perspective to understand the reasons behind choosing this program (Tekmen, 2012). The perceptions of the faculty members in preschool teacher education programs were asked and the guarantee of finding a permanent job in the government positions was the top reason stated. In addition, it is also mentioned that the dissemination policy which increases the need for preschool graduates in the system lowers the qualifications expected from the teacher candidates, for example having low scores in the entrance exam when entering the programs and getting low scores in the selection exam after the graduation for the recruitment.

Research has demonstrated that not every individual is similarly motivated to teach but that there are some motivations commonly expressed by those considering a career in teaching. Findings in this study showed that teacher candidates have multiple motivations for becoming a preschool teacher. Influences and motivations are centered on one's love for future students, capabilities, likes and dislikes such as including their future work, working conditions and how both fit with their personal lives. Together these intrinsic and extrinsic motivations also have potential implications for teacher recruitment, retention and professional learning. Therefore, if higher education began to attract candidates to initial

preschool teacher education and then to the teaching profession, it may be of value to appeal to the range of factors that attracted them to teaching as a profession and their initial or entry motivations to teach.

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Chapter 8

THE BRIDGE BETWEEN THEORY AND PRACTICE

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ABSTRACT

Practicum courses at the senior year of the preschool teacher training programs are essential to transfer theoretical knowledge into practice. Although the theoretical part of the preschool teacher training program applied in every education faculty in Turkey is mostly standard and prepared by the Higher Educational Council, there are differences related with the school characteristics, classroom teacher and the course advisor's expectations from the teacher candidates. In this study, daily activity plans prepared by the senior students of the preschool teacher education program from five different universities located in Ankara are analyzed by content analysis in terms of variables such as selected outcomes, activity types, materials, group activities, developmental areas focused and assessment methods. These variables not only show the instructional planning skills of the teacher candidates but also their teaching philosophy, creativity, interdisciplinary transfer and child care philosophy. It is expected that, by finding out these areas to be strengthened, both the theoretical and the practical dimensions of the teacher education will be improved.

Keywords: preschool teacher education, practicum, daily activity plans, teacher candidates.

1. INTRODUCTION

It is generally accepted that learning to teach is highly complex. This complexity is mostly about the integration between the different kinds of knowledge, university coursework and practice teaching is a common criticism of teacher education (Sim, 2006; Wilson, 2006). Therefore, following the idea of teachers learn by teaching (Cochran-Smith & Lytle, 1999), teacher preparation programs embed field experiences and practicum courses within their programs. The main intention of these courses are to serve as a bridge between theory and practice of teacher education, which enables the teacher candidates transfer knowledge and skills gained in theoretical courses to the actual settings (Bell & Robinson, 2004). These practicum courses are also opportunities to reflect on the understanding of teaching as a profession and improve the teaching skills of the teacher candidates (Giebelhaus & Bowman, 2002), because without a cohesive preparation that connects content knowledge and practicum experiences, candidates fail to see the whole picture of the teaching profession.

However, teacher education nowadays has been segmented in theory and pedagogy taught in isolated intervals and too far removed from clinical practice (National Council for Accreditation of Teacher Education [NCATE], 2010). But teaching, like medicine, is a profession of practice, and teacher candidates must be prepared to become expert practitioners who know how to use the knowledge of their profession and how to build their professional knowledge through practice. In order to achieve this, practice must be put at the center of teaching preparation. It is not enough to read about teaching or to observe others teach, candidates have to practice themselves because practical knowledge is held by the individual and cannot easily be transmitted from person to person (Penglington, 2008).

Therefore, the main objective of the practicum is to provide teacher candidates' hands-on experiences in teaching, which is needed to develop their teaching skills and to start collecting experiences to enrich their professional wisdom (Ulvik and Smith, 2011). Professional wisdom of teaching refers to lots of characteristics, but in this case major ones are being purposeful and reflective that mostly occur in the decision making phase of teaching. Within the decision making process of the preschool teachers, determining the curriculum content, material and resource selection, planning the activities, managing children's behavior, assessing and evaluating the children's learning and development are included (Kilderry, 2012).

Decision making can be observed in many aspects of teaching, before or after the implementation, or in the actual setting. Planning that occurs before entering the class is the first step of decision making to an effective teaching, although it is not a guarantee for a good implementation. Especially for the teacher candidates and novice teachers planning before the action plays a great importance since it requires thinking about everything in both theory and practice. When teachers or candidates know what they need to accomplish and how they are going to do it, they have a better opportunity to achieve success. Moreover, plans of a teacher or a candidate can be seen as a reflection of their understandings of the curriculum, educational philosophy, content knowledge, pedagogical approach and teachers' role (Kilderry, 2012). Thus, analyzing the daily activity plans of preschool teacher candidates serves as a tool to understand their theoretical understandings of the academic content given at the university before they begin their career. From this point of view, the aim of this study is to improve the practicum of the preschool teacher candidates by analyzing their daily activity plans in terms of the pedagogical approach, being child centered, teaching strategies, preparing materials, learning environment and using the appropriate assessment techniques to promote children's development and learning.

2. BACKGROUND

Because teaching is a profession of practice and there is unique characteristics of early childhood education, preschool teacher education must focus on preparing expert practitioners who know the child, their subject-area content, and pedagogy in much the way that a family doctor must master the knowledge base of medicine as well as be able to understand patients and their symptoms to deliver a treatment for a best possible outcomes (NCATE, 2010). The skills and knowledge that beginning teachers should demonstrate in order to receive an initial license is already set on the program profiles. The point is how to transfer these well-written standards into practice (Holm & Horn, 2003), since achieving these requirements needs permanent processes of monitoring and assessment.

In order to improve the quality of the practicum of the teacher education faculties all over the country, teaching practice has been standardized during the 1997 education reform within the "Developing the National Education" project (1994-1998) which was carried out by Higher Education Council and the World Bank in Turkey. As a result of the project, certain rules and principles were determined and published in Faculty-School Cooperation Booklet, which has been then used in all education faculties. As part of this renovation, the duration of the teaching practice was extended to seventh and eight semesters and the content was clearly defined for the first time (Topkaya & Yalın, 2006). During the first semester trainees are required to practice at schools for four hours a week within the content of the 'school experience' course. During the second term, the trainees take the teaching practice course and visit schools for six hours a week. However, the application of

the teaching practice tends to differ in various education faculties, different departments of the same faculty, and sometimes even different supervisors within the same department.

In the practicum process, there are requirements that must be accomplished by the practicum course instructor, the school teacher and the teacher candidate. The effectiveness depends on the success of planning, implementing and evaluating as a whole (Ünver, 2003). Besides these, there should be a monitoring system followed by the staff from the faculty. Moreover, it would be more beneficial if the teacher candidate is capable of evaluating herself by reflective thinking. This kind of reflective evaluation will help the candidate to learn and practice self-awareness of her performance at the practice school and increase her self-efficacy for her future career (Shoffner, 2008).

Reflective evaluation requires the awareness of the performance or at least a brief self-assessment. Teacher candidates' ways of knowing about their performance acts as a lens through which they view the world and more specifically their approaches to learning and teaching. Thus, irrespective of how one might objectively describe a learning environment a student will be predisposed to see a situation in a particular way. The key intellectual and personal changes undergone by teacher education students as they progress through higher education and enter into employment varies since their capacity to reflect and to exercise decision making varies (Lucas & Tan, 2009). As mentioned before, first step of decision making for a teacher candidate is planning.

Learning within higher education expects that teacher candidates develop a capacity for reflection, which is needed for the improving their professional knowledge and practice. Related with this perspective, making activity plans for a teacher candidate and getting feedback from the practicum course instructor on their plans is the first step of this reflection. Putting all the background knowledge into practice begins with making plans for implementation. Moreover, there is another point to be mentioned about this study is the early childhood education program was updated in 2013 in Turkey. After this revising study, the updated program which is going to be implemented by the preschool teachers was meant to be introduced to both the in-service teachers and the teacher candidates. The updated points of the program were introduced by the instructors to the teacher candidates. In order to observe and check if the introduced characteristics and the approach of the new program was understood by the candidates, the lesson plans or the daily activity plans were taken as the first monitoring tool by the practicum course instructors at the faculty.

Some of the main characteristics and the approach of the revised program were as follows, being developmentally appropriate, child-centered, play based, supports creativity, balance with the big group, small group and individual activities, flexibility and discovery learning. These characteristics were meant to be observed in the daily activity plans of the candidates that reflect their understanding of the approach and the characteristics introduced in the theoretical courses. Besides, seeing the areas to be improved will help both the teacher candidates and their course instructors as a feedback for their performance about their teaching and learning.

3. METHOD

For the purpose mentioned above, thirty daily plans were analyzed through content analysis. Content analysis is a widely used qualitative research technique. Rather than being a single method, current applications of content analysis show three distinct approaches: conventional, directed, or summative. All three approaches are used to interpret meaning from the content of text data and hence, adhere to the naturalistic paradigm (Hsieh & Shannon, 2005). They require similar analytical process including, selecting the

sample to be analyzed, observation, defining the categories to be applied during the analyses of the data, outlining the codes derived from the data process and reaching the themes or patterns (Kaid, 1989). But other than the other two approaches, in conventional content analysis, categories are derived from data during data analysis. The researcher is usually able to gain a richer understanding of a phenomenon with this approach (Hsieh & Shannon, 2005).

From this perspective, the daily plans which were taken as the data source of this study that collected from five different preschool teacher education programs located in Ankara, Turkey. Six plans from each program making thirty plans at the total were gathered via email. Each activity plan was covering a full day schedule at preschool education level. Practicum course instructors were asked to send at least twelve plans prepared by their current practicum class students and six daily plans from each program were selected randomly by the researchers for the data source. They were analyzed according to the purpose of the study and the characteristics of the revised early childhood education program explained in the background part of this chapter. The researchers were professors in the preschool teacher education program and experienced in qualitative analysis. In order to gain the trustworthiness, they coded all the data separately first and reviewed their analysis together in order to reach interrater agreement (Patton, 2002). After agreeing on the codes and their reference points, similar codes were gathered under subthemes and themes accordingly. Depending on the relationships between the codes researchers combined the subcategories into meaningful themes (Patton, 2002). Although none of the themes were predetermined before the data analyses, they were highly consistent with the analyses of the two researchers. Emerged themes were as follows:

- Misunderstandings about being learner centered
- Failing to support creativity and to design creative activities
- Problems in concept teaching
- Problems in balancing the small group, big group and individual activities
- Issues about the assessment techniques

4. RESULTS

Results are categorized according to the five themes emerged from the data analysis and example quotations that refer to the related themes are given accordingly.

4.1. Misunderstandings about being learner centered

Activities are planned according to the expectations of the teacher and manipulated by the teachers to reach the expected or planned results. This situation yields us to think that being learner or children centered is misunderstood by the candidate. Following quotations are examples of these issues:

- “Paint these glasses with these colorful sugar colors and draw flowers on them.”
- “Let us paint these fruits and vegetables according to their colors.”
- “When the music play, the ones in the circle will begin to dance.”

4.2. Failing to support creativity and to design creative activities

Activities planned by the teacher candidates were far from developing or supporting creativity for children. Using different kind of materials in the activities to promote creativity was also ignored. Playing popcorn to pick up the toys, drawing pictures after story time, cut and paste activities for the art lessons show us that teacher candidates did not prefer different teaching methods in their daily plans. Using one type of material for the

similar activities indicates that they ignore the program characteristics of promoting or supporting creativity in children. Besides, the questions asked by the teacher candidates yield the children to give one type of right answer, which also is an obstacle for the creativity.

“We are going to make snakes with these newspapers, now make groups two by two...”

“Where do we get inoculated in order not to get sick?”

“Which play did we play?”

4.3. Problems in concept teaching

It is realized that there were misconceptions about the sense concept such as weight, smell, taste. They expect the children learn these concepts by looking at the pictures of the objects without any interaction with the actual object.

“Bring food and refreshment photos and classify them according to their tastes ”

“Mark the hard object in the picture”

4.4. Problems in balancing the small group, big group and individual activities

It is also realized that the teacher candidates prefer mostly the group activities than the individual activities. In addition they prefer the competition type of group activities in which the individual achievements are rewarded.

“Children are made to jump on their one feet and the one who jumps higher wins...”

“The play goes on till there is only one children left standing while the others are waiting at the corner...”

“Now let us find who will finish the worksheet first?”

4.5. Issues about the assessment techniques

Assessment and evaluation is one of the important dimensions for teaching and learning process, therefore takes a significant place in the daily plans. It not only helps the teacher candidate understand the degree of reaching the expected outcomes, but also to understand the development of the children. However, it is found to be the weakest part of the daily plans of the participants. They only assess if the instructions are done by the children properly not if the program or the teacher himself or herself was successful are evaluated.

“Some of the children had difficulties at making the initial sounds of the alphabet.”

“Some of the children needed help to complete the emergent literacy worksheets.”

“The teacher had difficulties in teaching the ... song because of the lack of attention of some children.”

“Children had fun and spent good time.”

Moreover, the teacher candidates are found to have issues on asking the right type of assessment questions to the children. The assessment methods were far from providing the clues to understand the achievement of the children and to help the teacher candidate improve him or herself by the end of the day.

“Did you like this story?”

“Do you like the numbers?”

5. DISCUSSION

The early childhood education program is grounded in a theoretical basis and a commitment to developmentally appropriate practices. An understanding of developmentally appropriate practices guides teacher candidates in their decision making processes. Candidates are expected to know the principles of child development and appropriate expectations for the ages of the children with whom they interact. They must consider the strengths, needs, and interests of individual children and recognize the importance of understanding the social and cultural backgrounds of the children in order to create meaningful early childhood environments and learning experiences (Kostelnik, Soderman, & Whiren, 2007).

Those characteristics of the developmentally appropriate practices are also the essentials of the revised early childhood education program. Besides the other principles of the program mentioned in the previous paragraphs of this chapter, the emerged themes given in the result part, reflects the expected but not fairly met areas of the daily activity plans of the teacher candidates. In order to improve the practicum of the preschool teacher education programs, those five themes emerged are the priority areas to be achieved. Those five areas are; misunderstandings about being learner centered, failing to support creativity and to design creative activities, problems in concept teaching, problems in balancing the small group, big group and individual activities, and issues about the assessment techniques. Improving the practicum beginning with these areas needs also a mutual interaction between the teacher candidates and their practicum instructors, since these results serve as feedback for both of them.

Practicum provides an opportunity for candidates to identify their strengths and areas of need in collaboration with their advisor and university practicum instructor and chosen knowledge and skills on which to base practicum (Adams & Wolf, 2008). Therefore, they should have the opportunity to observe both the good examples in action and learn from their practice. In a recent research conducted by Tekmen (2012), one of the main issues about the practicum courses of the preschool teacher education program discussed was the miss-guidance of the mentoring teachers and not giving the desired attention to these practicum courses. Candidates were concerned about not having the chance of observing enough good examples before graduating and felt incompetent about their performance in their future teaching career. In order to overcome these concerns as it was mentioned in the same study, there should be more practicum hours and more efficient implications should be designed for these teacher education programs.

The quality of the preschool teacher education programs is a critical component in the education of young children (Bowman, Donovan, & Burns, 2000). Early childhood classrooms rated at higher levels of quality have teachers with higher levels of education, experience, and positive attitudes and knowledge about early childhood education (Saracho & Spodek, 2007). Preschool teachers' level of education also affects the quality of early childhood classrooms and predicts developmental outcomes for children (Adams & Wolf, 2008). Traditionally, completion of a degree program at accredited institutions of higher education was considered sufficient evidence that a graduate is prepared to be an effective teacher. Today the focus is on evidence of teacher candidates' knowledge and demonstrated competencies through experiences (Ramey & Ramey, 2006).

On the other hand, the concept of learning from our experiences is mostly based on the principles of reflective thinking (Atay, 2003; Chitpin, 2006; Larrivee, 2008). According to this view, individuals learn from their experiences by thinking of their actions systematically and effectively. In other words, experience does not provide learning by

itself alone. It needs to be processed to be useful for learning. What increases learning from the experience is the reflecting. Based on this approach, not only the activities practiced in the classroom, but also the reflection of these activities is essential for the learning process (Koç & Yıldız, 2012). Reflective thinking in teacher education can be performed by portfolios, keeping diaries, or video-recordings. Self-evaluation of the teacher candidates about their daily plans and activities can be considered as reflective thinking.

Therefore, research on professional performance of the teachers mostly focuses on self-efficacy and therefore with the help of self-evaluation tools that promote the reflective thinking. The impact of reflective thinking on increasing the teaching performance is also supported by the literature related to effective learning principles of Dewey, where he defined reflective thinking as thinking on any knowledge effectively, continuously and intensely (Köksal & Demirel, 2008). Thinking attentively on the experience or performance helps the teacher candidate to evaluate the learning process and reshape his or her performance.

In this study, the implication performance of the teacher candidates are evaluated through their activity plans. The evaluation focused on the characteristics of the reviewed preschool education program that mentioned in the background information of the study. The data analyzed showed that teacher candidates had misconceptions about the principle of being learning centered which they considered it as following the teacher centered activities. They should be well informed about developing learner-centered environments and activities that the children had opportunity to choose, decide and participate in planning and evaluating not only following the instructions given by the teacher. Therefore, teacher candidates should be monitored and get feedback by the practicum course instructors before, during and after their application of the daily plans.

Those five main themes emerged summarize the areas need to be supported and improved for better teaching skills of the teacher candidates who participated by giving their daily plans to the study. Other than the results given, having very rare parent involvement in daily plans and lack of science activities such as experiments were also other additional areas to be improved. Moreover, although the student centered activities are encouraged, practicum plans that are analyzed mostly include teacher centered activities. Teacher candidates were found insufficient about asking reflective questions both to the children and themselves. This reflection process can be named as the clinical aspect of teaching which the core of the profession is (NCATE, 2010).

In conclusion, prospective teachers must learn to address the problems of practice and meet the unpredictable learning needs of the children. They should also learn from practice, as well as to learn to practice (Darling-Hammond, 2006). Teacher education programs need not only to provide teachers access to more knowledge and but also help the prospective teachers to learn how to inquire into their work. Improving the clinical practice of teacher candidates holds great promise for sparking improvement in learning and achievement in the early years.

All young children must be nurtured in safe and caring environments that allow them to become healthy, alert and secure and be able to learn. The past decade has provided more evidence that good quality early childhood care and education, both in families and in more structured programs, have a positive impact on the survival, growth, development and learning potential of children (Smith, 2009 as cited in Ulvik & Smith, 2011). Such programs should be comprehensive, focusing on all of the child's needs and encompassing health, nutrition and hygiene as well as cognitive and psycho-social development. All children and adults must be given the opportunity to gain the knowledge and develop the

values, attitudes and skills that will enable them to develop their capacities to work, to participate fully in their society, to take control of their own lives and to continue learning.

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Chapter 9

CALCULATED QUESTIONS AND E-CHEATING: A CASE STUDY

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ABSTRACT

Many learning management systems permit to configure a questionnaire based on an existing item bank. This item bank should be large enough in order to assure that the students do not know the questions (and the corresponding right answer without any study) after several colleagues have solved the questionnaire. A way to minimize this problem is by creating a very large item bank (several thousands of items). In many engineering and science disciplines is an easy task to automatically generate random numerical variants of the same question. The answer of such question is numerical and it is obtained after some calculation using one or more parameters that are randomly assigned by the learning management system. This type of questions is called “calculated questions”. We have noticed that, even using calculated questions, there are some students that correctly answer the questionnaire in such a fast time that make the instructors think they have obtained some unfair advantage. During the time that some of these questionnaires was open, we have introduced a new calculated question and followed the evolution of the wrong/right answers over time. We have focused our attention on the students that solved the questionnaire in a fast time. Results show that after a few hours and after the first tenth of students have answered the new question, a surprisingly high proportion of students that solve the questionnaire in a fast way, answer the new question correctly.

Keywords: online questionnaires, calculated questions, computer based assessment, e-cheating.

1. INTRODUCTION

During last decades, several forms of e-learning have been adopted progressively to some extent in all educational levels. For example, in United States, the proportion of higher education students taking at least one online course has steadily increased from less than 10% to more than 30% over the first decade of the 21st century (Bowen, Chingos, Lack, & Nygren, 2013). This is also the case for European Educational Institutions where the use of e-assessment has been increased sharply since the beginning of the present century (Whitelock, Road, & Ripley, 2007).

The delivery of online test that are automatically assessed in real time is one of the most popular tools that e-learning provides to students and teachers. These online tests could be part of a complete online course or of a blended learning based course. In both cases, web based tests could be intended for assessment purposes, in order the students could check their progress (in real time, with instant feedback, anytime and anywhere), or for fulfilling both objectives (Whitelock et al., 2007). When used for assessment purposes, the main drawback of online tests is the ease of cheating (Bedford, Gregg, & Clinton, 2011; de Sande et al., 2010; King & Case, 2014; Rowe, 2004; Young, 2012). Additional disadvantages has been also pointed out as, for example, bias towards tech-savvy students over non-technical students and lack of social interaction between teachers and students.

Learning management systems (LMS) usually include several features that can be used to partially thwart online cheating: the use of username and password to access to the test, the use of large item bank, randomization of the questions, limit the time when the test is available, limit the time to complete the test, etc. (Cluskey, Ehlen, & Raiborn, 2011; King & Case, 2014; Smith, 2013). Many other measures have been proposed to reduce the online cheating, for example, academic dishonesty policy dissemination, setting a cheating trap in the web, the use of a class mole, statistical analysis to detect common errors, webcam surveillance, live or remote proctoring and/or the use of lockdown browsers (Bedford et al., 2011; Cluskey et al., 2011; Moten, Fitterer, Brazier, Leonard, & Brown, 2013). However, many of these strategies have a high cost (Cluskey et al., 2011) or are contrary to one of the great advantages of e-learning: the possibility of learn anytime and anywhere (Whitelock et al., 2007).

Regarding to the randomization of the tests, LMS usually offer several ways to create tests with some degree of randomness (de Sande 2010, 2011; Guimarães Pereira & Scheuermann, 2007; Montes, Deza, & de Sande, 2011; Pachler, Daly, Mor, & Mellar, 2010). Typical ways to obtain different quizzes are picking questions from a large item bank, changing the order in which the questions are presented and changing the order in which the possible answers are presented (at least for the case of multiple choice questions). It has been observed that when using a not too large item bank, some students solved the questionnaires in a suspiciously reduced time and obtained a good result (de Sande et al., 2010). A way to easily increase the item bank (till several thousands of items) is to automatically generate numerical variations of a set of base questions (de Sande, 2010, 2011; Montes et al., 2011). However, even in this case, after several semesters using the same item bank, it has been observed that some students obtained good results in surprisingly short time which is an indication of dishonest behavior (Moten et al., 2013).

The main goal of this work is to analyze if the use of calculated questions could avoid or mitigate the online cheating. Following this introductory section, the Background will be described in Section 2. The design and method used to develop the present study will be presented in Section 3. The main results of the work will be analyzed and discussed in Section 4. Some future research directions are mentioned in Section 5. Finally, Section 6 is devoted to the concluding remarks of this work.

2. BACKGROUND

Since 2009/10 academic year, the Higher School of Telecommunications and System Engineering (ETSIST) at the Technical University of Madrid (UPM) offers several degrees adapted to the European Higher Education Area. Both the courses content and the learning and teaching methods have been updated and a blended learning scheme have adopted in most of the courses included in such degrees. This is the case for Signals and Systems course that is a mandatory course of the Electrical and Electronics Engineering studies. Moodle platform (Moodle, 2014) has been selected by the UPM as the LMS for delivering different course material: course information including schedule, expected learning outcomes and competences, assessment methods, course content, slides, solved exercises, proposed homework, etc. Most of students (over 95%) enrolled in Signals and Systems course choose to follow a continuous assessment method instead of being assessed by means of a final exam exclusively. The continuous assessment method proposed in Signals and Systems course includes automatically assessed online tests delivered via Moodle (de Sande, Godino-Llorente, Osma-Ruiz, & S'enz-Lechon, 2012).

A large item bank (around 5000 different items for each questionnaire) has been developed during 2010 and it has been used to deliver online tests since 2010/11 academic year. After two consecutive semesters using the same item bank, it was noticed that a large group of students solved the test in a surprisingly short time and obtained very good results (de Sande et al., 2012). The high marks obtained in the test by a considerable large group of students (around fourth of students) that fulfilled the test in a short time made the author suspicious that some students were cheating somehow when they fulfilled the online tests. This was the reason for which the present work has been carried out.

3. DESIGN AND METHOD

The present study has been developed in ETSIST at UPM. Signals and Systems is a mandatory course of the Electrical and Electronics Engineering studies. Most of students enrolled in the course are sophomore students. The course is divided into four different subjects and at the end of each subject a questionnaire is delivered via Moodle. The marks obtained in the online tests counts for obtaining the final mark. The weight of each individual questionnaire ranged from 3 to 5% of the final mark. These online tests were delivered during two to four days and the students could solve it anywhere and anytime during that period. The time to solve a test was 30 min since the test was opened by each student. The test corresponding to the same subject of the course (Fourier analysis of continuous time signals and systems) has been selected for this study. The execution time as well as the date and hour when the test was taken as well as the final marks of this test have been analyzed for several semesters.

Since 2010/11 academic year, a large item bank (around 5000 items for each questionnaire) has been used to deliver the questionnaires. Each questionnaire includes 10 calculated questions and each question is selected from a set of items created as numerical variations (100 different variations) of several base items (from 3 to 8 depending on the question). An example of calculated question for Signals and Systems is given in Figure 1. This type of question can be classified as an analyzing process according to the Bloom's taxonomy (Krathwohl, 2002). The same example could be used changing "the magnitude" by "the phase", so two different base questions with similar difficulty are created. By using different wordings of the same question or substituting "angular frequency (in rad/s)" by "frequency (in Hz)" and so on, it is easy to obtain a set of 3 to 8 base questions with similar difficulty, and then create from 300 to 800 different items. For each student, only one of these items is selected to create one question of the questionnaire. It is expected that the students should derive the expression for the solution (where the parameters should be substituted by their numerical values) and afterwards they should evaluate this expression for the particular values of the parameters. Note that the students should find and introduce a numerical answer to each questions, they are not asked to select an option. The same procedure is followed for each of the ten questions of the test. Additionally, the questions are randomly arranged.

Figure 1. Example of calculated question. 100 randomly generated sets of parameters $a_j, b_j, (j=0,1,2)$ and ω_0 together with their corresponding right answers are stored in the item bank.

Question: Given a linear and time invariant system characterized by the equation $a_0y(t) = b_0x(t) + b_1x'(t) + b_2x''(t) - a_1y'(t) - a_2y''(t)$, find the magnitude of its frequency response for the angular frequency ω_0 (in rad/s).

Solution:

$$|H(j\omega_0)| = \sqrt{\frac{(b_0 - b_2\omega_0^2)^2 + b_1^2\omega_0^2}{(a_0 - a_2\omega_0^2)^2 + a_1^2\omega_0^2}}$$

The online tests were delivered during two to four consecutive days that were announced at least three weeks in advance via Moodle and during the previous week in classroom. Students could solve the tests anywhere and anytime within the allowed period. They could use their notes, books, etc., but were asked to solve the test individually.

Moodle platform registers all the activities carried out by each student along the course. The delivered online tests were analyzed. During the first semesters analyzed in this work (academic years since 2011/12 and 2012/13), only the execution time for each student as well as the mark obtained were studied. A total of 102 and 168 students solved the test during the 2011/2012 and 2012/2013 academic years, respectively. Graphs of these data for the two semesters are presented in Figs 2 and 3. Many students solved the test in a short time and obtained a good mark. It is reasonable to think that most of those students knew the general solution for most of the base questions so they only had to substitute the numerical values for finding the right answer to each question. Probably, some of students enrolled in the course for second time had collected a set of solutions, or may be, groups of students worked together to solve the tests (Young, 2012) and found the solutions for different sets of questions.

In the 2013/14 academic year, a set of items used for a given question was replaced by a new set that was created following the previously described procedure. The date and hour when each student opened his/her test, as well as the time employed to solve it were analyzed and compared to test mark and to the right/wrong answer to the new question. A total of 76 students, 13 females and 63 males, solved the test under the described conditions.

4. RESULTS AND DISCUSSION

Figure 2 shows that, during the first semester studied, corresponding to the 2011/12 academic year, 23 out of 102 students solved a 10 items test in less than 12 min and most of them obtained a mark over 9 (except 4 outliers). The mean mark for this group of students was 8.4 (on a 0 to 10 scale), considerably higher than the mean mark for all the students that solved the test during that semester (7.4). It is expected that most of students did not take unfair advantage in solving the test. However, it is difficult to believe that a student could correctly solve 10 questions like the example given in Fig. 1 in less than 12 min without any unfair help (19 students, nearly the fifth of the total number of students, did it and obtained a test mark over 9).

A similar behavior is observed in Fig. 3 for the marks obtained by the students of the following academic year. The number of students that carried out the test in a short time is larger than in the previous case, up to 40 out of 168 students fulfilled the test in less than 12 min and obtained a mark over 9. In this case, the mean mark for the group of students that solved the test in less than 12 min was 8.8 while the mean mark of all the students that solved the test was 6.8. In this case, the difference between the mean mark of the students that solved the test in a short time and that of the all students is even larger than during the previous semester.

Figure 2. Performance of students of the 2011/12 academic year in a test including 10 calculated questions.

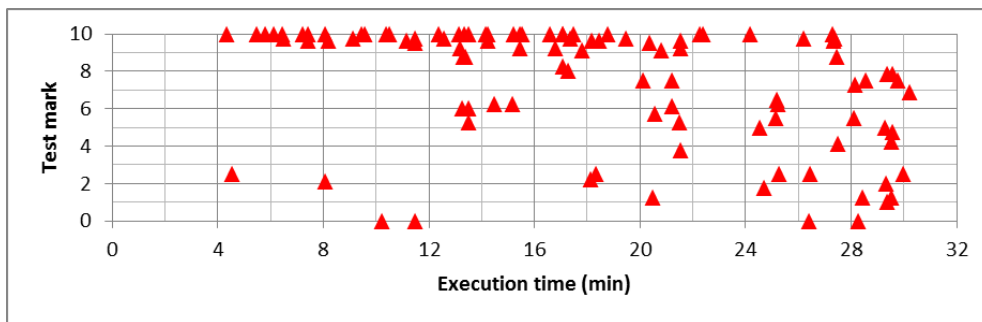
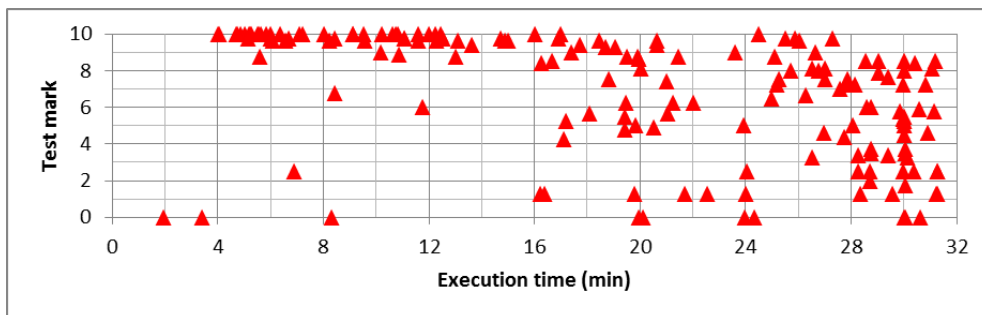


Figure 3. Performance of students of the 2012/13 academic year in a test including 10 calculated questions.



During 2013/14 academic year, the test under study was slightly changed: a set of items for creating a given question was changed by a new set of items. Three different base calculated questions of similar difficulty (wording variations or asking for different aspects of the same issue) were introduced in such a way that 300 new items were automatically created as numerical variations of the base questions. The LMS randomly selected just one new item anytime a student opened the test. The date and hour when each student opened the test, as well as the execution time, total mark of the test and the answer to the new question were analyzed. The students were divided in groups depending on their answer to the new question and labelled either as 'R' for right answer or 'W' for wrong answer. Depending on the execution time, label 'F' was assigned to those students who fulfilled their test in less than 15 min and label 'S' to those who fulfilled their test in more than 15 min. Then four groups of students appeared: students that solved the test in less than 15 min and give the right (wrong) answer to the new question, denoted by R-F (W-F) and

red diamonds (blue triangles) in the graphs of Figs. 4 and 5, and students that solved the test in more than 15 min and give the right (wrong) answer, denoted by R-S (W-S) and orange circles (green squares).

Figure 4 shows the total mark obtained by the students as a function of the time employed to fulfil the test during the third semester studied (2013/14 academic year). It could be observed a similar shape of the graph to those of Fig. 2 and 3. However, there is a slight difference for those students that fulfilled the test in a fast way (label 'F'); their mean mark is slightly lower (7.9) than those of the equivalent group in the previous two semesters. In fact the fastest students obtained a mark around 8 instead of over 9 as it was observed in Figs. 2 and 3.

Figure 4. Right and fast (R-F), wrong and fast (W-F), right and slow (R-S), or wrong and slow (W-S) answer to the new question vs execution time. In vertical appears the overall mark obtained by each student in this test.

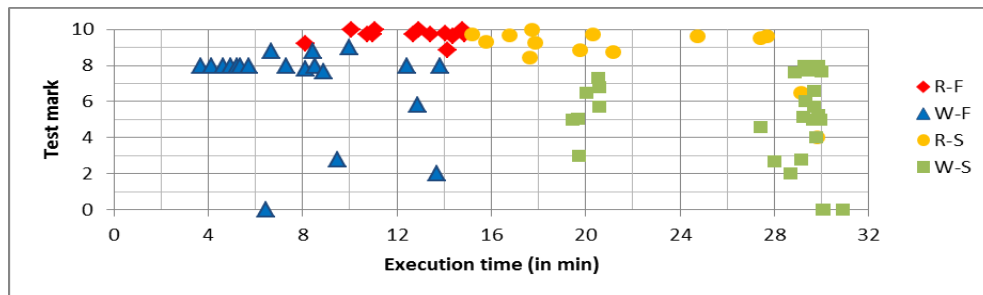
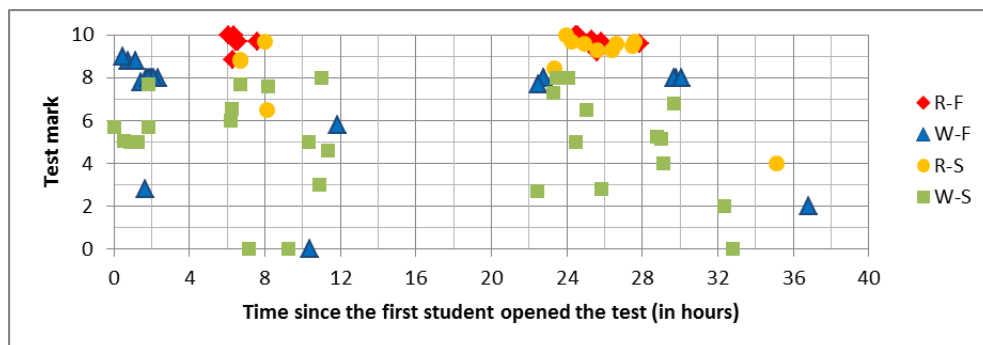


Figure 5 shows the total mark obtained for each student as a function of the time when they opened the test. Then the evolution of the right and wrong answers to the new question can be appreciated. Again, the data are presented for the same four groups as in Fig 4.

Figure 5. Right and fast (R-F), wrong and fast (W-F), right and slow (R-S), or wrong and slow (W-S) answer to the new question vs time since the first student opened his/her test. In vertical appears the overall mark obtained by each student in this test.



It can be observed that the first right answer does not appear till six hours later than the first student opened his test. Moreover, up to 17 students opened the test and give a wrong answer to the new question before the first right answer appears. However, 45% of students that opened and solved the test after the first right answer was given, correctly

answered the new question. Assuming that this percentage represents the probability that a student correctly answers that question, it is hard to find a sequence of 17 consecutive wrong answers (the probability of such fact would be less than 4×10^{-5}).

Considering only the students that opened the test after the first right answer to the new question had appeared, it can be observed that: i) 59 % of students that solved the test in less than 15 min, correctly answered the new question, while only 39% of those that solved the test in more than 15 min, correctly answered the new question. This result does not mean that all students that solved the test in a short time behaved in unfair way, but it is a suspicious result. In the same way, it is possible that some students that solved the test in a long time also took some unfair advantage of the conditions for doing the online tests.

On the other hand, the evolution of the right/wrong answers to the new questions also suggests that students that opened the test during the first 5 hours and cheated probably used collected solutions from the previous years. Maybe some students were provided with the old solutions but were not warned about the changes (blue triangles around 22 and 30 hours in Fig. 5). Those students provided with solutions from the previous semesters that opened the test during the first hours were probably surprised by the new question, so they answered with an old wrong rule. Probably, some of them warned to others students that possibly worked together to find the general solution of the new question (Young, 2012). After they found the solution, they probably disseminated it among the rest of students interested in cheating.

There is no doubt that calculated questions help instructors to ask for higher level cognitive processes, as application, analysis and synthesis or evaluation, in the Bloom's taxonomy (Krathwohl, 2002). The randomization of the parameters included in each question, could partially help in the objective of reduce the online cheating. However, students could be able to elaborate a recipe for each question type (the used formula to answer the question) and collect them together in library test files. Then many students that opened the test afterwards and students of the following semesters could use a single sheet with a set of recipes to solve the test and obtain a high score.

5. FUTURE RESEARCH DIRECTIONS

Online test intended for assessment, and in general, online learning presents unquestionable advantages for students interested in learning, especially for those who have difficulties due to distance, disability, illness, or work commitments (Whitelock et al., 2007). Online learning also permits to develop potential high-quality instruction with a considerable cost reduction for educational institutions, (Bowen et al., 2013). However, online test assessment, and in general online assessment, also presents great advantages for students interested in cheating (de Sande et al., 2010; King & Case, 2014; Moten et al., 2013; Rowe, 2004; Watson and Sottile, 2010; Young, 2012). This is only one of the reasons why it is necessary to develop rigorous studies on learning outcomes for students enrolled in online courses or courses that include some kind of online assessment.

6. CONCLUSION

The comparison of the execution time of online tests and the marks obtained by students in such tests, made the author suspicious about the way the students solved the tests. An experiment was designed to confirm this. A new question was introduced in a given test and both the time taken to solve it and the sequence of right/wrong answers to the new question was analyzed. An extremely improbable sequence of 17 consecutive wrong

answers to the new question was found at the beginning of the period given for solving the test. After the first right answer was given (about 6 hours after the first student opened his/her test), the percentage of students that correctly answered the new question was significantly higher (59 %) for the group of students that solved the test in a short time than for those that solved it in a longer time than 15 min (39%). Calculated questions could be used to easily create questions that require higher level cognitive processes. Then, instructors have a powerful tool to engage and help students interested in learning. Cheating may be harder when these calculated questions are used to create questionnaires, but dishonest behavior of students is not prevented by only using such type of questions. Further research is necessary in order to develop secure, valid, and reliable online assessment.

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Section 2

Projects and Trends

Chapter 10

HBBTV HISTORY AND ITS EDUCATIONAL POSSIBILITIES: TEACHING OPTIONS IN TIMES OF THE INTERNET

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ABSTRACT

Hybrid Broadcast and Broadband TV (HbbTV) is a new device that combines common visual and audio media consumption like we know it with the possibilities of the Internet. As a consequence, HbbTV facilitates not only new forms of consumption, but provides us with new possibilities in education. Schools and other educational institutions like universities have started to explore the advantages of this new technology with regards to its ability to create more horizontal, creativity fostering dynamics. Within this chapter we demonstrate how HbbTV, as a convergence tool (Jenkins, 2008) provides useful results for students and professors when installed in the seminar room. We will exemplify our discussions with results from our mixed method research. Final results point out that the HbbTV transforms educational space into a multimedia environment with completely new possibilities and challenges for students and teachers. On the basis of our analysis and possible results we will give some recommendations for using HbbTV and multimedia technologies in teaching and co-learning.

Keywords: HbbTV, education, television, internet, university, professor.

1. INTRODUCTION

The possibilities to access all kinds of contents via the Internet, to communicate and interact with people and to produce own contents, contributed to the on-holding consumers' demand for always new tools, programs and devices. One of those desires might have been the inspiration for the development of a tool/device that combines the audiovisual experiences of a TV set with the flexible forms of knowledge acquisition, consumption and social interaction that the Internet provides us with.

Videotext/teletext might be understood best as a first pioneering step towards such a device. However, latest since the Internet has provided us with never ending possibilities to act, consume, interact and get information on always better computers, the dream of a connected TV set has started.

Another important key element that helps us to understand the path towards HbbTV is the rise of Social Networking Sites (SNS). SNS allow users to create and provide contents, to consume them, and to communicate about and via these contents with others diachronically and simultaneously in real time. SNS have also allowed consumers to directly provide feedback to consumed products, and therefore to shape and form the production and consumption of media outputs in a much more direct and instant way.

Consequently it has been argued that SNS and other social media have contributed to a profound shift in the relationship between users and producers. They have contributed to the emergence of a new social phenomenon: the “prosumer” (Toffler, 1980), a fusion between the figure of the consumer and the figure of the producer. These transformations along SNS and Social media have given media production and consumption practices a completely new more democratic aspect. Connected TV sets such as HbbTV want to answer to these new needs and demands (Bajon, 2012) for various forms of self-representation via the Internet and especially Social Media (Thumim, 2012) in a much more instant way, and on a big screen. It is this democratizing aspect and the potentials of visual representation that are important parts of using HbbTV in the classroom.

Once established part of people’s behavior with media, new devices were increasingly demanded that would allow combining consumption, production and socially interrelating with others. It is here where the explorations towards connected TV sets find their origin. In fact, connecting with others via Social Networks (SNS) is now an important part of people’s behaviour when using HbbTV (Hybrid Broadcast and Broadband TV), a key element in their interactive and multimedia performance (Bachmann y Harlow, 2012) via a connected TV set.

One of the issues that had been widely discussed, with regard to the new technological developments that unite TV consumption and Internet use, concerned the terminal, or consumption form that will predominate at people’s homes - the TV set or the computer. Whilst at first it seemed as if the TV set would slowly disappear from people’s households, especially the speed of Internet connections and the quality of newest TV screens have allowed connected TV sets to celebrate a surprising return. Furthermore, with the appearance of other convergence technologies like smartphones and tablets the answer to the question which device might predominate in people’s homes might become much more eclectic. What we know for the moment is that people prefer to have and to use a variety of different technological tools to consume TV programs, to serve the Internet and to shift between different media channels (Jenkins, 2008).

The HbbTV (Hybrid Broadcast Broadband TV) is one of the latest steps towards TV-Internet convergence on a TV set (Fondevila-Gascón, 2012a). A declared goal of developing HbbTV sets (Marcos Álvarez, 2012) was taking a step further in direction to a connected and converged household within the Broadband Society (Fondevila-Gascón, 2012b). Another important aim of HbbTV developers was the development of a device that would allow a very quick and easy switching between provided and self-produced contents on a big screen, a must for the future of European society (Reding, 2008).

Our goal was to find out whether and how such new and advanced technologies might not only transform profoundly the relationship between consumers and producers but how it can change dynamics in the classroom or seminar room (Morais, Miranda, & Alves, 2014) and whether these changes were suitable for what we could call the education of the future. Short, we wanted to figure out whether HbbTV technology could transform the seminar room in a more open educational environment with more horizontal structures.

2. BACKGROUND

2.1. The Internet and television in the classroom

The rise of HbbTVs in households and the on-going demand for such devices tells us not only something about the future of the TV but something about the new demands of society. What we demand from a TV or a media device is more control about contents and a rather creative potential (Navarro, Villarreal y Martínez, 2010). We want to feel sovereign

and free, able to use our capacities and to relate via these self-expressions with others. In this sense the rise of HbbTV sets tells us something about a technological but also and more importantly about a political and social reality. We believe that if we look into that social reality that makes out of HbbTV such a crucial device of our times, we can explain whether and if yes why HbbTVs might be a good option for education in class and seminar rooms.

The first reason why HbbTVs are so popular is related with with our changed consumption behaviour, with when and what and how we want to consume. We want to explore contents along own lines, we want to follow personal interest and thoughts and we want to be able to comment and argue about what we consume. HbbTV gives us the freedom to do so. Along this line it is easy to picture the educational possibilities of an HbbTV device in the classroom. New educational tendencies towards applied learning, that is intuition and experience based, and flexibly adapts to questions and problems in class, rather than disciplinary and fix can make out of HbbTV a valuable tool in the class room.

Second, people expect more horizontality, more democracy and forms of knowledge acquisition that involve them as unique individuals and that comfort and stimulate their creativity. HbbTV directly feeds into such tendencies as it allow exploration, communication, interaction, creation and critical intervention along own terms. A transformation from a top down to a more horizontal form of “content distribution”, towards democratization and towards a stronger involvement and stimulation of creative capacities can be also seen in the educational sector in which new forms of horizontal/democratic knowledge distribution win increasing popularity Wenger E. (2000, 2005). Not only the turn towards alternative education models in but also different citizen science projects in Urban and City Labs point into this direction. What is true for new institutions or older institution with new educational models is obviously also true for the more traditional institutions and educational settings. Schools, universities, short all those institutions that have traditionally taken over an important role in the education of the citizens of our world have started to rethink education and knowledge distribution, and have consequently started to implement horizontality fostering and creativity based educational techniques in the class and/or seminar room. Again working with HbbTV sets in the classroom might allow teachers to create and keep dynamics more horizontal.

Third, the quick development and rise of new Information and Communication Technologies (ICTs) in all kinds of life spheres and the growing importance we give to all kinds of abilities in order to use them have led to the general consent that we need to implement ICTs in education not just within IT classes but in all kinds of subjects. Education in digital technologies cannot begin when people need to use ICTs for work, education in ICTs can also not be limited to one or two topics. Digital literacy can only be achieved when ICT education is started within the youngest school classes, and when the use is explained by applying ICTs on different subject matters.

We believe that the combination of all three, a demand for a more “natural”, non-disciplinary form of education, a demand for new forms of horizontal, creativity focussed and experience based education, and the demand for ICT skills in all kinds of jobs demand for creation of new structures and dynamics in the classroom and a more flexible approach to using digital multimedia tool. With our research we wanted to figure out whether and in how far HbbTV was able to contribute to the creation of such structures, to create a multimedia educational space in which new forms of action and interaction become possible that go beyond the simple use of ICTs in the classroom.

3. OBJECTIVES, DESIGN, METHODS, RESULTS

3.1. Objectives, design and methods

The central objective of our research was to find out whether and why HbbTV technology installed in a seminar/class room can (contribute to) create not only a multimedia-learning environment but also facilitate that teachers and students meet and engage differently, that they create and experiment with each other and that they overcome some of the basic problems of the traditional class/seminar room – false hierarchies between experts (teachers) and students that hinder a fluid knowledge exchange from both sides and missing engagement with the matter of a course from both teacher and student sides. In fact, with our research we wanted to figure out whether and how the HbbTV device would be able to transform the educational space into a multimedia space with completely new features and challenges.

In order to come forward with some valuable empirical data we decided to carry out a case study (Yin 2014, Bassegy 1999) within the Abat Oliba CEU University, in Barcelona (Spain). The case study as methodology allows the researcher to carry out explorative research with a small sample. The basic idea is that rather than doing an extensive research on many research objects, the researcher focuses on one research object that is studied intensively and exhaustively. Although using a small sample size results are transferable on other settings and research objects. Therefore, the case study approach is valuable for research projects in which the researcher has very limited access to empirical material, either because the researched phenomenon is relatively new or difficultly to access. This is also true for the field of educational research (Bassegy 1999). In our case it was especially the novelty of the technology that made it difficult to work with a big sample size. Furthermore, we wanted to explore intensively the effects and use value of HbbTV in the classroom, which might have been impossible with a bigger sample size.

In fact, at least in Spain, Abat Oliba CEU University has been one of the first universities that experimented with HbbTV technology in its classrooms. Therefore, this university provides some unique insights into educational possibilities related with HbbTV technology in class/seminar rooms. Doubtlessly we are aware of the risks of such a small sample. E.g. our data might be partly biased by social class. Abat Oliba CEU University is a rather small private university that attracts a quite specific student profile.

In order to gather useful data we worked with three different methods. We carried out qualitative interviews with all second year students in 2013 and with five of their professors. We sent out an open evaluation questionnaire to all students of the university by the end of the two different semesters of the year 2013 in which we asked students to evaluate the use of technologies in the classroom and which allowed them to comment on problems, challenges and opportunities of these HbbTV uses in the class. Additionally, we did 10 seminar room observations in the seminars of professors using HbbTVs in their class. These field observations provided us with additional data about those things that did not enter into the qualitative interviews and the questionnaires but that helped us to understand contradictive answers, unclarities, and some of the emotional reactions that participants showed when being interviewed but that were not explained or verbally explicitized.

After having collected all the different data we brought them together and codified them. Rather than working with the questionnaires as quantitative data sets we translated them into meaningful information that explained/contrasted interviews and field observations. By interpreting data collected with three methods, and by relating them synergistically with each other we were able to gain some interesting results and to extract

some of the consequences that HbbTV has when installed in an educational space (Fondevila-Gascón, Sierra-Sánchez & Del Olmo-Arriaga, 2011).

3.2. Results

In order to present a structured analysis of the gathered results we will order the uses that teachers and students make of HbbTV into the three fields in which supposedly changes in education occur: a more experimental, creativity fostering, real world problem oriented approach, more democratic horizontal structures in the class room, and the need to be literate with ICTs in order to cope with new demands from the labor market (and society). On the basis of the comparison and of results from our field observation, interviews and questionnaires we will look whether and in how far HbbTV technology can contribute to the transformation of the seminar room into a space with new characteristics and potentials.

3.2.1. Experimentation/Applied Learning/Creativity. Teachers emphasized that HbbTV devices in class allowed them to approach problems differently and to discuss them in a more transversal way. The possibility to follow different thought streams, and to spontaneously explore a topic a little further than planned, gave their teaching and the interaction with the class a stronger liveliness and allowed them to stay close to emerging questions and to the specific demands and needs of students. This was also one of those things that students valued most positively. Students underlined in their interviews that teachers had started to engage stronger with them and that some teachers had adapted much stronger to questions or topics that were raised in the course.

Teachers insisted also that the possibility to play games within the class and to show and interact with students on a big screen was a very positive feature of HbbTV in class. The possibility to use and play (educative) games in class allowed students' to use their creativity. This creative engagement fostered a better and stronger interest of students for the course contents and related students with each other. Furthermore, playing games allowed teachers to include students with different profiles, to respect their different interests and to build on their strengths and weaknesses. Students also expressed that games had become a very positive part of their seminars. In fact, some interviewed students emphasized that they felt now much more addressed and included since online games were being played. Reportedly, contents seemed more attractive to them as it 'invited them to actively do something' (student, Journalism, 23 years). In this sense we can say that introducing interactive gaming education (introduction of gaming exercises, assignments, answers with options) was a big success.

From our field observations we can confirm that these uses of technologies in class really made a difference. In fact, especially whilst using games and thereby experimenting with contents students did not only seem better engaged and more motivated in class, they were also pulled stronger together. As one student told us: "Sometimes after class, we just stayed and continued talking... In fact, the communication about these games has become a part of our daily talk. I mean we hang out and talk about music and stuff... and sometimes about the games we play in our seminar." (Student, 3rd year, Communication Department). Getting the contents of class in everyday life conversation is an important advancement in direction of a more integrated and deeper knowledge and a step towards the establishing of a knowledge and discussion culture. As one of our professor confirms: "They are much stronger in discussing and debating concepts in class. They know more and they know how to talk about what they know." (Teacher, Communication).

3.2.2. Democratization/Horizontalization. A second important field of transformation in media consumption as much as in education that we mentioned, concerned the tendencies towards a more horizontal structuring, and at least an intended democratization of content consumption, content creation and of discussion culture.

Starting to analyse our interviews with professors and students and looking at the open answers in the questionnaires, we quickly acknowledged that both sides agreed that the use of HbbTV in the seminar room had paved a new way in order to engage and to interact with each other and to relate with contents. An important part of this new form of interaction was based on the use of Social Media. Teachers reportedly used social networking tools (Facebook, Twitter, LinkedIn or YouTube in the class) not only as object of teaching but also as an additional content provider, as a possibility to engage with teachers in class and after class and as an in- and after class debating tool.

In our field observation in various seminars we were able to observe how teachers, followed newest topics with students and were therefore able to discuss contents directly, and to discuss different consequences of online communication whilst observing predicted and discussed possible outcomes. Furthermore, in some classes Twitter was used to communicate with students and teachers in class. This had the advantage that whilst talking students were able to discuss some of their questions on screen whilst the professor was talking and shy students felt readier to ask questions, e.g. via Twitter that could then be addressed by the teacher.

A further positive democratizing consequence of Facebook and Twitter in class had to do with the transference of a part of the discussion to moments after class. Student continued commenting on Facebook group topics. In this off-class environment the traditional hierarchy between teacher and student disappears. As one of our teachers mentioned: “In our Facebook group I am not the teacher I am just another voice. Sure you never lose who you are for others but I feel like this and I guess my students do also do.”

Another useful and democratizing part of the HbbTV came from making use of polls in class. On the one hand side, this allowed teachers “to understand what students wanted, and what they thought and understood.” On the other hand it allowed students to share their perceptions and to feel encouraged to participate stronger in class.

3.2.3. ICT skills. As we explained, ICT skills are fundamental not just for specific computer-related jobs but for all kinds of activities and professions in the Network society (Castells, 1999). A central discovery of our research was that students not only discovered the possibilities to use the web and web tools but that teachers learned also from students. In fact, some students were able to show teachers some of the latest Internet related developments, such as different forms to use Google Docx. In many cases ICT skills were developed by bringing together abilities of teachers and students. Such a collaborative context allowed creating a crowd-science context within the seminar room. Another great advantage with HbbTV was that teachers and students were able to observe problems and possible mistakes when using the Internet ad hoc. Furthermore, students understood much better that ICTs and ICT skills could be an improvement for all kinds of tasks. Last but not least the use of tools in class that were applicable outside of class allowed students and teachers to work on their ICT skills when returning to their homes.

3.2.4. General Assumptions. Based on our analysis, we can affirm that HbbTV technology really allowed the creation of new educational practices within the seminars on three levels: a better and more integrative experimentation/creation/consumption, a more horizontal classroom structure, and a better form to develop and use ICT skills. HbbTV

technology stimulated teachers to experiment with new methods to educate, such as various techniques of interactive discussing, collaborative experimenting and gaming. HbbTV technology allows students and professors to consume together and interact with each other not just through common forms of interaction but also via the Internet on various levels and via various channels and helps to overcome some negative group dynamics. In this sense HbbTV technology as an open and horizontal technological system facilitates a much more flexible and student oriented, more social and more democratic learning and teaching behavior, that invites students to participate, and to continue thinking and using concepts after class.

These innovative developments with and along HbbTV were strongly reflected in our interviews and questionnaires. Students and teachers confirmed a stronger engagement in class and a better and more critical use of contents and course materials. Numerically expressed the perceived quality of the courses from students' side rose from 2,9 to 4,1 on a Likert-Scale (1 worst to 5 best). The general satisfaction with teaching increased in those classes in which HbbTV technology was used (from 3,9 to 4,2). In the open questions and interviews, students expressed that they saw in used technologies "helpful", "engaging", and "interest generating" tools that made classes more modern and less dry. Teachers using HbbTV in class reported about an increase of participation in classroom activities that had not only to do with direct interaction with and via HbbTV but the long term effects of HbbTV on ICT uses at home.

However, from the interviews and from our field observations we know that there are new challenges and problems related with the introduction of HbbTV technology in the seminar rooms, such as sometimes lax attitude of students in class, missing concentration and student's focus on social media themselves rather than their educative potentials. Here teachers or professors are demanded to put up boundaries and to use these new multimedia tools in an applied, however clearly focused way so that students cannot and will not get lost in the sheer endless possibilities to use the web.

4. FUTURE RESEARCH DIRECTIONS

Probably it will take a while until HbbTV devices will become part of every seminar room. However, based on our research we can say that younger students, growing up in multimedia environments, demand increasingly multimedia uses in the classroom. It is with secondary school students that future research has to be carried out. We consider that with regards to the advantages and challenges of HbbTV implementation in universities long term and comparative studies might also be necessary. We can study empirically the use of multimedia in educative HbbTV, applying an accepted scientific methodology (Fondevila-Gascón, 2012c, Fondevila-Gascón, 2014). Furthermore, we can follow the relationship of HbbTV with instant messaging (Fondevila-Gascón, Carreras-Alcalde, Mir-Bernal, Del Olmo-Arriaga & Pesqueira-Zamora, 2014), the election of University (Fondevila-Gascón, Del Olmo-Arriaga & Carreras-Alcalde, 2012), with digital production models (Fondevila-Gascón & López García-Navas, 2015) and with social networks (Fondevila-Gascón & Perelló-Sobrepere, 2014). Class, gender and place might have a crucial impact of uses possibilities and challenges with HbbTV in the class/seminar room (Volman, van Eck, Heemskerk, & Kuiper, 2005). Following this logic we also suggest comparative studies between different regions and/or countries.

5. CONCLUSION/DISCUSSION

HbbTV technology is not only a new form to combine Internet and TV consumption. It provides the teacher and the student with completely new possibilities when introduced into the classroom. We were able to find a variety of different uses of these technologies e.g.: the work with social networking applications (use of social networks in the class and after class), the possibility to gather online information, to motivate students and to create positive class dynamics through virtual gaming education, to increase interactivity between teachers and students but also in peer-to peer relationships and in order to facilitate a more actively student driven learning environment. In this sense, HbbTV contributes positively to the creation of a creativity and constructive criticism fostering, horizontal, more democratic, real life demands focused learning environment that reflects general transformations and demands from our society. It is by transforming the seminar room into a place where everyone can act and interact, where different student types and profiles can act and interact according to their demands and needs, where contents can be explored and consumed according to concrete emerging needs and where skills can be learned that serve socialization and professionalization outside of the aula that HbbTV significantly turns the seminar room into something completely different. A question that we definitely have to ask ourselves is, whether this gained horizontality, creativity and the focus on the now rather than the contents to be learned does not create completely new challenges and difficulties, such as a lower student attention in class, a missing ability to do profound readings of the literature and missing ability of students to accept that the content of a class is determined by the relevancy of topics and contents not only by students' desires. Another not yet discussed problem is to expect too much from the technology itself. As literature shows educational differences condition the abilities of students to use and to make use of these technologies (Heemskerk, I., Brink, A., Volman, M., & Ten Dam, G., 2005). These inequalities might be unsolvable by introducing a technology, be it HbbTV or any other ICT.

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Chapter 11

CONCEPT MAPS AS KNOWLEDGE-BUILDING AND ARGUMENT-SYSTEMATIZING TOOLS Experimenting with undergraduate students

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ABSTRACT

In the second semester of 2012, a first experiment with concept maps (CMs) as pre-writing and collaborative work technology with 130 undergraduate students in Curitiba (Brazil) proved to be a powerful team-spirit and argumentative competence-building resource. Constructed over the principles of meaningful learning (Ausubel, 1978), andragogy (Knowles, Holton, & Swanson, 2005), concept mapping (Cañas et al., 2004, 2005; Novak, 2003; Novak & Cañas, 2004, 2007; Torres & Marriott, 2009) and the efficacy of using CMs in collaborative working scenarios (Torres & Kucharski, 2012; Kucharski, 2013; Torres, Kucharski, & Marriott, 2014), the experiment showed noticeable quality gain in works presented by the study population in three different undergraduate courses, showing an average of 15% higher grades. The research design, application and a first discussion of its results are hereby presented.

Keywords: concept maps, collaborative work, educational technologies, meaningful learning, argumentative competence.

1. INTRODUCTION

Even not focusing on rhetorical discussions about what *knowledge* effectively is (assuming each research group decides upon a concept over which all its argumentations are built), we still find ourselves before a different challenge: in how many ways can knowledge be represented effectively? The most common ways are granted: orally, in written and in rather simple graphic forms. However, new software have made it possible to combine different, ever more complex representation forms into innovative, more clarifying and attention-grasping products.

Educators in all educational levels have often complained about a perceived difficulty of their students to cohesively, coherently and contributively organize and articulate their newly-built pieces of knowledge, and such difficulty was even bigger when it came to systematize and represent the process through which such knowledge was attained.

Yet, it is necessary to make our choice of a concept for knowledge clear, one that will guide our understanding and our proposals towards ways of representing it – and/or the process of its acquisition. In this case, it is Ausubel, Novak, and Hanesian's (1978) proposition of a meaningful knowledge. Torres, Kucharski, and Marriott (2014, p. 496) describe it as follows:

Broadly speaking, in this type of knowledge, new knowledge is incorporated via the assimilation of new concepts and, fundamentally, of new meaningful conceptual relations established with our previous knowledge repertoire. This incorporation – meaningful knowledge as such – happens by the mediation of language, provided three basic conditions are met:

(1) The material to be learned must be conceptually clear and presented with language and example relatable to the learner's prior knowledge. (2) The learner must possess relevant prior knowledge. (3) The *learner must choose* to learn meaningfully (Moreira, 2007, p. 2; Novak & Cañas, 2007, p. 30, italics from original).

Using concept mapping as an interpretive resource to facilitate the comprehension of inner interdependencies that render a given text coherent (or not!) is far from new to Education. Much has been published and discussed about it, even very recently, from original perspectives on what concept maps – CMs – should be (Cañas et al., 2004, 2005; Novak & Cañas, 2007; etc.) to extensive reviews of their successful applicability (Torres & Marriott, 2009; Torres & Kucharski, 2012; Kucharski, 2013; Torres et al., 2014; etc.).

Nevertheless, most of what has been researched and published on the construction and use of Concept Maps (CMs) rarely differs from *a posteriori* uses to understand structures and intertextual implications of texts – all from an analyst's standpoint. Our intention, in the hereby described research, was to establish first impressions on the usability of CMs in pre-writing stages of original papers. The main objective was to identify positive qualitative changes in a variety of genres of undergraduate students' papers in cases where CMs of their structures were produced and collectively discussed *a priori* as opposed to texts written without this kind of planning strategy. As secondary goals, we intended to understand more about the influence of such strategy in collaborative team-spirit and argument-building competencies.

The initial work and research were conducted with 130 undergraduate students from the Communications, Graphic Design and Law Schools of a distinguished college in Curitiba, a large city in Southern Brazil, renowned for the quality of its higher educational institutions. The study was designed by the author, further developed and implemented with the help of three other professors in the partner college.

2. THE RESEARCH

Once the institution for the research had been chosen, contacted and formally joined our efforts, professors whose work results depended on students' strong writing and argumentative competencies were contacted to participate in the study by applying the designed work methodology with their groups and work with a review committee of volunteer researchers that would analyze the results with the head researcher.

2.1. The methodology

Three volunteer professors were given workshops on the research's main objectives, methodology and theoretical basis, which included principles of meaningful and critical learning (Ausubel et al., 1978; Moreira, 2007), andragogy (Knowles et al., 2005), textuality and relevance (Silveira & Feltes, 2002), technological mediation applied to teaching and learning (Novak, 2003; Moran, Masetto, & Behrens, 2006) and the nature and applicability of CMs in constructivist pedagogical activities (Novak, 2003; Novak & Cañas, 2004, 2007). They were also taught to use Cmap Tools, a CM building free software developed by the Institute of Human and Machine Cognition of the University of Florida, with which

students should be familiarized in order to construct their pre-writing maps – which, in their turn, would be the main source of research data to be analyzed later.

These professors would, then, show and explain CMs to their classes, later taking the students to computing labs to teach them how to correctly download, install and use Cmap Tools as a collaborative instrument to plan and discuss a text yet to be written.

Next, each professor would ask students in their classes to team up in groups of three or four which would be challenged to produce a text in a common genre in their field of work and study, collectively planning it with the use of the software. The challenge was not the same for each class, because the multiple possibilities of CMs to plan a number of different text genres was an important part of the research. Nonetheless, the underlying conditions for producing an acceptable text would always be the same. Torres et al. (2014, p.591) elaborate:

When planning the writing of a text by concept mapping, the student/author can visualise and enrich both sequence and text coherence in such a way as to produce a much more elaborate piece of text as regards the criteria applied to scientific text production. Based on Beaugrande and Dressler, Koch (2001) discusses textual criteria, listing the following ones: informativity (what does the text complement to the reader's own knowledge?), situationality (is the chosen genre and text type the best for the communicative situation?), intertextuality (which connections does the text make with other similar pieces of text, in terms of theme/subject, and what does this demand from the reader's knowledge repertoire?), intentionality (is the informative/argumentative intention clear in the text? Does it respect its objectives without committing unwanted ambiguities?), acceptability (is the text written in a way as to facilitate understanding by the reader?).

Koch and Travaglia (1999) add other four categories that, although they may seem partially redundant as regards the previous ones, they bring some new perspectives: contextualization (does the text reveal its content without treating knowledge as a collection of isolated data?), focalization (does the text present its content in such a way as to create a common ground for dialogue with the reader?), consistency (is textual construction consistent, with a clear meaning, when considered as a whole in its arguments and images?) and relevancy (is there a relevant central subject guiding text construction?) (pp. 76-101, own translation).

Such conditions should be depicted in the proposed CMs, in the form of visibly predictable interrelations that should help the development of the final texts.

Undergraduate students in the Graphic Design School were asked to plan and construct a presentation of a department store signalization solution to a potential client. Their specific challenge rested on the fact that the proposed solution would be more expensive than the client had anticipated in the briefing moments, and they would need to be ready to reason in favor of their plan. The groups would be asked to build pre-writing CMs to study their strategies to restraint any predictable opposing positions the client might have by pointing the advantages of their new proposal, after which they would construct their supporting visual materials and text.

In Law School, classes were divided differently. First, they would be split in groups (A and B), and each half would form their teams of three or four people (teams I, II, III, IV, and so on). Then, they would be presented a fictional situation: a client was very likely to be considered guilty of a certain crime that would send him to jail for at least fifteen years. Teams in group A believed the client should accept the sentence, given all evidences

against him, but ask the court for clemency based on the fact that he had acted under stressing circumstances. Teams in group B had a different opinion; they should advise their client to try and use a breach in the law that could set him free because it might give cause to a mistrial plea. However, should he succeed, there was a strong chance that another procedure be started against him later on and, then, that he would not escape the maximum penalty. The groups would, at that point, be given time to work on their pre-writing CMs and final papers.

In the Communications School, Advertising students were asked to devise a central line of reasoning for a campaign aimed at making a local soda brand gain enough “weight” to be perceived as an appropriate competitor to the leading, national brand that dominated 85% of the market. Their challenge was to center their arguments on the “native” aspect of the client’s product, trying to make it sound like a desirable choice not only because of its flavor, but also because it created jobs and riches in that specific state. Then the groups would have enough time to work on their pre-writing CMs and advertising pieces.

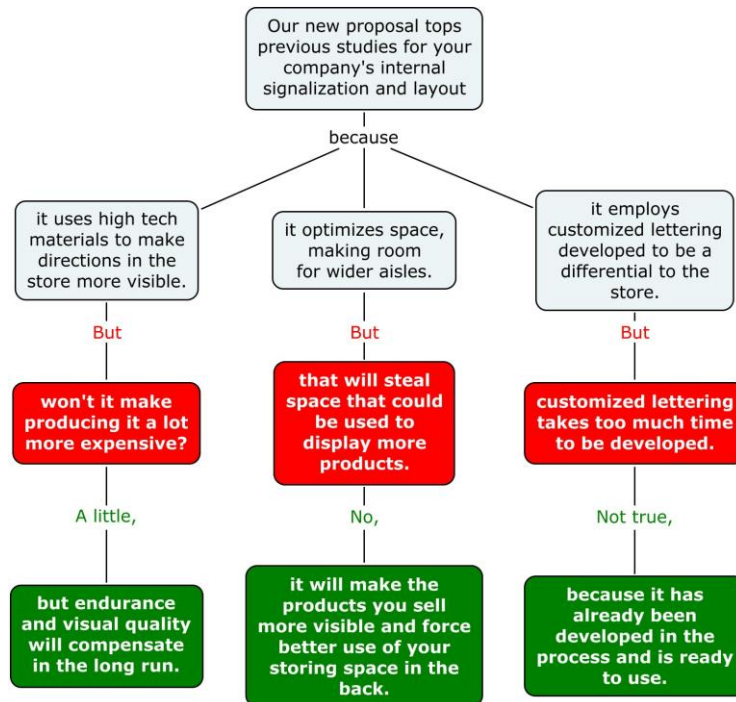
All groups were requested to use a similar protocol to work on their pre-writing CMs. The maps should begin with a short statement that illustrated the main point they would work to prove/sell to their client. Supporting arguments to that objective would be linked to the main idea by logical connectors that showed how each supporting idea coherently completed the group’s intentions. Then, one or two members of the group would be asked to analyze the connections established in the first CM and supply whatever counterarguments they considered strong enough to deserve being prepared for, indicating it on the CM by a red-colored nod. The counterarguments would then be analyzed by the whole group, which would choose the best way to reply to each of them, indicating it by a green-colored nod on the map. The final versions of each group’s CMs would be used to build the texts/presentations that would be offered to their clients. (Examples of the three stages of the pre-writing CMs are given in figure 1)

After three weeks of preparatory work had passed, the groups presented their results before panels of two professors who would play the role of their potential clients. Groups would hand in copies of their pre-writing CMs together with copies of the finished work, which would be the essential elements to assess the quality of the production based not only on the finished products, but strongly on the preparation process visually accessible by the CMs.

Each participant course did it their own way: Graphic Design students presented their layouts to professors who would impersonate clients, in a role-play activity. Communications students’ groups were paired to present their proposals to professors who would decide which one was more adequately developed. Law students’ groups were paired considering each pair was formed by teams from different groups who would present their cases before professors who would be playing the roles of the nearly-convicted clients to decide what to do according to what they considered their best chance.

The final assessment (and grade) to be attributed to the groups was not to be calculated on the basis of who won or lost, but by judging the quality and coherence of the preparation work done by each of them and the perceived quality of the cases/arguments/proposals presented. Such assessment would become notes to be submitted to the researchers, together with the final texts of each participant group.

Figure 1. Stages one (pale blue – first proposals), two (red – possible counterarguments) and three (green – strategies to fight counterarguments) of the pre-writing CMs (Graphic Design group).



Later on, professors from the three courses involved sent the researchers the final argumentative papers produced by their students, together with their (the professors') notes on the strengths and weaknesses perceived in those texts. These were the fundamental data for an evaluation process based on (and done in this sequence):

1. Content Analysis (Bardin, 1995), in which phase the superficial structure of the students' texts – their cohesive arrangement – was evaluated in terms of their intrinsic characteristics and the teachers' general opinion about each one of them, and a first step toward coherence assessment was taken, as researchers, while assessing such texts for the first time, also produced their personal notes that reflected their initial reflections on the readings.
2. Discourse Analysis (Lozano, Peña-Marín, & Abril, 2002), through which coherence in the students' texts was weighed in terms of (a) their [the texts'] effectiveness toward their main objective, (b) their argumentative strength in both argument selection and textual construction and (c) the possibility to recognize in them the quality markers implied (or openly expressed) in the professors' written assessments. It is also important to say that argumentative effectiveness was also observed, in this phase, from a textual-pragmatic point of view (Silveira & Feltes, 2002), given that all selected arguments reflect the writers' best options considering their objectives and, thus, embody what the writers' consider the most adequate form of expressing what they mean. Such view was also applied to the comparative analysis of students' texts and their teachers' notes on their grading.

3. Three focus-group meetings (one for the involved professors of each participating course) in which the researchers' notes on strengths and perceived inconsistencies in the submitted students' and professors' texts and notes were presented and discussed, as well as the professors' perceptions of the gains (or limitations) from the inclusion of CMs in those relevant activities.
4. Research leader and volunteer researchers met three more times to discuss and compare notes on the results of the focus-group meetings and the accuracy of what had been perceived and discussed so far, leading up to the corpus of documents that made this and its previous paper possible (Kucharski, 2013).

All these steps were carefully followed to ensure trustworthy conclusions that would hopefully cause further interest in the use of CMs for harboring textual and argumentative competence development opportunities in many other academic activities.

2.2. The results

What was clearly visible, as a result of all efforts, was a perception of an increment on the quality of the work done by the participating students from the three involved courses. Such gains were pointed out by the professors and confirmed in the content and discursive analysis of the texts produced by the students and of the professors' notes. It definitely pleased the research team by confirming its initial propositions and beliefs that CMs would be ultimately relevant for increasing argumentative and textual competences, far beyond their much known proficiency at summarizing and showing internal relations of pre-written texts.

Collaborative work was strongly present as a valuable strategy to devise and develop products, presentations or arguments in polyphonic, constructivist scenarios (as also discussed by Novak, 2003; Novak & Cañas, 2004; Torres & Kucharski, 2012; Kucharski, 2013; and Torres et al., 2014). Teamwork made it necessary that negotiation competencies rise and become a driving force toward the desired quality of the work. Certain disagreements were inevitable, but solving them democratically was fundamental to reach any satisfactory result.

Professors were unanimous to mention a perceptible gain in quality of the works. Reasoning lines, argumentative competence and the confidence to present and defend ideas against opposing viewpoints were more intensely present, and substituted, most of the time, the more traditional resource to common sense knowledge or improvised answers. Average grades, in comparison to previous activities in which CMs were not used, were around 1.5 point higher (in a 0 to 10 points scale), which means 15% more productivity perceived – comparison was made possible because teachers had kept their notes on the results of assessing argumentative texts from their students in the previous semester.

Learning through real challenges, in a situation where negotiating meanings and using logical arguments to reinforce or dispute a point of view are very typical characteristics of the kind of learning activities appealing to adults (Knowles et al., 2005), and facilitates meaningful learning (Ausubel, 1978). All of it was considered by participating professors and students to be true about the experiment.

As for the students, they all had positive reviews of the experiment. It is very interesting to note that such positive impressions were no different in nature than those listed as results of a slightly different experiment related in Torres et al. (2014).

In terms of using CMs and its generating software, students' perceptions were all positive. They considered it an intelligent, easier and more precise way to collect, summarize and develop ideas both individually and in groups. In addition, the construction

of the final text, after CMs were used to sort and select arguments seemed to have become an easier, quicker task.

Preparing for presentations or tests also seemed more adequate with CMs, for they reflected the main ideas and arguments involved in discussing a specific case, as well as the ways in which such information would relate with each other, building safer “maps” to follow. It was also present in the form of allegations of better learning and understanding of complex concepts, ideas and their correlations.

Yet, the facilitation of groupwork was not underlooked by the student participants, who said time-use had been made more efficient by the clarity of the argument-presenting structures provided, avoiding time and effort-consuming misunderstandings so common when only individually-produced texts or notes were taken to work meetings.

3. FUTURE RESEARCH DIRECTIONS

Using CMs as pre-writing, collaboration-building, analytical-working tools in Education is clearly an option that should be considered by ever more schools of any level. Young adults, who were this research’s population, need schools to present them with more opportunities to grow confident to develop their own ideas and professional objectives, as well as for improving interpersonal skills to work in groups whose goals are building consensual answers to problems posed by real-life situations. All these gains should be extended to all other age and interest groups, for they are more than an exercise of teamwork: they are an exercise of maturity and democracy.

More research in this same direction must occur, as well as the development of new ways to use this technology to enhance professional and educational experience.

This specific paper ends a research chapter for the involved group (specifically for Torres, Kucharski, and Marriott), one that aimed at confirming the group’s fundamental premises of the intrinsic worthiness of CMs to organize ideas and arguments in an *a priori* moment of textual production. The researchers and the research groups they participate in and lead now have different challenges to explore CMs in more diverse scenarios, in innovative ways.

4. CONCLUSIONS

The main conclusions of the described research can be easily drawn from the presented results. The perceived gains, both from the students’ and professors’ points of view strongly support further and innovative researches on the educational and competence-building values of CMs in all school levels.

It was shown that CMs are valuable tools also for argumentative textual preparation and production, and looking for other ways to apply them to the teaching-learning process is what will move our future efforts.

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Chapter 12

DOES CREATIVITY RELY ON EXPERTISE?

How the Danish reform-pedagogical agenda is related to present attempts to understand and facilitate creativity and personal expression among children

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ABSTRACT

According to creative theory, expertise is considered a precondition for creativity. The assumption is that the individual must master the common and accepted rules and techniques in order to create something new and valuable. Plenty of empirical documentation supports this hypothesis. However, real life cases demonstrate that this assumption may be too simple. Occasionally people achieve great success as creative individuals without much expertise. Additionally, empirical studies show that expertise sometimes may inhibit creativity instead of promoting it. In a pedagogical setting these ambiguities seem to be further reinforced by contemporary trends such as technology, globalization and individualization. What are in fact the proper rules of, for instance, music, drama, and visual arts? Do we need to learn basic skills if we can apply technology? How can general rules, individual preferences and expressions coexist? In the chapter, the balance between creativity, learning and expression are discussed from several angles. Firstly, the author seeks to sketch a specific Danish historical inherited approach to creativity. Secondly, the author presents exploratory fieldwork that suggests new ways to understand and facilitate creativity among children.

Keywords: expertise, creativity, pedagogics, music, drama.

1. EXPERTISE AND CREATIVITY: CONTRADICTING INTERPRETATIONS

In creativity theory, it is a common notion that creativity relies on knowledge and expertise (e.g. Csikszentmihalyi, 1999; Gardner, 1993; Sternberg, 1999). If we examine pedagogical literature, concerning aesthetics and creativity, we find the same trend. For instance Malcolm Ross points out that:

... [The children] need the craftsmanship that will enable them to manipulate media and associated technology with ease and precision; without such skills they must feel themselves inhibited rather than liberated by media. Lacking effective control, they will never be carefree enough to play with media imaginatively or to improvise; both these activities are achieved only after the groundwork has been properly done (Ross 1978, p. 69).

A similar approach is suggested by Anna Craft, who argues that “the domain provides a knowledge context within which to be creative. This means that teachers need to be sufficiently knowledgeable of the subject domain to bring learners to the edge of their knowledge, and to enable pupil creativity within the domain” (Craft, 2005, p. xx).

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The basic rationale within the field of creativity theory, as well as within the field of pedagogical and didactical theory, is identical: in order to create you have to acquire some basic skills. If you want to draw, you have to learn something about drawing, if you want to make music, you have to learn something about music, etc. (e.g. Csikszentmihalyi, 1999). It sounds reasonable. However, in the Danish pedagogical community we have a strong tradition for thinking otherwise. In other words, our pedagogical approach in Denmark is in several ways connected historically to the reform-pedagogical movement, within which, the ability to create spontaneously without much expertise is repeatedly stressed. In a Danish context the origin of this pedagogical movement may be dated to the late 1920s. However, the Danish tradition is in various ways connected to artists, philosophers and pedagogical thinkers in the global community in the 19th and the 20th century, such as Rousseau, Fröbel, Montessori, Dewey, and Carl Orff.

Today the reform-pedagogical movement is considered a little old fashion for many reasons (Thing, 1996; Michelsen, 2001; Sorgenfrei 2010). First of all, the reform-pedagogical approach to creativity is criticized for being rather romantic and naive. Second of all, the reform-pedagogical movement is of course politically and philosophically borne in a specific period of time and is consequently, by definition, addressing a specific type of culture that does not exist today. However, it seems as if some of the fundamental questions raised by the reform-pedagogical movement are still very relevant. Thus, key concepts of reform-pedagogy such as individuality, originality, and uniqueness seem to be enforced today by a society highlighting innovation, development and creativity (Lieberkind, 2006). Furthermore, modern digital technology is often understood in a pedagogical context as a tool by which creativity may be enabled among children without much expertise (see section four in this chapter). Therefore, it seems reasonable to draw on these experiences, and consider the potentials of what might be described in historical terms as the rise and fall of the Danish reform-pedagogical movement.

2. THE RISE AND THE FALL OF THE DANISH REFORM-PEDAGOGICAL MOVEMENT

One of the main characters in the reform-pedagogical movement is Astrid Gøssel (1891-1975) who was a well-educated and skilled concert pianist and music teacher. In the 1920s Gøssel was teaching music and piano to adults as well as children, including very small children. The following story describes how Gøssel more or less turns the music-pedagogical world up-side down, at least from her own perspective. The narrative is published in the article *Rhythmic* (1930) and might be summed up as *the day Gøssel opens up her eyes and finds beautiful singing and dancing children instead of potential concert pianists and disciplined anonymous choir members and citizens*. This interpretation may sound a little romantic (or sarcastic), but nevertheless, when reading the article from 1930 one cannot help feeling that the story marks a dramatic turning point in the way children's expression might possibly be interpreted, described, and guided.

Picture the following scenario: we are in the late 1920's. Astrid Gøssel is sitting by the piano. In the room, young children are dancing. She is playing a song called *Circus Horse*. By the use of the piano, Astrid Gøssel is able to control and inspire the children's dance. If she plays allegro, the children will move fast. If she plays adagio, they will move slowly, etc. By adopting such exercises, a lot of basic musical elements may be practiced such as *accelerando*, *diminuendo*, piano, forte, etc. Now, the little 8-year old girl named

Ruth is dancing to *Circus Horse*. She is trying to find corresponding movements to the rhythm. However, eventually Ruth feels like doing something else:

This child's body-rhythm is so strong, that the music has to give up. When I understood the child's artful work with her body, I did the opposite of what was intended and changed the music in order to make the accompaniment correspond the child's dancing (Gøssel, 1930/1981, p. 14).

From a reform-pedagogical point of view, this pedagogical shift of perspective is not only a minor shift of leadership in a musical dialog. First of all, it's a major redistribution of power and initiative in the interaction between the expert and the novice. The child is not the *listener* and the teacher is not the *speaker* anymore. The child and the novice becomes the *speaker* and the teacher becomes the *listener*. Second of all, the child is not really a novice any longer. The child is expert on herself, her own body, her own movements, her own rhythm, etc. Nothing really overmatches the individual idiosyncratic natural expression. What is beautiful and artful is not reproducible, schooled, cultured, and disciplined, but rather unique, unrestrained, and uncultured.

During the 1930s and 1940s the reform-pedagogical methods and thoughts inspired pedagogues in many Danish kindergartens. Gøssel traveled around like a kind of a consultant, and, accordingly, she had the opportunity to study the result of the reform-pedagogical experiments first hand. However, she didn't like what she saw. Thus, she finally concludes, that the focus on the child's expression and production apparently has a negative side effect. The children simply don't learn enough. In the long run, the spontaneous music played by the children is not beautiful but rather the opposite. Actually, according to Gøssel's descriptions, this kind of musical activity may be defined as *junk* rather than music (Gøssel, 1956/1981, p. 46).

3. EXPRESSION, EXPERTISE, AND THE REFORM-PEDAGOGICAL MOVEMENT

From a reform-pedagogical perspective, the children's spontaneous creations, productions, moves, singing etc. are, a priori, beautiful and interesting. This approach to children's creations is valuable for several reasons. Firstly, it addresses a well-known experience among adults, who become fascinated by children's expressions and admire their productions. The many popular videos starring young children on YouTube can serve as an example. Secondly, the children's expressions are taken seriously. From a pedagogical normative point of view, this means that the child is heard and respected. However, when trying to capture the essence of children's expressions, the reform-pedagogical explanations seem a bit insufficient. In the early writings of Gøssel the cultivation itself is portrayed as the enemy. The natural and the primitive are idealized and the cultural technics are demonized (e.g. Gøssel, 1930/1981, p. 18). On the other hand, Gøssel stresses later in her career that the child also has to be instructed, and a balance between self-expression and being taught is the key to successful development. This is a bit of a paradox (see, for example, Michelsen, 2001, p. 64). How can children learn the methods and technics belonging to a certain culture and at the same time retain their *naturalness*?

The fact that Gøssel changes her mind during the forties and fifties is quite interesting and informing in regard to the outlined paradox. In a modern context most creativity theorist would agree with the late Gøssel and argue that children need to learn rules and

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techniques in order to be creative and produce artifacts of quality. But is it possible at the same time to preserve the intuitive *naturalness* that Gøssel emphasizes? According to Gøssel, it is actually possible in the sense that she often describes the adult Afro-American jazz musician as *natural*. Furthermore, it is quite normal in a present context to praise professional adult musicians for their *naturalness* and *intuition*. However, the complex relation between intuitive expression and formal training is still an ongoing question among contemporary researches and theorists. Some creativity researchers suggest that the child loses the intuitive approach as a result of the introduction to a specific knowledge-domain. According to this theory, the child may regain the intuitive competence later in life, when he/she learns to master the techniques and rules belonging to a certain domain (e.g. Gardner & Winner, 1982). The novice-expert taxonomy, suggested by the Dreyfus brothers, may support this thesis in several ways (Dreyfus & Dreyfus, 1986). Nevertheless, empirical data points in various directions and the question still embodies an essential pedagogical paradox (Hickey, 2003).

4. PEDAGOGICAL RESEARCH AND INNOVATIONS RELATED TO THE REFORM-PEDAGOGICAL AGENDA

As noted in the introduction, it is suggested in this article that the reform pedagogical agenda is somewhat intertwined with present attempts to facilitate creativity and personal expression among children in Denmark. In the following, two recent projects, conducted by Jakob Kiøboe and the author of this chapter, will be outlined. The two projects are very different in regard to the didactical designs applied. However, in both projects, the attempt is to facilitate creativity and personal expression.

4.1. Using technology as a shortcut to creative expression

It is a general notion within the field of pedagogics and education, that technology might represent a shortcut to creative activity (Folkestad, 1996; Sefton-Green & Buckingham (1998); Sefton-Green, 1999; Manovich, 2001; Buhl & Hemmingsen, 2004). The assumption is that the computer might enable creativity among people without any specific professional competencies in the sense that it is possible to create music without knowing how to play an instrument, and it is possible to draw a sketch of a building without knowing anything about perspective, etc.

The technology's ability to manipulate audio has meant that many people, who up until now did not perceive themselves to be musicians, can handle, create and communicate music using their computers. They employ inexpensive music software and hardware, which does not require 'traditional' musical skills or conceptual understanding (Crow, 2006, p. 123).

The assumption is contested, of course, and might be the result of a utopian technophile discourse, rather than a result of actual experience (Dyndahl, 2002). However, in the project outlined, the starting point is that digital technology actually offers an alternative pedagogical setting that might lead to valuable creative activities.

The pedagogical project includes different workshops conducted within, as well as outside, a school context. The music software Garage Band is applied as the main tool. Different ages are involved in the study and both children and adults with and without formal musical training are included. The workshops are comprised of several assignments, games and constraints. However, the general focus is to create music. The created

compositions are finally evaluated by the children themselves as well as by an established jury consisting of adults with musical experience.

The connections to the agenda and the learning-designs of the reform-pedagogical movement are quite visible. In the reform-pedagogical movement the so-called *Orff-instruments* are applied in order to enable musical improvisations and ensemble-play among young people without comprehensive musical experience. The Orff-instruments are designed as very simple musical devices only including few notes belonging to a specific musical scale (Orff, 1932, 1964). Thus, it is possible to improvise without knowing anything about music theory. The same method is applied in the design of the music software Garage Band. The software consists, among other features, of different kinds of prerecorded musical material that might be combined in different ways. However, the different musical material is limited to a specific musical key. Accordingly, it is possible to combine music that fits, from a normative point of view, without knowing anything formal about musical harmonies.

One of the interesting findings in the study is that young people without musical training quite often produce music that is evaluated more positively by the established jury than music composed by adults with comprehensive musical training. In the sessions of evaluation the jury, unaware of the composers' age and level of musical competence, typically emphasizes the originality and the spontaneity of the young people's compositions as opposed to the conformity of the adults' compositions. The referred finding might support the notion of technology as somehow enabling musical expression among people without musical competence and equally question the unambiguous benefits of musical training. Thus, a link to the reform-pedagogical agenda and core values might be established. However, the empirical data also points in other directions in the sense that the jury equally considers some of the music, produced by young people without musical training, as plain *noise*. Thus, it seems like the pedagogical dilemma regarding musical training as both inhibiting and promoting musicality, faced by Gøssel seventy years ago, still represents a true pedagogical challenge and paradox.

4.2. Teaching specific skills in order to facilitate personal expression among children

In the pedagogical project, unfolded below, digital technology does not occupy a privileged position. Instead traditional artforms and techniques are applied in order to facilitate creative expression among schoolchildren in the age of 10-11. The title of the course is *The Hub of the Universe*, emphasizing that the main focus of the workshop is the children's own life and experiences. In the course - mainly led by Jakob Kiørboe, associate professor at the University College Zealand - the children are working with four different topics, each of which are aimed at the children's idiosyncratic perspective on the world. The four topics are; what makes me happy; what makes me sad; what am I dreaming of; what are my fears? In the workshop, different forms of art are applied in order to work creatively within the frame of the four topics, including writing, painting, drawing, drama, singing, and dancing. As opposed to the music workshops described in the above, the children are being taught specific techniques in order to work creatively. In other words, they are not writing poems without initially learning something about poetry; they are not doing drawings without learning something about colors and drawing techniques; etc.

Some of the interesting findings and results of the workshop are the children's surprising, original, and reflective perspectives on the world. E.g. the topic *what are my dreams?* Results are some very reflective, humorous, and still conscientious answers. In the

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following a ten year old schoolboy imagines a world without adults, in which children are free to decide for themselves.

*Most children would decide that it should be free to buy things
They also might say that they should be paid to go to school
There would be chaos: Rubbish on the streets. Banks would be robbed.*

The parallel to the reform-pedagogical agenda seems obvious. As is the case in the described workshop; Gøssel composed music together with the children, involving the children's own world, e.g. the weather, the children's toys, the parent's profession, etc. Furthermore, the political implication seems comparable in the sense that the children in the referred workshop are invited to reflect upon their lives, their future, and their dreams, and thereby hopefully building up a sense of democracy, citizenship, and empowerment. Such political and ideological ambitions equally represent a significant part of the reform-pedagogical core values.

5. CONCLUSION AND CONFUSION: THE BASIC DILEMMA, NOW FURTHER COMPLICATED WITH AN ACTOR-NETWORK PERSPECTIVE

In the chapter, it is suggested that the relation between expertise, training and skills on the one hand and creativity, individuality and spontaneity on the other, represent a genuine pedagogical dilemma. In the first example, technology was used to facilitate creativity among children with no formal musical training. According to this case study, technology offers a platform upon which novices sometimes outperform the experienced in terms of creativity. Thus, it might be suggested that expertise in some cases inhibit creativity instead of promoting it. On the other hand, the case study equally indicates that lack of skills might also lead to a questionable result. Thus, there are hardly any unambiguous correlations or causality between creativity and expertise. Further, it might be questioned whether the children's computer-compositions actually represent intentional pieces of music rather than, say, random compositions of sound. In other words, one might question the autonomy of the music in the sense that the children possess only a minimum of artistic control. Thus, it seems questionable whether the music is actually the result of the children's personal expression and intention.

In the second case study the children were encouraged to express themselves by the means of different art forms. However, in this case, the children were initially introduced to basic techniques. Thus, this type of pedagogical design might be interpreted as a possible way to establish a balance between techniques and personal expression. In other words, it may be argued that these techniques enhance the children's control over the creative process and accordingly permit the children to express themselves more personally. However, it would be questionable simply to suggest that skills lead to clear artistic control. According to present theory preoccupied by materiality, including actor-network theory, a media like for instance a musical instrument, a computer, or a paintbrush, is not transparent but rather pushes the creator in specific directions (Latour, 1999; Dyndahl, 2002). Furthermore, the media is connected to techniques, rules, and norms in subtle networks, promoting a specific culture and tradition (Latour, 2005). Thus, it would be simplistic to suggest that learning skills, in order to gain control over a certain media, enhances personal expression per se. So, it seems, the practical and theoretical struggling with expertise, creativity, and personal expression continues.

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Chapter 13

A U.S. UNIVERSITY'S DEVELOPMENT OF AN INCLUSIVE EARLY CHILDHOOD EDUCATION PREPARATION PROGRAM: THE JOURNEY

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ABSTRACT

This chapter focuses on a U.S. university's development of an Inclusive Early Childhood Education program. This innovative program is designed to prepare teachers to work successfully with all learners, including students with disabilities. Graduates of this interdisciplinary program earn three teaching licenses, one for general education classrooms, one for special education classrooms, and one for working with children ages birth to three years. The authors ground the program's development in the U.S. federal legislation that laid the foundation for increased access for and service to children with disabilities. In addition, the authors describe the philosophical underpinnings and curriculum for the new program, and identify the specific outcomes from this newly developed program. Preliminary lessons about this process that might assist other programs considering similar strategies are presented.

Keywords: inclusive early childhood education, cohort model, benchmarking, inclusion, learning communities.

1. INTRODUCTION

In 1975, the Congress of the United States enacted the Individuals with Disabilities Education Act or IDEA (1990). IDEA, also known as Public Law 94:142, was designed to ensure that children with disabilities have access to a free, public and appropriate education: "Improving educational results for children with disabilities is an essential element of our national policy of ensuring equality of opportunity, full participation, independent living, and economic self-sufficiency for individuals with disabilities" (IDEA, Part A, and Section C.1). Since its initial passage, IDEA has been amended and now includes special provisions for school-age children (found in Part B of the legislation) and infant and toddlers (located in Part C). At the national level, approximately 6.4 million students were served under IDEA, or about 13% of the total public school enrollment (U.S. Department of Education National Center for Education Statistics, 2014). For the state of Ohio in 2011-2012, about 9% of the children and youth were served under IDEA (U.S. Department of Education National Center for Education Statistics, 2014). These data demonstrate a clear and pressing need for teachers who are well-prepared to serve this segment of the population. However, U.S. teacher preparation programs have been slow to respond, leaving the majority of new teachers feeling ill-prepared to meet the challenges and realities of the classroom (U.S. Department of Education National Center for Education Statistics, 2009).

In 2011, the American Association of Colleges for Teacher Education (AACTE) and the National Center for Learning Disabilities (NCLD) addressed this need in a report

entitled, *Preparing General Education Teachers to Improve Outcomes for Students with Disabilities*. The report emphasized that *all* teachers must be able to create classrooms where *all* children learn and classrooms that are supportive of children with disabilities (Blanton, Pugach & Florian, 2011). However, “these same teachers report that they do not feel adequately prepared for the job and for being held accountable for the achievement of learners who have disabilities, who are English language learners, or who are from the nation’s lower socioeconomic levels” (Blanton et al, 2011, p. 5). Graduates from Bowling Green State University’s (BGSU) teacher education programs were no exception to this larger trend. BGSU is one of the largest teacher education programs in the state of Ohio. While graduates from BGSU’s Early Childhood Education program were well-prepared in many areas, there were concerns about their knowledge and skills in meeting the needs of all learners. In response, BGSU’s College of Education and Human Development (EDHD) created an Inclusive Early Childhood program that prepares graduates for teacher licensure in general and special education for Prekindergarten through Grade 3, as well as Birth to Age 3 Early Intervention Specialist.

The remainder of this paper focuses on the historical and political context for this Inclusive Early Childhood Education program, the philosophical underpinnings and curriculum of inclusive education, specific outcomes from this newly developed program, and some preliminary lessons about this process that might assist other programs considering similar strategies. This chapter focuses on a U.S. university’s development of an Inclusive Early Childhood Education program. The authors ground the program’s development in the U.S. federal legislation that laid the foundation for increased access for and service to children with disabilities. In addition, the authors describe the philosophical underpinnings and curriculum for the new program, and identify the specific outcomes from this newly developed program. Preliminary lessons about this process that might assist other programs considering similar strategies are presented.

2. BACKGROUND

In 1954, the United States’ Supreme Court ruling in *Brown v. Board of Education* ruled that students could not be separated in schools because of race. This ruling had a wide-ranging impact on public education and resulted in other civil rights related movements, including one to provide an education to individuals with disabilities in public schools. Prior to 1954, 4.5 million students with disabilities in the United States did not receive an education. With the passage of IDEA, just twenty-one years after *Brown v. Board of Education*, for the first time in U.S. history, all students with disabilities were entitled to a “Free Appropriate Public School Education” (FAPE). The Individuals with Disabilities Education Act was later reauthorized in 2004. The American with Disabilities Act (ADA) of 1990 further protected school-aged children with disabilities, emphasizing the goal of educating children with disabilities in the “least restrictive environment” (LRE). Subsequent court rulings supported interpretations of the ADA that, wherever possible, students with disabilities be educated in general education classrooms. The term “inclusion” became part of a national lexicon. Inclusion is defined as placing students with disabilities in general education classrooms and providing appropriate support services (Darling-Hammond & Baratz-Snowden, 2005). Although full inclusion for students with disabilities has not yet been fully realized, IDEA and ADA have changed the learning environment for students with disabilities; to the greatest extent possible, all students are educated in the same classrooms, with modifications and accommodations provided to students with disabilities as appropriate.

Increased collaboration between special education teachers and general education teachers has provided individuals with special needs with access to the general education curriculum (National Council on Disability, 2004). The U.S. Department of Education, National Center for Education Statistics (2013) reported that more than 50% of students with disabilities spend at least 80% of their time at school in a general education classroom. Thus, general education teachers need to know characteristics of children with disabilities, be effective in using differentiated teaching strategies, develop strong collaborative skills, and have extensive knowledge of IDEA mandates. This trend, however, is not distributed equally across grade levels. Turnbull, Turnbull and Wehmeyer (2010) found that elementary students with disabilities are more likely to be served by general education teachers than older children. Consequently, it is especially important that elementary teachers understand inclusion and how this approach changes what they do in the classroom and how they respond to all children.

Preparing future teachers for these inclusive classrooms requires that preparation programs modify their curriculum. According to Gable, Tonelson, Sheth, Wilson, and Park, (2012) general education teachers often lack the knowledge and the skills needed to differentiate instruction and provide modifications and accommodations to students with disabilities. General education teachers in the United States are not alone in their reticence about working with special needs students. A recent analysis of empirical studies from 16 different countries that examined general education teachers' attitudes about inclusive education indicates that the majority of teachers feel neutral or negatively about inclusion (de Boer, Pijl, & Minnaert, 2011). While general education teachers may feel ill-prepared or disinclined to work with students with special needs, special education teachers frequently do not have the content knowledge necessary to meet the needs of both general and special education students

Several studies have shown that there is the lack of preparation for teachers in working with children with exceptionalities. The National Center for Education Statistics (2009) indicates that 68% of public school teachers feel underprepared to work with students with disabilities. Lambe and Bones (2006) conducted a study identifying characteristics that pre-service teachers desired in order to become effective teachers in the inclusive setting. They found that one of the challenges was the difficulty of balancing the needs of all children; new teachers have a tendency to focus on those who required the most help instead of finding ways to effectively differentiate instruction in order to meet the needs of all learners. Additionally, Orr (2009) found that teachers' knowledge of effective inclusion strategies was correlated to their successful implementation of inclusion. Inclusive classrooms can have a positive impact on student academic achievement for both the general education and special education population being served when the teachers and other professionals working with the students have proper training in the content areas and an understanding of the individual needs of each student in the classroom. When general education and special education teachers work together as a team all students are more stimulated and respond better to their educational environments (Obiakor, Harris, Mutua, Rotatori, & Algozzine, 2012). While teachers, especially those new to the profession, may not currently feel well-prepared for inclusive classroom, evidence suggests that providing them with the knowledge and skills related to inclusion will likely yield better classroom practices.

3. THE INCLUSIVE CURRICULUM PERSPECTIVE

In response to federal mandates, research on most effective strategies for meeting the needs of all learners, and survey results from recent graduates of our programs, BGSU's College of Education and Human Development developed the Inclusive Early Childhood program. This four-year undergraduate program is designed to prepare teachers to work effectively in inclusive classrooms, with emphases on differentiated instruction and developmentally appropriate pedagogies. The governance and oversight of the program is shared equally between two units within the college: the School of Intervention Services that provides licensure options in special education and the School of Teaching and Learning that has licensure programs in general education. Additional support is provided from programs in human development, educational psychology, and education measurement and assessment. These interdisciplinary faculty teams embedded five essential components in the curriculum design: 1) research-supported practices; 2) justice, fairness and equity for inclusive learning experiences; 3) respect for cultural and linguistic diversity, 4) family-centered practices; and 5) interdisciplinary collaboration.

During the initial stages of program development, an advisory board was established which consisted of stakeholders such as superintendents, principals, parents, teachers university and faculty. This advisory board was essential in the development and implementation of the Inclusive Early Childhood program (Wooldridge, Murray & Shinew, 2014). The vision that emerged from the work of the advisory board and faculty interdisciplinary teams was to create an inclusive undergraduate program that blended the best practices from early childhood education with special education. This collaborative work created a curriculum which develops teachers with the skills to effectively meet the needs of every young child in our diverse society, birth through grade three. Other teams involved with development and implementation included a Steering Committee (charged with moving the various parts of the new program forward), Course Design Teams (interdisciplinary groups of faculty that developed initial course syllabi and sample assignments), Course Review Teams (groups responsible for reviewing all of the course components to ensure these various pieces fit together to make a strong program collectively), Assessment Committee (a group responsible for designing program assessment and evaluation tools) and the Field Placement Committee (a group comprised of both university faculty and practitioners who identified the desirable characteristics and criteria for field experiences and practicum). The work of these various groups was supported by a grant from the Ohio Department of Education.

4. OUTCOMES

The outcome for the work done by the collaborative, interdisciplinary teams was the creation of the Inclusive Early Childhood Education program. The Inclusive Early Childhood Education (IEC) Program is the first program in the state of Ohio, and one of the few in the United States, designed to prepare undergraduate teacher education candidates for employment in inclusive early childhood learning environments. This program leads to a Bachelor of Science in Education degree and, as noted earlier, graduates earn three teaching licenses in four years: Early Childhood Education license for pre-kindergarten through 3rd grade, the Early Childhood Intervention Specialist license for pre-kindergarten through 3rd grade and the Birth to Age 3 Early Intervention Specialist certificate. Graduates are prepared to provide differentiated, evidence-based instruction to young children from

birth through grade 3 and will be able to teach young children with and without disabilities in integrated settings.

The program consists of 134-136 credit hours comprised of general education courses, content courses, teaching methodology courses, practicum experiences and student teaching as shown in Figure 1: Inclusive Early Childhood Education 4-year Curriculum Plan. This curriculum uses a cohort model and student progress with the same cohort of 35 students through each of the designated blocks of courses. BGSU is built on the concept of learning communities where students and faculty share knowledge; collaboration among learners is considered a “value added” to the curriculum. The integration of student cohorts is on the rise at the undergraduate level in higher education (Saltiel & Russo, 2001; Seifert & Mandzuk, 2006). This model emphasizes the importance of students creating shared knowledge as learning community and participating as collaborators in learning (Korthagen, 2010). Students in the Inclusive Early Childhood program begin as a group, proceed together through a series of blocked courses, and end the program at the same time. The Inclusive Early Childhood students are enrolled in the block program in cohort groups and progress through the program in those groups as a learning community as shown in Figure 1.

Figure 1. Inclusive early childhood education 4-year curriculum plan.

Freshman 1	Freshman 2
GSW 1100 or 1110: Writing (3–5) EDTL 2010: Intro to Education (2) BGP: Social & Behavioural Sciences (3) BGP: Arts & Humanities (3) Math 1150: Intro to Statistics (3) BGP: Arts & Humanities (3)	GSW 1120: Writing: (3) EDTL 2300: Intro to Educational Technology (2) EIEC 1110: Continuum of Early Childhood Development (3) BGP: Social & Behavioural Sciences (3) Math 2130: Math for Early Childhood Teachers (3) BGP: Natural Sciences (3)
Sophomore Block 1	Sophomore Block 2
EIEC 2100: Inclusive Perspectives on Early Childhood Classrooms (1) EIEC 2110: Intro to Young Children with Exceptional Needs (3) EIEC 2120: Foundations of Inclusive Early Childhood Education (2) EDFI 3010: Educational Psychology Applied to Early Childhood (3) EIEC 2140: Communication Development in Young Children (3) EIEC 2150: Creative & Expressive Arts Movement for Inclusive Early Child (3) Additional Course: ENG 3420: Children’s Literature (3)	EIEC 2210: Cultural & Linguistic Diversity in Early Childhood Education (3) EIEC 2220: Working with Families of Young Children (3) EIEC 2230: Infant & Toddlers in Natural Environments (3) EIEC 2240: Curricula for Infant and Toddler Early Care and Education (3) Additional Courses: BGP: Natural Sciences (3) BGP: Additional BG Perspective Course (3)

Figure 1. Inclusive early childhood education 4-year curriculum plan (cont.).

Junior Methods Block (fall only)	Junior Student Teaching Block (spring only)
<p>EIEC 3100: Inclusive Prekindergarten Field Experience (2) EIEC 3110: Intentional Teaching for Young Children (3) EIEC 3120: Phonics in Inclusive Early Childhood Classrooms (3) EIEC 3130: Emergent & Beginning Reading(3) EIEC 3140: Introduction to Assessment in Inclusive Early Childhood Settings (3) EIEC 3150: Instructional Assistive Technology(3)</p>	<p>EIEC 4110: Positive Behaviour Supports for Young Children (3) EIEC 4120: Advanced Assessment for Program Planning (3) EIEC 4800: Inclusive Early Childhood Student Teaching: Pre-Kindergarten (8) EIEC 4810: Pre-Kindergarten Student Teaching Seminar (1)</p>
Senior Methods Block (fall only)	Senior Student Teaching Block (spring only)
<p>EIEC 3300: Kindergarten – Grade 3 Practicum in Inclusive Classrooms (2) EIEC 3310: Reading & Writing Methods for Inclusive Early Childhood Classrooms (3) EIEC 3320: Math Methods for Inclusive Early Childhood Classrooms (3) EIEC 3330: Social Studies for Inclusive Early Childhood Classrooms (3) EIEC 3340: Science Methods for Inclusive Early Childhood Classrooms (3) EIEC 3350: Adapting and Accommodating Instruction in Inclusive Early Childhood Classrooms (3)</p>	<p>EIEC 4210: Literacy Assessment for Instruction (3) EIEC 4220: Consultation, Collaboration, & Transitions (3) EIEC 4900: Inclusive Early Childhood Student Teaching: Kindergarten – Grade 3 (8) EIEC 4910: Kindergarten – Grade 3 Student Teaching Seminar, (1)</p>

Building on the cohort model, benchmarks are utilized to insure student success and provide feedback for program improvement. Benchmarking student progress is a management tool used to assess student learning. Benchmarking provides students, faculty members and administrators with information that can be used for program improvement and measures student learning. Benchmark assessments measure student mastery of standards so that the student can progress to the next level (Bergan, Bergan, & Burnham, 2005; Cizek, 2001).

Benchmarks are embedded in the coursework and program; the Inclusive Early Childhood students must meet these goals in order to proceed to the next phase of the program. Benchmarks include achieving a “C” or better on identified courses, passing standardized assessments required for licensure, and demonstrating proficiency in their practicum and field experiences. These benchmarks assist with quality improvement and continuous program improvement. The final benchmark is graduation.

Benchmarking began in fall 2013 with the first cohorts of first year students or second year transfer students. There are 639 students enrolled fall 2014 which would include first year students, second year students and third year transfer students. The breakdown of students is shown in Table 1.

Table 1. Inclusive Early Childhood Program 2014 enrolment data.

Cohort by Year	Enrollment Number
Freshmen	201
Continuing Freshman	42
Sophomore (30-39 hours)	119
Sophomores (40-59 hours)	84
Transfer students	193
Total	639

The students in the program are assessed using professional and content standards from Council for Exceptional Children (CEC) and the National Association for the Education of Young Children (NAEYC). The Council for Exceptional Children standards (2009) include concepts such as the foundations in special education, developmental knowledge of learners, individual learning difficulties, instructional strategies in general and special education curriculum, creating learning environments, instructional planning, assessment, social interactions in the classroom, language development, professional and ethical practice and collaboration with families, service providers and educators. The National Association for the Education of Young Children standards (2011) include promoting child development and learning, building family and community relationships, observing, documenting and assessing young children, using developmentally effective approaches, using content knowledge to build curriculum and professional practice. A crosswalk of standards and coursework was developed as a tool to ensure all standards were embedded in the course content and were assessed to ensure quality and drive improvement and change. These standards, used in program and curriculum development as well as for student assessment and benchmarking, are essential for continuous program improvement. An example of the crosswalk is shown in Figure 2.

Figure 2. Inclusive Early Childhood (IEC) course linked to NAEYC/CEC/EC/DEC standards.

Freshmen Semester No. 1 (16-18 semester hours)	
Course & Course Description	NAEYC/CEC/EC/DEC Standards
EDTL 2010: <i>Intro to Education</i>	
EDTL 2300: <i>Intro to Educational Technology</i>	

Figure 2. Inclusive Early Childhood (IEC) course linked to NAEYC/CEC/EC/DEC standards (cont.).

Freshmen Semester No. 2 (18 semester hours)	
<p>EIEC 1110: Continuum of Early Childhood Development (3) Catalog Description: Focuses on the broad continuum of cognitive, social, emotional and physical development of children emphasizing conception through grade 3. Examines children growing up in diverse families, communities, and cultural contexts through various observational techniques, application of developmental theory, and instruction in research methodology.</p>	<ol style="list-style-type: none"> 1. The candidate is able to discuss the typical and atypical progression of child development from conception through 3rd grade. (NAEYC, 1a, 1c) (CEC/DEC EC2K7, EC3K2, EC3K1, EC6K 1 & 2) 2. The candidate is able to objectively describe a child's behaviour and be able to infer the developmental level based on a variety of observational techniques. (NAEYC 3 c & 3 d) (CEC/DEC EC8S5, EC8S6, EC2S1, EC3K1, EC8S3) 3. The candidate knows how to apply child development knowledge, including norms, individual differences and red flags, to real life situations. (NAEYC 1c, 4b) (CEC/DEC EC9S1, EC2K7, EC2S1) 4. The candidate knows master key terms and concepts related to maturationalist, behaviourist, constructivist, and ecological theories. (NAEYC # 1) (CEC/DEC EC2K1) 5. The candidate knows how to explain how environmental factors influence a typical and atypical development. (NAEYC 1b, 2a, 5a) (CEC/DEC EC2K6) 6. The candidate knows how to explain ways in which developmental context consists of one's biological makeup, personal experiences, previous development, and the social-cultural environment, which all interact in complex ways. (NAEYC 1b, 1c, 2c, 6d) (CEC/DEC EC8S5, EC8S6, EC2K2, EC2K6)

5. CONCLUSIONS AND DISCUSSION

This new program is still in its infancy, the first cohort started the program in fall, 2013; there are, however, numerous conclusions about both the process and the curriculum that can be drawn after three years of intensive planning and collaboration. Other institutions considering developing a similar program might find these conclusions helpful.

First and most importantly, is that this program responds to a need, both from teachers' perspectives and from the schools and families they serve. The program merges three teacher licenses resulting in a significantly increased course load. While some faculty and administrators were concerned that prospective students might be unwilling to enroll in

such a challenging program, the number of applicants, including students who opted to transfer from the previous Early Childhood program into the new Inclusive Early Childhood program, indicate that the program will be in high demand. As the only undergraduate program of its type in the region, it is likely that this level of demand will continue. Additionally, feedback from in-service teachers, administrators, and community members has been consistently positive. Numerous school and agency administrators have indicated they await the opportunity to hire graduates of the Inclusive Early Childhood Program. The program has also been acknowledged by state organizations as an innovative initiative. Virtually all of the feedback has focused on both the importance of teachers being able to respond to the increasingly diverse needs of their students and the importance of providing graduates with additional qualifications that will make them more employable. Recent emphasis in the United States on early childhood education at the federal level seems likely to increase the profile of the program even further.

While the program has generated considerable interest from external stakeholders, the internal response has been complex. Faculty from all units involved in this collaborative program have been committed to the concept of an inclusive early childhood model and recognize the advantages both for their teacher candidates, as well as for the young learners program graduates would eventually serve. However, the institutional and cultural barriers that can impede interdisciplinary programs have been challenging. At an institutional level, many questions emerged:

- Which unit would be responsible for scheduling?
- How would faculty be assigned to teach classes?
- How would student credit hours be counted?
- Which faculty member should be responsible for coordinating the program?
- Who will be responsible for identifying and monitoring field experiences?

While on one level these are technical and bureaucratic issues, these questions also illuminate a larger complication regarding how collaboration across units develops. This institution is not alone in struggling to build new relationships for the purpose of developing inclusive teacher preparation programs (Harvey, Yssel, Bauserman, & Merbler, 2010).

A few key elements have emerged that will be essential in continuing to develop and strengthen these collaborations. One important factor is a committed and flexible leadership team that is able to focus on the best outcomes for the students and the program. Such a team sets the tone for all of the communication and decision-making. In addition, there needs to be a commitment to providing adequate resources to support the program, especially in the early years. Collaboration is more challenging in times when resources are perceived as limited and faculty members are concerned about their positions. Finally, creating a culture of collaboration is difficult. One of the first steps has been to establish structures for ongoing conversations during regular program meetings. Opportunities to share ideas and concerns related to the new program has not only identified issues that need to be addressed, but also helped faculty realize commonalities and develop a shared vision for the program.

In developing this program, faculty and administrators involved in the process have mirrored some of the same challenges faced in PK-12 schools. Even when individuals share a common goal, in this case a program that would prepare teachers to meet the needs of all learners, creating a culture and structure that challenges existing barriers to collaboration is not easy. As is the case for colleagues in PK 12-schools, however, the challenges are too great and the stakes are too high for remaining static in how and what we teach.

Plans are in place for extensive and ongoing program evaluation of the Inclusive Early Childhood Program grounded in a continuous improvement model. Initial data are very preliminary but the end goal is clear – to become what Darling-Hammond (2012) describes as a “powerful” teacher preparation programs within the U.S. context. The exemplary programs highlighted in Darling-Hammond’s work are different in many ways; they do, however, have important commonalities that are helpful in creating new or making significant revisions to teacher preparation programs: a clearly defined knowledge base, organizational structures that support skill development, performance-assessments that connect theory and practice, and a focus on meeting the needs of *all* learners.

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KEY TERMS & DEFINITIONS

Inclusive Early Childhood Education: An education program that blends the best practices from early childhood education with early childhood special education.

Learning communities: These communities are groups of students and faculty who share knowledge and collaborate in the learning process.

Inclusion: A practice in public schools of integrating children with disabilities in our schools and communities.

Cohort models: This model emphasizes the importance of students creating shared knowledge as a learning community.

Benchmarking: A management tool used to assess student learning.

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Chapter 14

EVALUATING MOCEP'S PILOT PROGRAM IN LEBANON IN PALESTINIAN CAMPS

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ABSTRACT

This study purports to evaluate the piloting of the Mother Child Educational Program (MOCEP) sponsored by Arab Resource Collective (ARC) in Lebanon to measure the effectiveness of this home-based early intervention program on both mothers and their children, with respect to its proposed goals and objectives. Eighty-eight Palestinian mothers from six organizations/camps for Palestinian refugees participated in the study. The second and third phases of the program, training of mothers by trainers and program implementation on children, were assessed. The program's effectiveness was measured by way of two questionnaires completed by the mothers, one assessing children's performance and the other examining mothers' performance. Questionnaires were filled out in two stages: pre- and post- participation in the program. Results showed significant improvement in children's performance, the mother-child relationship, and enhancement of the home environment in a way that makes it more conducive to child development. This study has important implications for addressing the needs of Palestinian children through MOCEP. It also highlights the obstacles that impede its proper implementation.

Keywords: MOCEP, Palestinian, early intervention, home-based, Lebanon, mother and child, social policy, Arab Resource Collective.

1. INTRODUCTION

The Mother Child Education Program (MOCEP) is a home-based education program that draws on three decades of research and is developed for children between 5 and 6 years of age who have not had access to pre-school education services, and also targets their mothers, rendering the program a model for both adult and child education (Beckman, 1998). MOCEP aims to enrich children cognitively in order to boost school readiness and optimal psychosocial development, and to create an environment in which children will be better nourished and healthier. In addition, mothers' knowledge and role in their children's development is augmented, thus enabling mothers to feel emotionally secure, grow more self-confident, and learn about family planning and reproductive health (Bekman, 1998; Koçak & Bekman, 2004).

MOCEP gave rise to the Mother Child Education Foundation (Anne Çocuk Eğitim Vakfı [AÇEV], 2013), a Turkish Non-Governmental Organization (NGO) that has developed programs for parents and children based on wide scale scientific research. Having revised and improved the program over a period of twenty years based on constant evaluation, AÇEV has also transferred knowledge to several countries in Europe and the Arab world with comparably successful results. A sequence of research studies conducted from Bahrain to Belgium (Koçak & Bekman, 2004; Bekman & Koçak, 2011) have assessed both the short and long term impact of the program, with results affirming that:

- The children of participating mothers achieved higher scores in intelligence and general aptitude tests; were more successful academically; continued their schooling for a longer period of time; and developed a more positive self-concept (Hadeed, 2005).

- The participating mothers communicated better with their children and husbands; experienced increased self-confidence regarding their parenting skills; and enriched their children's living environment based on what they learned (Koçak & Bekman, 2004).

- The program has positive effects not only for children, but their mothers as well.

Appraisal of MOCEP has shown that the social and cognitive development of pre-school aged children brought up in developmentally 'at risk' environments can be augmented through promoting positive changes in parenting skills and enriching their immediate home environment. As a home based program, it does not require the infrastructural investments of centre-based preschool education and can be established in communities of the families at a low cost.

2. BACKGROUND

MOCEP consists of three components: Mother Support Program, Cognitive Training Program and Reproductive Health and Family Planning. Each component includes educational materials which are distributed to the mother and child free of charge. The program is administered over 25 weeks and takes the form of weekly three hour group meetings facilitated by trained group leaders. A home education kit is provided to mothers every week to be implemented at home with her child. The program is supplemented by regular home visits made by group leaders to support mothers in the home environment (Bekman, 1998).

The Mother Support Program component is delivered in the form of group discussions guided by a trained group leader. The aim is to sensitize mothers on subjects such as children's development, health, nutrition, care and creative play activities, discipline, mother-child interaction, communication, expressing feelings and the needs of the mother. Through sensitization to these issues, the mother is better able to support the development of her child (Bekman & Koçak, 2011).

The Cognitive Training Program component is based on 25 worksheets and 8 storybooks that aim to foster the cognitive development of the child and prepare him/her for school. Each week's materials contain various exercises to be carried out by the mother with the child each day at home. These exercises contain activities that foster eye-hand coordination, verbal development, pre-literacy and pre-numeracy skills, and problem solving skills among other cognitive abilities. This part of the program is further supported by home visits conducted by teachers (Bekman, 2004).

The Reproductive Health and Family Planning component also takes place in the form of group discussions and aims to sensitize mothers on the female reproductive system, healthy and risky pregnancies, contraceptive methods and general reproductive health. This program includes 23 topics divided into two parts: the first part consists of 14 topics covering the importance of reproductive health, and the second tackles various strategies of family planning (Bekman, 1998).

3. LITERATURE REVIEW

Over the past decade, an emerging trend has looked upon literacy as more than a mere technical skill set, and more as social practice that is essential to community cohesion and national economic development (National Adult Literacy Agency [NALA], 2011). As such,

the social inclusion of rural communities and underprivileged neighbourhoods is dependent on programs and policies that not only educate the public technically, but raise awareness about correct parenting by way of behavioral and cognitive adjustment. Critical to the increasing enthusiasm for educational programs has been the growing consensus that intervention at the earliest stages of child development is essential to long term achievement (Kagiticbasi, Sunar, Bekman, Baydar, & Cemalcilar, 2009). Evans (2001) contends that by the age of eight, it is too late to radically alter the cognitive function needed for future achievement. By not providing an alternative to costly pre-schooling for those under the age of 8, subsequent attempts to intervene at a later age fail to be cost-effective; with economic sense and returns being key motivators for the adoption of public education policies.

Industrialized nations with low rates of poverty such as Luxembourg, Norway and Finland attribute their economic record to an abundance of successful social policies (Hadeed, 2004). Part and parcel of said policies, social programs aimed at mothers and children under the age of six have long been mainstay of these nations (Ball, 1994). The relevance of attending to these two demographics is that women and children represent the largest relative group of people entering poverty at the global stage; a trend that is mirrored across the Arab world (Hadeed, 2004; El-Ghonemy, 1998). Hadeed & Sylva (1999) found that the most significant facet of social inequality in the Arab countries like Bahrain is represented by the low enrollment of 3-6 year olds in preschools. Despite aggressive campaigns to increase employment opportunities, the social programs that exist in industrialized nations like Norway are simply non-existent and education at the most critical stage of a child's development is largely ignored. A policy of focusing on occupational opportunities is less effective when it does not take into account early childhood development. Pre-school education in Arab countries is not compulsory. Enrollment of children in kindergarten is far from uniform across the Arab world, whereby it does not exceed a rate of 1% in some countries, in contrast to a rate of 70% in others. Even in countries with a higher rate of enrollment, figures do not ensure that children receive a quality education. Poor quality and low enrollment rates in pre-schools have an effect on school dropouts, an increase of the number of children working and/or living in the street, as well as negatively affecting countries development and economic growth.

According to a WHO report (Irwin, Siddiqi, & Hertzman, 2007), economists have become more aware of evidence that argues for early child investment as a first priority. The report indicates that, while most parents would want their children to have the most nurturing environment for their social, physical, and emotional development, most are either unable or unaware of how to do so. To lower the morbidity rate of children by way of health policies is insufficient if the same children are not provided for academically or by way of a nurturing home environment. Irwin et al. (2007) highlight the existence of enriched environments and "quality of stimulation" in the home from the time of conception to the age of 8 as the key determinant for future achievement as an adult (p. 41).

From a moral standpoint, the necessity for creating home-based interventions like MOCEP is explicitly contained within the provisions of the UN's "Convention on the Rights of the Child" (Evans, 2001, p.93). The aforementioned stipulates that parents are primarily responsible for the education and development of their children; while the responsibility of establishing policies that enable parents to do just that rests at the feet of the government. While NGOs may, at the best of times, be the champions of policy, their innovative programs must be appropriated by government agencies in order to ensure their long term sustenance and nation-wide coverage. The World Bank specifies that, in order for social programs to be successful, dissemination of policies to local governments within a

country is necessary (Ridao-Cano & Aran, 2011). By way of example, Sweden provides a standard for early child development, whereby a comprehensive education at a young age is augmented by financial family benefits and support services. By adopting a “decentralized approach to governance”, more attention is given to the micro; whereby local authorities are responsible for catering to the contextual needs of a specific community (Ridao-Cano & Aran, 2011, p. 23).

While center-based programs are capable of providing services that take into account local community requirements, there exists a school of thinking that an even more engaging micro approach is more suited for purpose. Home-based programs like MOCEP follow a trend of recognition regarding the importance of psychological development context. Kagitcibasi (1997a) refers to the proximal environment in the home setting as a vital context for establishing “interactive mediation” between parents and children (p. 22). Center-based social programs such as community counseling centers are not as effective in understanding the specific needs of a family without observing – and mediating – their interactions within the home environment. For children at the earliest stage of development, the importance of a proper environment in the home is more important than the external environment such as pre-school or centers of education. The mother as the principal caregiver in a Turkish – or indeed Arab – household, should thus be a target of a “contextual/systematic approach involving a meditational model” according to Kagitcibasi (1997a, p. 25). MOCEP both recognizes and satisfies this approach to training and cognitive education. In intervening on the education of children between the ages of 4 and 6 by way of engaging mothers as primary caregivers, there is an underlying presumption that children are unable to do many things by themselves. This necessitates the involvement and mediation of their parent, typically the mother, in order to provide a “zone of proximal development” (Bekman, 2004, p. 18). It follows that the better prepared or trained mothers are in fostering a productive environment, the more school-ready they will be. A key aspect of MOCEP's model is the dual intervention on mothers and children.

Kagitcibasi et al. (2009) points to studies that show twice as much improvement in children's cognitive function when intervention focused on mother and child in tandem. In a recent study by Bekman & Koçak (2011), the authors found that the key determinant for MOCEP's success was the predisposition of mothers to change their behavior for the sake of their children. By way of interviewing 100 mothers in five countries where MOCEP was implemented – comprising Turkey, Belgium, Switzerland, Bahrain and Saudi Arabia – Bekman & Koçak determined that participating mothers were not convinced to do so by administrators. Even in the face of occasional opposition from their spouses and neighbors, mothers were resolute in their stance to accept training. This finding suggests that key changes in the cognitive capabilities of the participating children would not have been as positive without the inclusion of the mother enrichment component. Corroborating testament is found in the work of Britner and Reppucci (1997), whereby the authors found evidence for the interdependency of maltreatment, poor educational attainment, and multiple pregnancies as risk factors. The convergence of the three is especially visible in poor communities where social interventions are most needed and effective. While MOCEP tackles all three interdependent risk factors with its three components, Bekman and Koçak's highlighting of the mother as keystone is supported by literature on mother-centered interventions.

By finding synergic benefits between its three components, AÇEV's development of MOCEP has taken into account the context of home interaction while refining its project to suit the population of rural Turkey. Prior to its development into a public program in 1991, MOCEP drew its inspiration from a 4-year research project carried out in 1982 designed to

assess the merits of home-based intervention (AÇEV.org). According to AÇEV, both the Mother Enrichment and Cognitive Enhancement components were appropriated from a project by the Hebrew University in Jerusalem, titled HIPPIY – or Home Instruction Program for Preschool Youngsters. After a four year testing period, whereby the local project was titled the ‘Turkish Early Enrichment Project’, a longitudinal study gave way to the refinement of the current MOCEP project (Bekman, 1998). Initially a year-long public intervention, MOCEP’s duration was shortened to 25 weeks and appended a third component whereby family planning services would be provided to the study group. Such was the multi-faceted success of the program that, by 2002, Turkey’s Ministry of National Education adopted the project itself. Two decades after the project was conceived in its current form, European agencies such as the National Adult Literacy Agency in Ireland revere NGOs like AÇEV as “policy champions” (NALA, 2011, p.68). To date, the program has served 200,000 women and children in Turkey alone; a country where only 21% of children between the ages of 4 and 6 are fortunate enough to attend institutional pre-schooling (AÇEV.org). For its success in affecting the lives of so many in Turkey and ability to affect policy at the national level, MOCEP was declared a winner at the 2010 World Summit for Education itself an initiative of the socially conscious Qatar Foundation (Jere, 2011; World Innovation Summit for Education [WISE], 2012). As of 2012, MOCEP’s model has been reproduced in 13 countries, affecting the lives of some 700,000 children and mothers in the process, with the latter being trained to be first educators (WISE, 2012, p. 7).

The successful record of MOCEP’s dual intervention in the home environment has proven to be transferrable to the nearby Middle East region, where low enrollment rates in pre-school and lack of social policies for mother and child across the region generate a need for involvement. The Kingdom of Bahrain, a rich country with disparaging inequality between social classes, was an early adopter of the program in 2001, where it was first initiated under the patronage of the Bahrain Society for Child Development. By way of heeding the contextual, and due to cultural sensitivities, the family planning component was omitted from the program’s implementation; with the focus resting on mother support and cognitive training for the children. The project intervened on 92 financially disadvantaged families, with 75 households serving as a control group. Following analysis of pre and post-test results, the administrators confirmed wide ranging benefits with the most significant gains affecting children’s cognitive abilities and self-esteem, while positive results were also found when assessing parental behavior in the home environment (Hadeed, 2004). Unlike AÇEV’s experience in Turkey however, the positive assessment of the Bahrain project did not result in the local government adopting its administration and increasing program coverage, with the reins handed over to the Bahrain Red Crescent Society instead.

It is believed that this program can play an important role in Arab countries in combating traditional gender roles, improving intra family relations and contributing to conflict resolution within the family in addition to its primary aim of improving child life. With an eye on improving both the literacy of participants and their quality of life, a pilot study was conducted in Lebanon as part of a first cycle, by way of cooperation between AÇEV and the regional NGO Arab Resource Collective (ARC) (www.mawared.org).

4. THE PILOT PROGRAM IN LEBANON

The modular program was implemented by teachers, guidance counsellors and social workers, with the aim to impart mothers with the skills necessary to fully support their child's development. Implementation of the program took place in three main phases: 1) training of trainers with the help of AÇEV and ARC experts, 2) training of mothers by trainers and, 3) program implementation on children.

ARC, in cooperation with its partners, recruited mothers of pre-school aged children from target communities to participate every week in a designated social/community center in discussion groups led by the trainer. Trainers also conducted home visits to mothers to support them in the context of the proximal environment. The communities trainers targeted were six organizations/camps for Palestinian refugees – the population of which make up the least privileged quintile in the country – whereby the designated sites were: Ahlona/Sidon Camp; Sabra camp; Woman Programme Association (WPA)/Bourj Barajneh Camp; Inaash, Bourj Barajneh Camp; GKCF (Ghassan Kanafani Cultural Foundation), and Mar Elias Camp (Zeina) (Popular Association for Relief and Development).

4.1. Evaluating the Pilot Program: Objectives and Study Sample

Following the conclusion of the 25-week program in 2011, an evaluation of the second phase was conducted by investigators. An evaluation of the complete program would require an extension of the pilot and long-term assessment in order to produce comparable findings to MOCEP's prior implementations. In the meantime, the main objective of the presented study is to measure the effectiveness of program on both mothers and their children, in addition to assessing where the program's progress stands in terms of meeting its expected targets.

The study sample consists of 88 Palestinian mothers who had participated in the program. A breakdown of the demographic data is presented in Table 1. Key descriptive frequencies are identifiable as follows: Mothers aged between 26 and 30 years accounted for the majority of the sample, with a figure of 28.4%. Making up 23.8% of the sample were mothers aged 36-40, with the average age of the entire sample standing at 32.3 years. Only 5.6% of mothers were found to have attained a college diploma, with 35.2% having only finished elementary school. 10% of those surveyed were either illiterate or had failed to attain elementary education. Critically, 71.5% of the mothers were unemployed.

While mothers with 2 children made up the largest group, accounting for 36.3% of the sample, the average number of children per mother was 3. 85% of the participants' children were beneath the age of 6, representing the necessary criterion for MOCEP's administration of cognitive training at the early stages of development. Almost two thirds of the children were male.

Table 1. Demographic information of participants.

	Category	Frequency
Age of Mothers	20 - 25	16
	26 - 30	25
	31 - 35	14
	36 - 40	21
	41 - 45	9
	46 - 50	1
	N/A	2
Educational Levels of Mothers	Can write and read	7
	Didn't finish elementary school	2
	Finished elementary school	31
	Didn't finish middle school	12
	Finished middle school	2
	Didn't finish high school	12
	Finished high school	14
	Didn't finish college	3
	Finished college	5
Employment Status	Employee - Full Time	2
	Employee - Part Time	5
	Self-Employed	4
	Not employed	63
	Employee - Seasonal	1
	N/A	13
No. of Children	1 Child	7
	2 Children	32
	3 Children	19
	4 Children	14
	5 Children	5
	6 Children	4
	7 Children	3
	N/A	4

4.2. Methods

Two questionnaires were filled: one for children's performance [consisting of 16 statements, representing behavior variables] and one for mothers' performance [18 statements representing other behavior variables], both completed by the mothers. Questionnaires were filled out in two stages: pre- and post- participation in the program. A 5-point scale was utilized for participants' responses.

Questionnaire scores were entered into SPSS statistical software for analysis and interpretation. For data analysis, each part was divided into descriptive and analytical statistics to compare means and scores obtained as a first step, followed by a regression analysis to affirm that improving results were due to participation in the project, accordingly demonstrating the effectiveness of the program.

4.3. Results

4.3.1. Descriptive Statistics. The aim of the descriptive analysis was simple mean comparison between obtained scores of the variables to determine which variable(s) achieved the highest agreement scores. With respect to results of the program on children of respondents who participated in the pilot, mothers identified positive factors in their children's intellectual abilities, including conversations skills, use of words, interest in learning and ability to recall events. With high agreement scores [4 to 5] to positive attributes and low agreement [1 to 2] to negative statements, mothers displayed an

expectedly positive perception of their children, highlighting the extent to which program has to achieve an improvement in children's behavior. The program results on children are shown in Table 2.

Table 2. Program results on children.

Descriptive Statistics	N	Mean	Std. Deviation
Child easily tells an experienced event	83	4.42	0.80
Child can tell a TV program that he watched	84	4.26	0.91
Child says which TV programs he wants to watch	83	4.12	1.05
Child can easily talk to people when visiting friends / family	84	4.10	1.15
Child wonders what the books are about	84	4.04	1.02
Child can tell what others told him completely	85	4.02	0.95
Child uses his own words while talking	83	4.00	1.13
Child can tell what he did to anyone when visiting a place	85	3.68	1.17
Child tries to read by himself	82	3.20	1.53
Child is only interested in pictures in the books	84	3.13	1.49
Child makes effort to write his name	83	2.98	1.56
Child gets bored easily while being taught new things	84	2.82	1.34
Child seems not interested in Newspapers and Magazines	85	2.64	1.22
Child doesn't wonder the events in a story	84	2.30	1.40
Child struggles to tell reasons of his crying	84	2.21	1.40
Child has hard time to tell when he's hungry	84	2.08	1.46

In the questionnaire on mothers' own performance, mothers emphasized a perceived healthy relationship with their children while expressing a willingness to improve in terms of behavior and interaction; both key to the healthy long-term development of children. A descriptive aggregation of both child and mother behavior found that mothers play an active role in their child's guidance while also being aware of their children's behaviors, needs and problems, and act accordingly by using reward, punishment, and supportive behaviors. The program results on mothers are shown in Table 3.

Table 3. Program results on mothers.

Descriptive Statistics	N	Mean	Std. Deviation
Say "Bravo" for if child did something they asked for	81	4.74	0.44
Listen to problems of child	85	4.56	0.64
Remind child to behave good over and over again	85	4.31	0.87
Let the child do something he likes and fun	85	4.31	0.76
Hug / Kiss child without reason	83	4.27	0.93
Realize spontaneously if child does something good	85	4.22	0.64
Intimidate child with punishment if he doesn't listen	83	4.04	0.93
Play with child	85	4.04	0.89
Mother Scold / yell at child when misbehaving	84	3.99	0.88
Used to tell stories and read to child	85	3.91	1.01
Take the child where he wants to go	84	3.81	0.88
Express anger when give punishment to the child	85	3.62	1.09
Scold child if he fights with other children	83	3.51	1.10
Say bad things unintentionally when get angry at child	85	2.95	1.27
Beat / smack child if he does not listen	85	2.91	1.29
Used to say "I don't like you" to child when he does not listen	85	2.60	1.28
Pull child's ears if he misbehaves	85	1.98	1.13
Hurth the child if he hurts another child	85	1.87	1.07

4.3.2. Analytical Statistics. To measure the dependency relationship between the children skills and participating mothers' skills, all children-related variables used in the questionnaires [Tables 2 and 3] were grouped into the 5 following categories:

- 1 - Cognitive awareness
- 2 - Cognitive thinking
- 3 - Knowledge interest
- 4 - Recall ability
- 5 - Social skills

The purpose of the categorization was to establish a relationship of dependencies between the variables. Firstly, the dependency between mothers' behaviors prior to program participation was measured, followed by finding the dependency level of their children regarding each aspect above. In order to represent their respective category for the purpose of regression analysis, one key variable in each group – having the highest score – was chosen as a sample [Highlighted in blue in Table 4]. The resulting 5 dependent variables were then related to the 18 independent variables; representing the improved maternal behaviors listed in Table 3.

Table 4. Key representative variables for dependence/regression analysis.

Aspect measured	Variable	N	Mean	Std. Deviation
Cognitive Awareness	Child says which TV programs he wants to watch	83	4.42	0.80
	Child uses his own words while talking	83	4.00	1.13
	Child struggles to tell reasons of his crying	84	2.21	1.40
	Child has hard time to tell when he's hungry	84	2.08	1.46
Cognitive Thinking	Child wonders what the books are about	84	4.04	1.02
	Child makes effort to write his name	83	2.98	1.56
	Child gets bored easily while being taught new things	84	2.82	1.34
	Child seems not interested in Newspapers and Magazines	85	2.64	1.22
	Child doesn't wonder the events in a story	84	2.30	1.40
Knowledge Interest	Child tries to read by himself	82	3.20	1.53
	Child is only interested in pictures in the books	84	3.13	1.49
Recall Ability	Child easily tells an experienced event	84	4.26	0.91
	Child can tell a TV program that he watched	83	4.12	1.05
	Child can tell what others told him completely	85	4.02	0.95
	Child can tell what he did to anyone when visiting a place	85	3.68	1.17
Social Skills	Child can easily talk to people when visiting friends / family	84	4.10	1.15

In the first instance, relating dependence of children's cognitive awareness on their mothers' behavior, a result of $R = 56.35\%$, found that there is a relatively positive relation and relationship between cognitive decisions and aggregated maternal behaviors. As for the coefficient of determination [R^2], a measure of overall significance, analysis obtained $R^2 = 31.76\%$, meaning that 31.76% of the variance in [Child's "ability to say what program he wants to watch"] is explained by the variance in all independent variables taken together. An 18.6% probability [ANOVA significance of 0.186] that chance affected the dependent variable was also established, signifying a positive significance of regression. The conclusion is thus that a child's cognitive awareness is relatively dependent on the mother's behavior.

A similar analysis of children's cognitive thinking found a dependence on mother's behavior, with $R = 66.96\%$ proposing a strong positive relation. The coefficient of determination yielded a result of $R^2 = 44.83\%$. An ANOVA significance of 0.006 affirmed a very high significance of regression with a percentage of less than 1% left to chance. The conclusion is thus that a child's cognitive thinking is highly dependent on the actions of the mother at the stage of early development.

Relatively positive relation was confirmed with the regression analysis of children's knowledge interest. A considerable coefficient of correlation [R] with a result of $R = 55.23\%$ demonstrated the dependency. A coefficient of determination obtained a result of $R^2 = 30.5\%$, with a 24.7% probability of chance being responsible for variation in the dependent variable. The conclusion is that interest in gaining knowledge is dependent on the improvement in mothers' skills and behaviors.

Measuring the dependency of children's recall ability on maternal behavior, $R = 61.97\%$, signifying a considerably strong correlation and relationship between variables. Coefficient of determination yielded a figure of $R^2 = 38.41\%$, indicating the relation of variance. An ANOVA significance of 0.045 demonstrated that there was less than 5% probability of chance dictating the outcome of regression. A child's recall ability is therefore highly dependent on the improvement in mother's skills and behaviors.

Finally, regression measuring the dependency of a child's social skills on maternal behavior yielded a coefficient of correlation where $R = 45.87\%$, and a coefficient of determination where $R^2 = 21.04\%$. Critically, an ANOVA significance of 0.708 suggests a very high 70.8% probability that chance would affect the development of social skills. These findings suggest that, while improvement in maternal behavior can affect their children's social skills, external factors such as paternal influence or a community's environment could shape the development of this skill category.

4.4. Post-Scores Analysis

4.4.1. Simple Mean Comparison. After obtaining post-scores and entering them into SPSS, means were obtained and compared to pre-score means. Scores' variables were arranged according to positive statements, whereby mothers were found to be in higher agreement, and followed by negative statements where mothers were expected to disagree. When comparing pre-scores and post-scores, Oweini recorded an improvement in children performance as well as mothers' behaviors and relationship with their children. There was an improvement in scores with respect to positive statements, with an average increase of 8%. Conversely, there was an average decrease of 14% with respect to negative statements, indicating that mothers were less likely to engage in negative behaviors, with the most dramatic change being a decrease in the use of intimidating/abusive behavior by mothers. Both results suggested an improvement in the mother-child relationship and the enhancement of a home environment conducive to child development. Detailed comparison of pre- and post- scores for children's behavior and mothers' behavior is shown in Tables 5 and 6 respectively.

Table 5. Comparison of pre- and post-scores: children behavior.

Descriptive Statistics	N	Mean	
		PRE	POST
Child uses his own words while talking	83	4.00	4.42
Child can easily talk to people when visiting friends / family	84	4.10	4.42
Child says which TV programs he wants to watch	83	4.42	4.38
Child can tell a TV program that he watched	84	4.26	4.33
Child easily tells an experienced event	83	4.12	4.29
Child wonders what the books are about	84	4.04	4.26
Child can tell what others told him completely	85	4.02	4.25
Child can tell what he did to anyone when visiting a place	85	3.68	4.07
Child tries to read by himself	82	3.20	3.14
Child seems not interested in Newspapers and Magazines	85	2.64	2.57
Child gets bored easily while being taught new things	84	2.82	2.49
Child struggles to tell reasons of his crying	84	2.21	2.32
Child is only interested in pictures in the books	84	3.13	2.17
Child doesn't wonder the events in a story	84	2.30	2.14
Child has hard time to tell when he's hungry	84	2.08	1.91
Child makes effort to write his name	83	2.98	1.83

Table 6. Comparison of pre- and post-scores: mother behavior.

Descriptive Statistics	N	Mean	
		PRE	POST
Let the child do something he likes and fun	85	4.31	4.47
Say "Bravo" for if child did something they asked for	81	4.74	4.42
Listen to problems of child	85	4.56	4.40
Used to tell stories and read to child	85	3.91	4.34
Hug / Kiss child without reason	83	4.27	4.24
Play with child	85	4.04	4.23
Realize spontaneously if child does something good	85	4.22	4.00
Remind child to behave good over and over again	85	4.31	3.97
Take the child where he wants to go	84	3.81	3.73
Express anger when give punishment to the child	85	3.62	3.63
Scold child if he fights with other children	83	3.51	3.14
Intimidate child with punishment if he doesn't listen	83	4.04	2.90
Mother Scold / yell at child when misbehaving	84	3.99	2.68
Used to say "I don't like you" to child when he does not listen	85	2.60	2.24
Say bad things unintentionally when get angry at child	85	2.95	2.11
Hurth the child if he hurts another child	85	1.87	2.00
Beat / smack child if he does not listen	85	2.91	2.00
Pull child's ears if he misbehaves	85	1.98	1.95

4.4.2. Mean Regression Analysis

The aim of this analysis was to understand the dependency relationship between the improvement in scores and the participation of mothers in the program. However, as negative and positive statements were clumped together in the questionnaires, the contradiction in numerical mean scores would nullify the sums, and a whole regression cannot be used. Therefore this factor was removed by applying the regression analysis on each statement type apart; i.e. one regression for pre and post positive statements, and

another regression for pre and post negative statements [Designated as black for positive and red for negative in Tables 5 & 6].

With respect to positive statements, a coefficient of correlation yielded a result of $R = 69.1\%$, a coefficient of determination $R^2 = 47.8\%$, and an ANOVA significance of 0.008. All in all, a highly significant correlation and very low probability of chance [less than 1%] indicated a strong dependency of children's behaviors on aggregated positive maternal behavior scores affected by the MOCEP pilot.

With respect to negative statements, a coefficient of correlation yielded a result of $R = 60.3\%$, a coefficient of determination $R^2 = 36.3\%$, and an ANOVA significance of 0.084 [8.4% probability]. A significant correlation and low probability of chance [8.4%] indicated a similarly strong dependency of children's behaviors on aggregated maternal negative behavior scores affected by the MOCEP pilot.

4.5. Additional Insights: Post-Scores Feedback

While the mean scores of the variables on both questionnaires indicated that mothers learned helpful concepts to identify and rectify their children's development issues, supplementary insights were provided by way of maternal feedback following completion of the program. For instance, 77.2% mothers claimed that open discussion of topics proved most beneficial to them, with family planning covered in MOCEP's third component coming in second at 19.3%. Only 3.3% indicated that the cognitive training component was the most beneficial part of the program. Respondents indicated that they were very satisfied with the implementation of the program on the whole, and perceived a fulfilment of their needs. Mothers were equally enthusiastic about the helpfulness of the program in improving their child's development, with a mean score of 4.92 indicating strong agreement. An identical mean score was recorded with respect to mothers strongly agreeing that the program helped them understand their children better. When asked about the contribution of home visits in the implementation of the program, a mean score of 4.34 was recorded. Significantly, when asked to compare the first two components of the MOCEP project, 58.6% found that the Mother Service Program (MSP) was the most important component, with the remaining 41.4% finding the most benefit in the Cognitive Training Program (CTP) component. This bias may be explained by the relative ease and applicability of the MSP when compared to the CTP, which may be a more complicated process requiring more time for mothers to fully understand it.

4.6. Discussion: Success of Pilot Implementation in Context

The pilot implantation of MOCEP in Lebanon was expected to yield a number of benefits for mother, child and community similar to positive results of long term studies in countries like Turkey and Bahrain (Bekman, 1998; Kagitcibasi, 1997b). Overall, evaluation of the pilot demonstrated a positive impact on mothers and children in Palestinian refugee camps where poverty levels are at their highest, and opportunities for pre-school or employment are at their most dire in the country. ARC, in cooperation with its partners, indicated specific objectives for program, as listed below:

- Provide parent training to support their roles as their children's first educators
- Empower mothers with the skills needed to promote their children physical, emotional, cognitive and social development.
- Prepare children for school, and support their development
- Empower the mother with skills and attitudes which will impact both her and her children's wellbeing for years to come.

The purpose of this study was to evaluate the 2nd step in the modular program, previously defined as the training of mothers phase across all three components of MOCEP. Findings confirm the overall transferability of the program to Lebanon as well as affirming the positive impact of attention to context within the refugee camps, an encouraging assessment for extending the pilot program.

Feedback from mothers indicated that the inclusion of the third component, Family Planning, was welcome with 19.3% of respondents citing it as the most beneficial part of the program. This is in stark contrast with the Bahraini experience, where the component was omitted altogether as part of the appropriation (Hadeed, 2004). The results of the evaluation also affirm the findings of Bekman & Koçak (2011) presented in the literature review, whereby the success of MOCEP implementation is significantly attributed to the willingness of mothers to accept intervention and improve across all three components of the program. With respect to long terms assessment of benefits, there remains an arguable point of contention that speaks to the lowly future prospects of those living in refugee camps. Unlike the experience in Bahrain or Turkey, Lebanon lacks in socio-economic policies that would supplement MOCEP. Kagitcibasi et al. (2009) found that even the most effective interventions at the earliest stage of development have “limited applicability for low income groups” (p. 777). This is attributed to less opportunities being available down the line for the poorest demographic, especially with regards to affording higher education that capitalizes on the increased cognitive function within the intervened group. Effectively, if improved school readiness does not translate into schooling or occupational opportunities, the benefits are somewhat negated. That being said, Kagitcibasi et al. (2009) maintain that benefit-cost ratios for both center-based interventions and home-based ones like MOCEP yield social and economic returns. Home-based interventions, in particular, produce high returns due to their implementation being less expensive than those dependent on training facilities and community centers. While programs similar to MOCEP’s structure are clearly not a solution to socio-economic equalities, the efficiency of early intervention with respect to individuals, communities, and national growth makes for a compelling proposition. As such, education programs should not only be recognized as imperative within Lebanon, but adopted by the Ministry of Education with a view towards funding and extension.

Contextual/local challenges aside, and in looking back at the initial objectives of the program, the following can be noted:

- The program was highly positive regarding addressing the needs of Palestinian refugees. Children’s cognitive skills were improved through training mothers on how to understand their children and behave accordingly. Mothers grew more aware of their children’s needs, and became more apt at responding properly, and foster healthier communication.

- As for reaching out to the target audience, the program has been successful to a great extent, as mothers were satisfied with the content and implementation of the program, the trainers’ participation, topics covered and results achieved.

- Concerning beneficiaries’ satisfaction, scores obtained in the “additional insights” section proved how mothers were satisfied with the program, as they expressed their interest in have fathers participate in the program.

As such, the pilot program is right on target and in line with its objectives, and yielded similarly significant results to AÇEV’s findings on similar programs in other countries.

5. FUTURE RESEARCH DIRECTIONS

5.1. Limitations of this Study

Several limitations exist since implementation of the program depends not only on the program itself, but on the trainers as well. The extent to which trainers understood it, were able to deliver it to the mothers, and in turn to what extent mothers were able to apply it effectively and efficiently all affect the success rate.

The areas that could not be directly measured in this study include:

- Trainers' understanding of the program.
- Trainers' qualifications and required skills to implement the program successfully.
- Trainers' feedback regarding the program itself (materials, curriculum, etc...)
- Trainers' feedback regarding program implementation process?
- Trainers' level of comfort and satisfaction with the program.

Another main limitation in this study is that all of critical measures regarding children's performance were taken from mothers' point of view. Therefore there's a high probability of errors in judgment, as they may not be urbane enough to make accurate value judgments. For example, measuring satisfaction of mothers might be colored by mothers' high expectations of the program. This is the result of having no direct measure of the children's end performance after the program implementation on mothers – but measuring children results as per mothers' perceptions.

An additional limitation to be highlighted is that although the study was based on pre/post experimental groups to compare results and underline improvement, no control groups were used to further determine the extent to which the program was effective.

Finally, there are limitations related to the subjects' lack of homogeneity in terms of educational background and availability which caused irregular attention, and, in some cases, attrition. Also, training sites were not adequately equipped with resources (for example, no babysitting services during training), the home environment was not always conducive to educational activities requiring concentration, and finally, some basic materials were not available (specific crayons and other tools).

As this study deals with a complex subject of cognitive awareness and skills development in mothers and children, further research is suggested to determine in more detail what factors play a key role in the change and improvement of children and mothers, and how to best implement the program.

6. CONCLUSION/DISCUSSION

The objective of the present study was to present part of the first cycle of pilot implementation of MOCEP in Lebanon, specifically in the Palestinian refugee camps, in collaboration with ARC, regional non-profit independent organization. High positive feedback was obtained regarding the content of the program, the trainers' skills, and the overall learned skills from the program perceived necessary by mothers for application in daily life with their children. Most of the mothers had a positive impression and expectations of the program, and willingly volunteered to participate. Significant improvement in the performance level of both children and mothers were reports at the completion of the pilot phase. Children had improved their cognitive and social skills, and showed more interest in learning, and mothers were happier and had a healthier relationship with their children. The program also met mothers' expectations, in terms of usefulness and practicality: it has helped mothers mostly in identifying their children's problems, a skill used on a daily basis. The most beneficial part of the program was the "Discussion Topics",

as it seems to encourage open discussion and sharing of point of views, hence better understanding of the topics at hand. Mothers also gave positive feedback about the program implementation in terms of classroom suitability, trainers' skills, and usefulness of information.

6.1. Recommendations

Based on the highly promising results of the pilot program, it is recommended that the program proceed to the next phase of implementation. The following should be taken into consideration:

- Capitalize on the format of the program which involves discussions, simulations, role playing, home visits, corrective feedback and so forth, and that have proven highly successful with trainees.

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Chapter 15

ASPECTS OF PRAGMATIC COMMUNICATION DIFFICULTIES IN PERSONS WITH SYMPTOMATIC SPEECH DISORDERS

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ABSTRACT

The principal objective of the presented paper is to introduce, from the theoretical point of view, the various specifics of disturbed pragmatic language level in people with Autism Spectrum Disorders (ASD). In the following part, mainly empirically, we will present the particular results of research examinations (Disturbed communication skill and the impact of its symptomatology on inter-disciplinary cooperation of professionals and the affected family in a complex intervention, n. Pdf_2012_012). Communication deficits in selected forms of disturbed communication skills focused on evaluating the partial determinants of verbal and non-verbal components of communication in special education practice, Faculty of Education at Palacký University (n. Pdf_2013_021, main investigator: Kateřina Vitásková), the partial results of which map, and render an analysis of, speech and language therapeutic intervention in people with ASD. Towards the end of the paper, we aim to acquaint the reader with a research focused on the global detection of pragmatics in people with ASD, considering the element of non-verbal communication (GAČR, Pragmatic language level in people with ASD, 14-31457S, 2014/2016, main investigator: Kateřina Vitásková).

Keywords: autism spectrum disorder, disturbed communication skills, pragmatic language level, speech-language intervention, non-verbal communication.

1. INTRODUCTION

In the current speech and language therapy (SLT), symptomatic speech disorders – which, in accordance with Lechta (2011), can be specified as interference in communication skills coexisting with primary and dominant diseases – are actual but also a much neglected topic (cf. Buntová & Tichá, 2009; Vitásková & Říhová, 2012a). The wide spectrum of symptoms implies deficits projected into impaired speech development in all of its components, whereas the extent of distortion is determined by a large number of varying factors (cf. Reisinger, Cornish, & Fombonne, 2011; Říhová, & Vitásková, 2012; Vitásková & Říhová, 2012b). The unifying aspects are generalized symptomatic categories or markers that also include the area of pragmatic language levels (PLL) (Vitásková & Říhová, 2013).

Pragmatics in communication is, according to Watzlawick, Bavelas & Jackson (2011), interpersonal interaction by means of which we initiate effects leading to adequate perception and behavioural reaction corresponding with the situational context. The authors also point out that they "...place lesser emphasis on traditional relationships "sender-sign and sign-recipient" but we tend to prefer the interpersonal relationship of "sender-recipient" mediated by the communication" (p. 25). Pragmatic language level thus represents the application of communication skills, mastering speech skills in every-day life and

materialization of the communication intention. Communication intention occurs earlier than spoken utterance and by means of this skill, a child can express his/her wish to play, his/her dissatisfaction or draw somebody's attention by crying (Bates, 1976) and it is then obvious that pragmatic language level is an essential precondition of social interaction and its disturbance is a fundamental factor inhibiting effective realization of the communication process.

2. BACKGROUND: PRAGMATIC LANGUAGE LEVEL IN PEOPLE WITH ASD

The deficits of this language level are the specific symptoms of distorted communication skills in people with ASD, which makes it a characteristic sign of the given problem (compare, e.g. Geldard & Geldard, 2008; Šedibová, 1998; Vosmik & Bělohávková, 2010). Pečeňák (as cited in Lechta, 2003) points out that in people with ASD with good verbal skills, we find significant disturbance in the pragmatic language level. Speech in such individuals lacks communication intention and thus, fails its primary function – exchange of information. Philips et al. (as cited in Vermeulen, 2006) outlines the results of a research examination aimed at comparing communication skills between 2-year old typical toddlers and 2-year old infants with autism spectrum disorder. The research outcomes show that toddlers with ASD have substantial deficits primarily in skills relating to asking for something, referring to an impulse or situation catching their attention, and also with problems in sharing and paying sufficient attention to the content of the communication. Pragmatic language level as a basal issue in communication skills in people with ASD is also discussed by Howlin (2005) who claims that, in her opinion, the fundamental problem of the majority of people with ASD does not lie in the fact which words they use, but in the fact how they use them. Mitchell et al. (2006) conducted a comparative retrospective study in children with ASD (N=97, dg. infancy autism) and their typical siblings by means of analysing home videos and dialogues with parents with the objective of analysing early communication and its deviations when compared with the typical sibling. The results of the given study show that before 1 year of age, the predominant symptom in a child with ASD is delayed development of speech; after 12 months of age certain problems in understanding communication and production of gesticulation were apparent and persisting absence of verbal production was apparent after 18 months of age. At the same time, specifics in non-verbal communication and lack of response when addressed were recorded. Miniscalco (2014) draws attention to deficit in imagination as one of the causes for disturbed pragmatic linguistic level in persons with ASD. He conducted a longitudinal study in 34 children with ASD and compared them to a group of typical children, concluding that the ability to imagine plays a key role in commanding conversation skills.

Social communication skills represent significant interactive ability in pre-school children. Building reciprocity in communication, within such contemporary group, determines their psychosocial development and predicts socialization in the wider meaning of the word (compare Chiat & Roy, 2013; Vitásková & Říhová, 2013; Vitásková & Říhová, 2014). This sphere was also examined by the investigation conducted by Gertner, Rice, & Hadley (as cited in Bishop & Leonard, 2001). They applied socio-metric study focusing on identification of characteristics of a child with whom other children at the pre-school would like to play and the characteristics of a child preferably avoided by other children. The results confirmed the fact that the significant predictors of popularity within the group of pre-school children were communication skills, primarily pragmatics and the area of

reception of nonverbal as well as verbal communication, the ability to detect and apply prosodic factors of speech, and to understand the fundamental elements of irony and double meaning (in *ibid.*).

PLL difficulties in people with ASD (especially with the Asperger's syndrome; AS) are of neurobiological basis (e.g. Tesink et al., 2009) as they show increased activity in the right frontal gyrus – Brodmann area 47 (mapped by means of fMR). In the course of processing emotionally saturated information, the area that was activated in people with ASD differently than in typical people was the cerebellum, the central part of limbic system and the temple cortical areas, whereas the left amygdala or the left part of the cerebellum did not show any stimulation in comparison to the typical population (Critchley et al., 2000).

Functionality and reactivity of the right hemisphere in persons with autistic spectrum disorder (ASD) is increasingly more monitored as deficits and atypism of the right hemisphere development is considered to be one of the main basis of certain autism features. Lazerev et al. (2009) in this respect point out the fact that right hemisphere deficits can be overlooked during a common examination of brain activity in persons with autism, as focus on verbal aspects of communication assessment are predominant. Deficit processing by the right hemisphere is also researched in persons with Asperger syndrome, in whom, unlike in the intact population, it is not at all used to perceive metaphors in understanding speech (Gold & Faust, 2010), although its inclusion in the process of understanding language stimuli should be activated simultaneously with left hemisphere processing, which in intact persons is predominant in function (Just et al, 2004, in *ibid.*).

An interesting study was conducting evaluating the occurrence of differences between highly functional autism (n=11), Asperger's syndrome (n=22) and speech and language disorder (SLD) (n=11) (Ramberg, Ehlers, Nydén, Johansson, & Gillberg, 1996). The partial objective of the study was to outline the differences in vocabulary, understanding and pragmatics. Particular results indicate that Asperger's syndrome has, in comparison to highly functional autism and SLD, significantly higher results for verbal IQ with concurrent homogenously detected deficits in the social aspects of communication. It follows that, given the possible absence of difficulties associated with phonetic-phonologic linguistic level and active vocabulary, pragmatics in communication in people with Asperger's syndrome shows significant specifics hindering social interaction.

The significance of differential diagnosis is apparent also in the distinction between Asperger's syndrome (AS) and the so-called highly functional autism (HFA). At present, these are highly debatable categories comprising of homogenous as well as completely diverse symptoms. One of the diagnostic markers is also the field of communication on which the research investigation conducted by Ghaziuddin & Gerstein (1996) was focused. These authors accentuate the fact that a specific and primarily characteristic feature of Asperger's syndrome is pedantically precise articulation, marked as a clinical feature. This claim is supported by the results of investigation pointing at the fact that 76% of the monitored set of persons with AS showed pedantically precise speech, unlike persons with HFA where the frequency of this symptom was 31% (*ibid.*).

As mentioned above, disturbed communication ability, pragmatic linguistic level in particular, is not only a typical symptom of ASD but also an important diagnostic and differential-diagnostic criterion. A number of researches were focused on analyzing deficits in this sphere, interfering with all diagnostic categories of ASD (infancy autism, Asperger's syndrome, atypic autism and others). As an example, we can name the study conducted by Rapin & Dunn (2003) and Tuchman and colleagues (as cited in Rapin & Dunn, 2003). The analysis of the research set consisting of 491 children (N=229 ASD, N=262 specific

language impairment, SLI) brings results referring to symptoms that can be noted as basal and typical for persons with ASD. Most commonly, verbal agnosia (compare Dostálová, 2014), deficit in phonological decoding, disorders of expression of communication (absence of verbal communication, verbal echolalia, automatisms, neologisms) (compare Boyd, 2011) and also aberration in non-verbal communication (compare Doherty-Sneddon, 2005). The issue of disturbed communication ability in persons with ASD is also incorporated in a number of successive research investigations conducted at the Faculty of Education in Olomouc. The following sections of the text present the partial results of an investigation focused on pragmatic linguistic level in persons with ASD.

3. RESEARCH DESIGN AND METHODOLOGY

The following part of the paper introduces the particular results of longitudinal research investigations conducted in time period March 2011– March 2014 at the Institute of Special Education Studies of the Faculty of Education at Palacky University in Olomouc.

3.1. Research objectives

In the presented paper, we focus on the following areas:

1. Mapping whether the addressed respondents (clinical speech and language therapists in the Czech Republic) provide their SLT intervention to clients with ASD.
2. Analysing the cognitive level of disturbed communication skill within speech and language therapists in the Czech Republic.
3. Providing reflexion on the conducted SLT intervention in people with ASD from the point of view of parents of children with ASD.

The principal research method is a questionnaire distributed to 3 groups of respondents – clinical speech and language therapists (May 2011, number of questionnaires distributed 408, returned and completed 144; 35.29%), parents of children with ASD (June 2011, number of questionnaires distributed 41, returned and completed 19; 46.34%) and speech and language therapists working in the area of school system and medical care (March 2013, number of questionnaires distributed 390, returned and completed 69 questionnaires; 17.69%). When compiling the questionnaire, we preferred the combination of structured and semi-structured items and we respected the principles necessary for its creation. We applied the Likert scale with 5 levels, ranging from absolute dissatisfaction to complete satisfaction.

3.2. Results analysis

Our first focus was on mapping whether speech and language therapists in the Czech Republic look after clients with ASD.

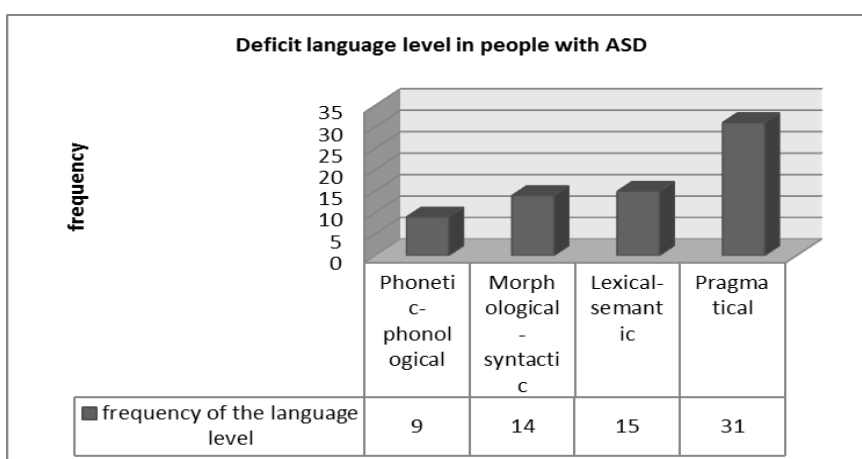
Table 1. Frequency of clientele with ASD under treatment of clinical speech and language therapist.

<i>Are there persons with ASD among your clients?</i>		
<i>Statement</i>	<i>frequency</i>	<i>Percentage frequency</i>
A. yes	80	55.56
B. no	64	44.44
Σ	144	100

It is quite apparent (see Table 1) that out of the total number of speech and language therapists participating in our examination (n=144), 80 respondents (55.56%) provide therapies to people with ASD. The average number of clients with this diagnosis per each professional who confirmed conducting SLT was 4 people with ASD; it is thus altogether approximately 320 individuals. Increase in the occurrence of ASD not only in the Czech Republic but also, for example, in the USA (compare e.g. Strunecká, 2009), which is identically claimed by Dudová, Beranová, and Hrdlička (2013) and the simultaneous necessity of conducting SLT for all clients with ASD lead to the fact that the given clients represent sufficiently quantitatively saturated and justified group of people where intervention targeted on development of functional communication skills should have momentous, irreplaceable and purposeful role.

The following items of the questionnaire mapped the cognition level concerning disturbed communication skills in people with ASD. Respondents were offered a semi-structured question consisting of 4 possible answers (phonetic-phonological language - PPLL level, morphologic-syntactic language level - MSLL, lexical-semantic language level - LSLL, pragmatic language level - PLL) where they should respond with adequate reply.

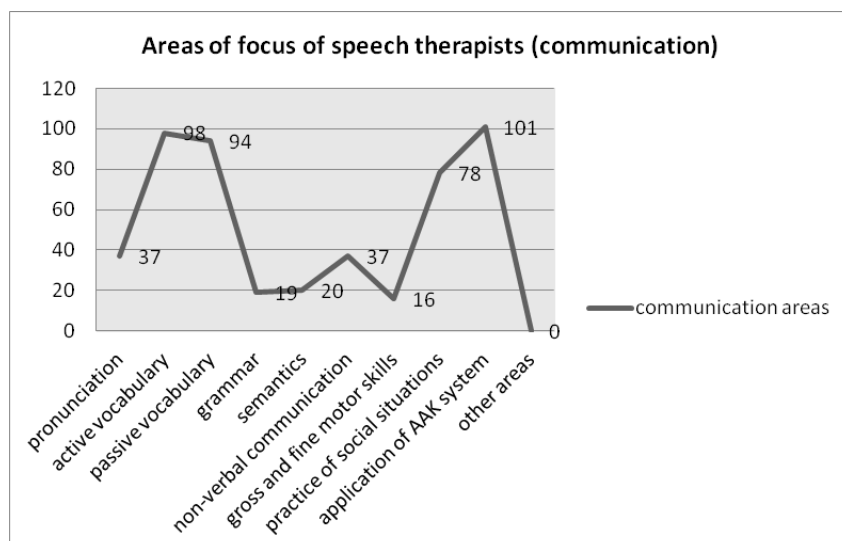
Figure 1. Deficit language level in people with ASD.



As it is obvious (see Figure 1), the addressed respondents mark as most frequent (n=31; 44.93%) deficits relating to PLL. The next most frequent is the LSL (n=15; 21.74%) and MSLL (n=14; 20.29%). Nine SLTs find the PPLL as deficient (13.04%). It results that the addressed professionals marked, as the dominant aberrant, disturbed adequate language level affecting the given communication area is being typical for people with ASD. At the same time, it should be, however, highlighted that qualitative indicator presented by the frequency lesser than half – 44.93% is not statistically sufficient.

The deficient linguistic level is directly related to the field of intentional focus of speech and language therapeutic intervention. A questionnaire was presented within the framework of a GAČR (Czech Science Foundation) project aimed at analysing the areas of focus of communication ability in persons with ASD as reflected by the addressed respondents (Czech speech and language therapists).

Figure 2. Areas of speech and language therapists' focus.



Most frequently (N=101, 20.20%), the addressed respondents stated that within their speech and language therapeutic intervention, they apply the elements of alternative and augmentative communication (AAK = engl. AAC). From Figure 2, it is also obvious that the second strongest attention is paid to active (N= 98, 19.60%) and passive (N=94, 19.60%) vocabulary. Practice of social situations is applied much less frequently, only by 78 speech therapists (15.60%). Intervention through pronunciation and non-verbal communication is frequent in the same extent. The results show that 37 respondents (7.40%) focus their therapeutic intervention on phonetic-phonologic linguistic level, and the same number of respondents concentrates on non-verbal communication. On the other side of the scale, we can see that the speech therapists devote least attention to the development of gross and fine motor skills (N=16, 3.20%), grammar (N=19, 3.80%) and semantics (N=20, 4.00%).

In the given context, it is important to mention the below-stated results associated with reflection on the provided SLT intervention from the point of view of parents with children with ASD.

Table 2. Content of SLT intervention from the point of view of parents with children with ASD.

Area	Frequency	Percentage frequency
A. pronunciation	12	75
B. understanding	7	43.75
C. vocabulary	8	50
D. grammar	1	6.21
E. motoric	6	37.5
F. pragmatics	4	25

We believe that the PPLL (see Table 2) is not relevant as a primary area of development of communication skills in people with ASD. However, analysis of the results of the questionnaire investigation conducted on parents of children with ASD shows that three quarters of the respondents addressed (75%) notice preference for this language level in the execution of SLT intervention. This result could be simply taken as a proof of SLT's inclination to rather mechanical, formal attitude to their therapy provided towards children with ASD (emphasizing only the surface component of language, without considering the functional, social aspects of communication ability). At the same time, we must be aware that the course of the intervention may be misevaluated by parents. We assume that they are not always able to recognize the real purpose of the SLT therapy appropriately, especially in case that the SLT does not inform parents about the therapeutic goal and its ground sufficiently.

4. FUTURE RESEARCH DIRECTIONS

The specific statements of speech and language therapists clearly indicate that the production of materials focused on diagnosing pragmatics in individuals with ASD is totally inadequate; their reflections point to the need for creating diagnostic and evaluation materials aimed at the pragmatic language level in people with ASD or adapt international tests to conditions in the Czech Republic. This should also be a partial outcome of the project GAČR (*Pragmatic language level in people with ASD*, 14-31457S, 2014/2016), which focuses on the creation and subsequent verification of the evaluation material directed at pragmatics in people with ASD. The project has the primary objective to detect, analyse and compare pragmatic linguistic level in persons with autistic spectrum disorder (ASD), which is the primarily disturbed area of their communication skills. The highest point of the research shall be the compilation of a specialized testing material evaluating the ability to apply communication in the social context, which will be verified in four heterogeneous groups of clients (persons with ASD, individuals with intellectual disability, children with developmental dysphasia and typical persons). The resulting comparison shall be deeper analysis of additional deficits in the pragmatic linguistic level and description of specific markers in selected groups of probands, which is essential for shifting the differential diagnosis of the disturbed communication ability in persons with ASD (compare with Volden & Phillips, 2010).

5. CONCLUSION AND DISCUSSION

The presented paper focuses on the essential topic ASD related disturbed communication skills and SLT intervention. The initial part dealt with disturbed communication skills in general and highlighted its pervasiveness in all individuals with ASDs diagnosis. The theoretical basis was accomplished by inland and foreign research examinations and their objective was to create a global view of the problematic condition at issue showing that the difficulties in the pragmatic language level are specific for ASD individuals. These variations are evident already in very early age and, to a significant extent, predict the child's social emotional development.

The empirical part of the paper offers particular results of longitudinal and follow-up studies conducted at the Institute of Special Education Studies at the Faculty of Education, Palacky University in Olomouc. These studies aimed at detecting whether speech and language therapists in the Czech Republic, within their professional practice, look after clients with ASD; in addition to rendering an analysis of content of the speech and language

therapy intervention in people with ASD and its reflection from the point of view of parents of ASD children. From the results of the mentioned studies, it follows that people with ASD are not registered sufficiently within speech and language therapy care (44.44% of the addressed respondents confirm treating clients with ASD). On the other hand, it needs to be mentioned that 90.28% speech and language therapists consider the execution of speech and language therapy intervention as necessary and important. Opponents of this belief accounted for only 8.33% of the responses.

With regard to the pragma-linguistic concept of speech and language therapy, PPL should be gaining ground – as pointed out by Lechta (2003), Grigorenko, Klin, & Volkmar (2003). This is also being confirmed by actual results verifying the effectiveness of speech and language therapy intervention in relation to the socio-pragmatic skills of children with ASD and typical children (Adams et al., 2012); the given situation is also acknowledged by ASHA in its classification of communication disorders (pragmatic communication disorders represent an independent subcategory) (American Speech-Language-Hearing Association, 1993). Moreover, for practitioners it is also necessary to understand the symptomatological continuity between newly defined social-pragmatic communication disorder (SPCD) and ASD (when in case of ASD the SPCD symptoms are more tied to the primary key socio-pragmatic deficit, while pure form is a “pure” form of communication disorders), SPCD and language disorders (such as specific language impairment - SLI, etc.) and SPCD and neurodevelopmental and other disorders (Norbury & Sparks, 2013). Subsequently, the content of the speech and language therapy intervention was investigated. In relation to the core problem of ASD (social deficit and disturbed communication affecting pragmatic language level) and with reference to the preference of the so-called pragma-linguistic concept in SLT, we found it essential that speech and language therapists prefer the development of the PLL. Practically, this includes, e.g., practising social skills, perception and expression of non-verbal communication, and applying and practicing alternative and augmentative communication. It follows from the results that 14.4% of speech and language therapists still perceive that the principal deficit is at the PPLL. On the other hand, 81.25 % SLTs prefer alternative and augmentative communication, which needs to be perceived as positive. However, the statements of parents of children with ASD that about 75% speech and language therapists still preferring the development of pronunciation cannot be regarded as optimal.

Regarding the results of our investigation, challenging is also an absence of relevant culturally-ecologically reliable assessment tools related to changes of the concept of differential diagnosis in the context of neurodevelopmental disorders and cultural differences as those affect the records influencing the prevalence rate of SLI and ASD and their diagnosis. Within the diagnostic process it is necessary to critically discuss the exclusion criteria, e.g., whether the disorder finally just not entirely meet the criteria of diagnosis of ASD or the definition of a previously defined type of pragmatic disorder of PPD type.

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Chapter 16

EDUCATION FOR NURSES IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

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ABSTRACT

The aim of this research is to improve education for nurses in line with ESD by implementing the ecological approach in nursing studies. The objectives of the research are these: 1) to define and assess the theoretical basis of the ecological approach; 2) to assess the possibility of implementing the ecological approach; 3) to work out and approbate the course An Ecological Approach in Patient Care. “Basic Principles of Deep Ecology” by Arne Naess and George Sessions, “The Ecology of Human Development” by Urie Bronfenbrenner, and the five ESD pillars of *learning to know, learning to be, learning to live together, learning to do, and learning to transform oneself and society* constitute the theoretical basis of the ecological approach. The ecological approach also draws on Florence Nightingale’s observations about the significance of the care environment and theories of nursing related to the environment (e.g. Leininger & McFarland, 2006; Neuman, 1990; Rogers, 1990; Roy & Zahn, 2005). The environment of nursing education and practice should be regarded as a complex system of learning, socialization, and culture that consists of subsystems which affect sustainable development. In that context, the observations of theoreticians of nursing studies on the effect of the environment on human health, a person’s autonomy in the care process, human experience regarding health and illness, as well as the union of art and craft in patient care, are significant. In assessing the possibility of implementing the ecological approach in nursing studies, the need to incorporate its principles in all courses of the study program and to work out a special course, An Ecological Approach in Patient Care, was evident. It would also be useful to work out and implement a professional development course for faculty members of colleges. The theoretical basis of the ecological approach, as well as the ecological competence model developed by the author and the study course An Ecological Approach to Patient Care, has been improved and approbated in the College of Medicine since 2009. The course is worth 3 credit points (according to the European Credit Transfer System – ECTS). Four groups of students and 180 students have taken this course. As a result, the ecological competence of nurses is being formed and developed. That, in turn, promotes the positive development of education for nurses and a healthy environment, as well as a holistic, patient-centered care and a subject-subject relationship in the care process.

Keywords: nursing, nurses’ education, education for sustainable development.

1. INTRODUCTION

In the contemporary education environment with its dynamic development, the unification of education system can leave a negative impact on sustainability/sustainable development. The only opportunity to ensure a sustainable development in education is creating such an education system that would be rooted in diversity. This refers to the integration of the ecological approach into nursing education and health care practice with an ensured complementary development of different fields.

Parallel to further research and implementation of education for sustainable development that directly relates to transformative teaching and learning by realizing the

ecological approach in education, there is an ongoing development process of education ecology, the origins of which go back to U. Bronfenbrenner's ecology of human development (Bronfenbrenner, 1976, 1979, 2005).

Education and health care have been rightly considered as a continuous process of further development and improvement of nurses. This process directly influences wellness and life quality of individuals and society as a whole. The importance of sustainable education, its further development and meaningful content provide the basis for developing an ability and motivation for learning to learn and by adopting systems thinking, nurses can understand and take part in resolving the 21st century local and global health care issues characteristic of the multi-dimensional contemporary environment.

Change in nursing education and health care practice has not always been welcome. However, change is real and accelerating and it is favoured by education for sustainable development and sustainability trends in the health care globalization process. Varied aspects and dimensions of globalization have been explained and different arguments have been put forward in reference to globalization processes and how they should be viewed – as a “good thing” or a “bad thing”. All of these processes also refer to different issues of nursing education and health care practice.

In the 21st century, numerous complex challenges in nursing education and health care have come to the fore, among them: 1) how to create and implement nursing study programmes in line with education trends for sustainable development and the process of formation and development of the ecological competence of nurses; 2) how to implement the ecological approach in the nursing education process and health care practice;

Aim of the study: to improve nursing education according to the Education for Sustainable Development (ESD), by means of implementing the ecological approach in nursing studies.

Objectives of research: identification and assessment of the theoretical basis for ecological approach; evaluation of implementation possibilities of ecological approach; development and approbation of the study course *Ecological approach in the patient care*.

The theoretical and scientific framework of the research on the principles of ecological competence and the development of ecological competence of nurses has been developed round three basic building blocks: 1) *sustainability/ sustainable development* in social, education and health care environment; 2) U. Bronfenbrenner's *ecology of human development* and a process-person-context-time system; 3) the ideas of *ecosophy, or deep ecology*, developed by A. Naess.

The principles of the ecological approach and the development process of the ecological competence of nurses constitute the theoretical basis for the ecological approach in nursing education and health care.

2. SUSTAINABILITY/SUSTAINABLE DEVELOPMENT

The definition of the concept of sustainable development emphasizes *a high level of education and good health care*. To achieve these goals, it is important to develop an informed society and highlight the importance and value of education. Another important aspect is to increase society involvement and participation in social processes and decision-making. The explanation of sustainability principle draws attention to such concepts as *change of attitude, environmental consciousness, behaviour, responsibility/ commitment and values* – all of these concepts are components of the principles of the ecological approach in nursing. In order to understand the complex change in the environment systems for sustainability/ sustainable development in nursing education and

health care, the whole process of nursing education has to be reviewed and reassessed and areas for change should be identified.

Education for sustainable development in nursing education should not be considered as a study course, but rather an area and scope of activities aimed at collecting and processing knowledge obtained in different study courses. Thus, education for sustainable development (EDS) cannot substitute study courses, but in many ways it is based on previously acquired knowledge which is expanded, refined and applied in creating new context.

S. Sterling describes sustainable education as a systemic change of education culture in which theory and practice of sustainability keeps developing by applying critical thinking in a knowledgeable way. This could lead to transformative teaching and learning that provide understanding about the value of knowledge, develop resilience and embrace human potential. It relates to the necessity of reaching and sustaining social, economic and ecological wellbeing and the deep interdependence of these processes (Sterling, 2005).

Education for sustainable development encourages individuals to get involved and participate in the processes of unsustainable development in order to follow sustainability criteria in their personal life and join others to initiate sustainable development processes both on a local, regional or global scale. This makes nursing education for sustainable education a significant component of health care sustainability.

Sustainability/sustainable development in nursing and health care should be perceived in relation to globalisation and global processes that have been characterised as a process as well as a condition, a system, power and age at the basis of which lie changing forms of human communication. M. Steger calls globalisation a dynamic process that is best described by such concepts as *development or formation according to a certain model* that corresponds to the development and formation process of the principles of the ecological approach and the ecological competence (Steger, 2009).

By analysing nursing theories/ models and health care practice in different countries, it can be concluded that the personal and professional global communication of nurses, the transformation of their knowledge and skills have developed in a historical context. The statistical data and research in many countries of the world show that the aging process of the society is accelerating. It is perceived as a logical global process and, as a result, the number and severity of diseases are also inevitably increasing. There are several new global challenges in nursing education and health care:

- how to create safe and positive environment in education and health care;
- how to provide viability and wellness to patients/clients;
- how to extend longevity of senior citizens and patients/clients with chronic diseases;
- how to improve life quality that would allow people to fulfill their potential by cooperating with and participating in power and social institutions.

In order to implement education for sustainable development, the primary task of educational managers and leaders is to redirect and restructure education programmes in such a way that they would be clearly aimed at sustainability and sustainable development and the formation and development of the related knowledge, skills, perspectives and values.

Ecological wisdom (*ecosophy*) in nursing education promotes sustainable education and, as an outcome of a learning process, provides students with ecological knowledge and ecological skills, develops and shapes ecological consciousness to highlight morality and spirituality characteristic only of humans. To change an anthropocentric ecological consciousness to an ecocentric ecological consciousness, cardinal changes are necessary in every human and society as a whole. In this context, the pillars of education for sustainable

development *learning to live together* and *learning to transform oneself and society* become particularly significant.

In this research on education for sustainable development “Education for Sustainability: Education in change”, Sterling (2005) has outlined 31 basic propositions. Some of those propositions have been highlighted and transformed and they have become significant and topical in the development of sustainable education in nursing. They have also been applied as a basis for research and building an argument in favour of an urgent necessity to integrate the ecological approach in nursing education.

2.1. Education for sustainable development: suggestions/propositions and statements in nursing

- Nursing studies complemented with ecological knowledge and skills in nursing education form a professional, culture and society developing system.
- Larger socio-cultural paradigms influence nursing education and health care as a whole.
- In nursing education, the paradigm change from fundamentally mechanistic to an ecological paradigm is itself a learning process.
- The ecological paradigm in nursing education is a manifestation of holistic and systemic thinking.
- The existing paradigm in nursing education is fundamentally mechanistic, dualist and frequently shows reductionist signs.
- In recent years, nursing education has been dominated by a strong instrumental and managerialist orientation which has been largely unfavourable to education for sustainable development and the ecological approach in education and health care.
- There is incoherence between the dominant mechanistic paradigm and the experience of increasing complexity in nursing education and health care, and their interdependence. Knowledge of education ecology and the ecological approach can help us perceive the world clearly, describe it adequately and act wisely.
- Systems thinking and the ecological paradigm in nursing education and health care practice have a philosophical basis (ontology + methodology + epistemology + axiology). Systems thinking should be viewed as an integrative approach that brings together and unites rather than denies.
- Systems thinking offers a transformative education model in nursing highlighting the essence of transformative teaching and learning.
- To introduce and implement education for sustainable development and education ecology in nursing education, holistic teachers play an important role in educating and inspiring students who do the learning.

(Source: Sterling, 2003)

3. ECOLOGY OF HUMAN DEVELOPMENT AND NURSING EDUCATION

As complementary sources, Urie Bronfenbrenner’s Ecology of Human Development perspective, Education for Sustainable Development pillars, ecology of education, kā arī European Qualifications Framework (EQF) have been applied in this research.

Urie Bronfenbrenner (1917-2005) has defined the ecology of human development: *The ecology of human development involves the scientific study of the progressive, mutual accommodation between an active, growing human being and the changing properties of the immediate settings in which the developing person lives, as this process is affected by*

the relations between these settings, and by the larger contexts in which the settings are embedded (Bronfenbrenner, 1979).

At the heart of the theory of Ecology of Human Development is systems approach which analyzes immediate and more distant contexts or environments/settings that influence the nature of a human life from a development perspective. In the context of environment, human development is composed of several building blocks that are well-known concepts in behavioural and social sciences: molar activity, dyads, roles, setting, social network, institutions, subculture, and culture. There are three main ways of interaction between a developing human and the ecological environment or setting:

- 1) a human being is changing and adapting to the environment/ setting, but the setting remains unchanged;
- 2) a human being is changing the environment/ or setting, but he himself remains unchanged;
- 3) there is an interaction, change ability and development between a human and the setting / or environment.

Initially the research emphasized the interaction between immediate settings of a nurse or a nursing student - study environment/ setting, health care setting and their interaction, as well as their interaction/ relation with larger context settings.

Three levels that directly or indirectly affect the development of nurse's ecology of education and ecology approach in health care: 1) local level of the nursing education program and health care; 2) European level – *European Qualifications Framework*; 3) global level – *Education for Sustainable Development* (ESD).

Bronfenbrenner and his followers have improved the ecological theory of human development. In addition to ecosystem also endosystem and chronosystem have been included, and the importance of a process in human development has been stressed. The bio-ecological theories of human development (Bronfenbrenner & Morris, 2006) and Process-Person-Context-Time System have been established (Tudge, Mokrova, Hatfield, & Karnik, 2009).

In view of the fact that process plays a leading role in a nurse's development, studies were conducted on using the didactic principles of transformative education and constructivism.

Nursing education and health care are characterized by teamwork that is interdisciplinary and oriented toward resolving complicated problems of health and living. It deals with an individual's development both in the environment as a living organism characterized by viability, quality of life, and development in a multi-dimensional environment amid changing circumstances and as a self-respecting, self-developing and participating being.

Research studies in the ecology of education are not characterized by reference to linear variables, but analyses are conducted in terms of systems: meso-, exo- and macro-system. Beginning at the innermost level of the ecological schema, one of the basic units of analysis is a dyad, or two-person system; triads, tetrads, and larger interpersonal structures are used in articulating the process of human socialization, all of which are a key to understanding the ecology of education (Bronfenbrenner, 1976, 1979, 1989, 2005; Bronfenbrenner & Morris, 2006).

The European Qualifications Framework (EQF) defines learning outcomes in terms of knowledge, skills, and competencies (Official Journal of the European Union, 2008). The outcomes of education are stressed. Thus, it is important to pay due attention to both process and outcome. The five pillars of ESD – *learning to know, learning to be, learning to live together, learning to do, and learning transform oneself and society* – are significant in the

context of education for sustainable development. Our research revealed that nurses have an inadequate understanding of their importance. That is especially true with regard to the pillar *learning to transform oneself and society*. The opportunities to implement this pillar on a daily basis are greater in informal learning situations than in educational institutions that offer formal or non-formal education.

In future research studies, it would be useful to link the pillar of *learning to transform oneself and society* with Education for Global Responsibility (EGR) (Kaivola & Melén-Paaso, 2007). The objective of EGR is to open nurses' eyes and minds to the need for global understanding, especially within the framework of sustainable development.

4. ECOSOPHY OR DEEP ECOLOGY

The ecological approach shows evolution from a holistic view to a deep ecology view forming the core, asking deeper questions and acknowledging the fundamental interconnectedness of all phenomena. In addition, the construction of the core of deep ecology is found in the new Complexity Integration Nursing theory as the time has come when the global community of nurses has to acknowledge and embrace the deep ecology paradigm (Van Sell & Kalofissudis, 2001).

Deep ecology or ecosophy is the philosophical framework of the ecological competence model in nursing education and health care.

Ecological science, concerned with facts and logic alone, cannot answer ethical questions about how we should live. For this we need ecological wisdom. Deep ecology seeks to develop this by focusing on deep experience, deep questioning and deep commitment. These constitute an interconnected system. Each gives rise to and supports the other, whilst the entire system is what Naess would call an ecosophy: an evolving but consistent philosophy of being, thinking and acting in the world that embodies ecological wisdom and harmony (Naess, 1973).

Ecosophy is based on the eight-point platform of Arne Naess (1912-2009) and G. Sessions. In the context of this research, three points which are especially relevant to the education of nurses and professional ethics problems are highlighted. The first point declares that *the well-being and flourishing of human and non-human life on Earth have value in themselves (synonyms: intrinsic value, inherent worth). These values are independent of the usefulness of the non-human world for human purposes*. The seventh and eight point declares that *ideological change will be mainly that of appreciating life quality (dwelling in situations of inherent value) rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between bigness and greatness, and those who subscribe to the foregoing points have an obligation directly or indirectly to try to implement the necessary changes* (Sessions, 1995).

The realization of the necessity for changes in nursing education and health care is born from the knowledge about the accurate and precise content of nature. The eight-point platform developed by A. Naess and G. Sessions could become a beginning for new ethics in nursing education and health care practice. G. Sessions has repeatedly pointed out the importance of the ecological realism of deep ecology as a 21st century philosophical basis for new environment protection as opposed to social constructivism (Sessions, 1995).

An ideological transformation should take place in the process of nursing education and health care. Science achievements and new technologies must serve to enhance human wellness as an ecocentric value, as a result of which researchers and teachers must take not only intellectual, but also moral responsibility for the outcomes of their research.

5. IMPLEMENTING THE ECOLOGICAL APPROACH IN NURSING STUDIES

During evaluation of the possibility of implementing the ecological approach, it was established that its principles have to be observed in all courses of the study program, and a separate study course has to be created. It would be useful to develop and implement a professional development course for college teaching staff.

Based on the theoretical background, as well as the author's ecological competence model for nurses, a study course *The Ecological Approach in Nursing Education and Health Care Practice* was created, and since 2009 it has been approbated and improved at different medical colleges. The study course is worth 3 credit points (ECTS). It has been implemented in 4 groups and taken by 180 students.

The aim of the study course is to develop the ecological consciousness of nurses and build up their ecological competence that is characterised by an ongoing continuous life-long development process of personality growth and transformation from I – Ego towards I – Eco in an ecological environment by complementary linking their personal, theoretical and professional knowledge and skills with their knowledge in ecology. This course also develops a systemic view of the components of the professional competence on a level of an ecosystem in a holistic perspective by implementing the ecological approach in the social, educational and health care environment.

In order to replace the anthropocentric consciousness with ecocentric ecological consciousness, profound changes are necessary in the consciousness of every human being and society as a whole. Thus the two pillars of sustainable education - *learning to live together and learning to transform oneself and society* – acquire a special significance in the context of the contemporary society.

During the study process, students have an opportunity to assess benefits and gains in their own personal development, professional growth and usefulness for sustainable development of health care.

As a result of the course studies, ecological competence is being created and developed in prospective nurses. That facilitates development of a positive environment for nursing education and practice, as well as holistic patient-centered care and a subject-subject relationship during the health care process.

6. CONCLUSION

As a result of the research study, a course on An Ecological Approach in Patient Care has been created and is being approbated. Its aim is to improve education for nurses according to recommendations in Education for Sustainable Development by implementing the ecological approach in nursing studies. As a result of this course, ecological competence is being created and developed in prospective nurses. The course also facilitates development of a positive environment for nursing education and practice, as well as holistic, patient-centered care and a subject-subject relationship during the education and health care process environment.

A task for future research studies is assessing the possibility of implementing in nursing education the principles outlined in Education for Global Responsibility.

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Chapter 17

CUSTOM DEVELOPED SOFTWARE TO SIMULATE THE USE OF UV/VIS SPECTROSCOPY IN QUANTITATIVE CHEMICAL ANALYSIS

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ABSTRACT

Software which simulates the use of typical analytical chemical techniques provides students with additional ways of learning about these techniques. This chapter presents a free software package called UV-Vis-Sim, which can be used to simulate the use of an Ultraviolet/Visible (UV/Vis) spectrometer in quantitative chemical analysis. UV/Vis spectroscopy uses a simple linear model of absorbance, the Beer-Lambert Law. For quantitative information on a compound, the UV/Vis instrument must first be calibrated using solutions of known concentrations: the calibration curve generated allows measurement of unknown concentrations of that compound. The software allows any compound to be analysed if its UV/Vis spectrum is known. The instructor version can be used to define constraints similar to those encountered in the lab. Students use the student version to “prepare” their set of standard solutions based on their own calculations. The program then measures the absorbance of standards and unknown sample(s). The results can be copied into a spreadsheet and the data treated following standard procedures. The data will be individual to the students, depending on their choices and calculations. The software was used in a problem-based learning exercise, to simulate the analysis of samples from a potentially contaminated river.

Keywords: spectroscopy, chemistry, simulation software, problem-based learning.

1. INTRODUCTION

There is a strong drive to enhance student employability by developing students’ transferable skills, including critical thinking, problem solving, team working, and communication skills. The aim is to make graduates more employable, and increase their chances of succeeding in their future careers, which will benefit the graduates themselves, as well as the economy and society as a whole (Pegg, Waldock, Hendy-Isaac, & Lawton, 2012). Problem-based learning (PBL) has been successfully used to enhance students’ employability skills: students learn about problems or real life scenarios in a relevant context, they encounter a problem and are encouraged to explore potential solutions which, in turn, encourages them to develop their autonomy and take responsibility for their own learning (Martin, West, & Bill, 2008). PBL has been successfully used across a wide range of science subjects, including chemistry (Belt, Evans, McCreedy, Overton, & Summerfield, 2002; Belt, Leisvik, Hyde, & Overton, 2005), physics and astrophysics (Institute of Physics, 2014; Raine & Symons, 2005), and medical sciences (Wood, 2003).

A problem-based approach can increase students’ motivation, encourage independent learning, and create effective problem solvers with a broad range of interpersonal and professional skills (Belt et al., 2002). Although typically there is no significant difference in academic achievement between PBL and traditional students, research indicates that

students develop an improved attitude towards learning when PBL is used. For example, White and colleagues (2004) compared two groups of family doctors enrolled in a Continuing Professional Development course, one using small-group PBL and one a didactic lecture approach, in terms of the effectiveness and student satisfaction. There was no significant difference between the groups with respect to knowledge acquired, but the PBL participants rated the educational value of the program higher than the participants enrolled in the lecture course.

Spronken-Smith (2005) reported that geography students enrolled in a research methods course valued the benefits of a PBL approach. The students commented positively on the opportunity to enhance their teamwork skills, valuing the possibility of working in groups on authentic problems that they saw as relevant to their future careers. The students mentioned increased workload as a difficult aspect of PBL, and they felt more time was needed to engage with the PBL scenario in a meaningful way. Duncan and Al-Nakeeb (2006) studied the impact of PBL on students' learning experience in a third year Sports Science module. The researchers concluded that the use of a PBL approach appears to offer advantages in terms of student enjoyment, engagement and development of criticality compared to traditional lecture-led delivery. Students also seemed to perceive that they had a greater ownership of their own learning when following a PBL curriculum. As in the previous case, workload was identified as a potential barrier for PBL, and the researchers highlighted that an appropriate amount of time is needed to allow students to engage with the PBL scenarios effectively.

While technology is not a required component of PBL, it can play an important role in the PBL process, improving the flexibility and quality of the learning and enhancing the student experience (Park & Ertmer, 2008). Most graduates will find themselves in workplaces where technology is embraced as an essential tool, and technology-enhanced PBL can provide a context in which technology skills are developed alongside problem solving skills. Technology can enhance the authenticity and relevance of the PBL scenario (Park & Ertmer, 2008). It can be used as a tool to collect relevant data or recent information about the problem. Students can use technology similar to that used in the workplace to organise and analyse the data and present solutions. Finally, students can use technology (e.g. presentation or video software) to present their findings.

One aspect of the use of technology in PBL is the use of custom-developed software to recreate the immediacy and complexity of the workplace, where decisions are frequently based on incomplete evidence. Software can be used to develop interactive scenarios, in which the data generated and the information available depend on the students' decisions. The authors of this chapter have created JPollution, custom made software capable of simulating environmental surveys; the software allows instructors to create pollution maps, set the number of samples that can be taken, and whether these will be visible immediately or the sample run must be completed before all the results are shown (Bertolo & Clay, 2006).

A team of researchers based at the University of Queensland has developed a suite of software tools (Scenario Based Learning - interactive, SBLi) to enable lecturers to easily develop interactive multimedia scenario-based lessons, which can be delivered to learners via CD, DVD or online (Norton et al., 2012). SBLi consists of a suite of software tools: the SBLi Builder, Player and Server, and is based on an earlier, pre-web computer-based learning tool. Breakey, Lenvin, Miller, and Hentges (2008) have used SBLi to develop a virtual genetics laboratory: the resource simulates the steps of a genetics experiment, and can be used to complement theory sessions in a genetics module. Seddon, McDonald, & Schmidt (2012) investigated the performance of student cohorts from a second-year

genetics course for undergraduate veterinary students, where SBLi was used to construct eight new PBL scenarios. Students appreciated the use of authentic scenarios, and comparison of learning outcomes from PBL and non-PBL-supported topics (within and across student cohorts) indicated that exposure to PBL generated quantifiable improvements in learning in both high and low ability students. The researchers concluded that SBLi software had the potential to improve the student learning experience, but noted that it was crucial to consider students' perceptions of scenario relevance, their confidence, and how students of differing learning styles engage with such computer-mediated activities.

As part of our ongoing interest in the development of free software which can be used to enhance PBL exercises, herein we present a software package called UV-Vis-Sim, which can be used to simulate the use of an Ultraviolet/Visible (UV/Vis) spectrometer in quantitative chemical analysis. The software comprises two programs, UV-Vis-Sim, used by the students to generate the data, and UV-Vis-Sim-Pro, used by the lecturer to generate the parameters under which the students will perform the virtual experiment. This software can be used to complement UV/Vis spectroscopy experiments, by providing students with additional opportunities to generate data, and then using this information to draw conclusions and extract quantitative information. The program is currently being trialed in a PBL scenario with first year Environmental Science students.

2. THE SOFTWARE

UV/Vis spectroscopy is an analytical technique which uses a simple linear model of absorbance, the Beer-Lambert Law. In order to obtain quantitative information on the concentration of a given compound, the UV/Vis spectrometer must first be calibrated using solutions of known concentrations. Once this so-called calibration curve is generated, unknown concentrations of the chemical can be measured (Clark, 2007). The technique, often used in the chemistry undergraduate laboratory, has a wide range of applications in real life, such as the quantitative determination of solutions of transition metal ions, some organic compounds and biological macromolecules.

UV-Vis-Sim is a free software package which can be used to simulate the use of an UV/Vis spectrometer in quantitative chemical analysis. The software is released under the GNU General Public Licence, GPL (2007). The GPL allows unrestricted copying, distribution and modification of the program, subject only to the requirement that the source code, and any modification, is made available to anyone who wishes to receive it. Both the source code and the compiled forms of the software can be obtained from the authors.

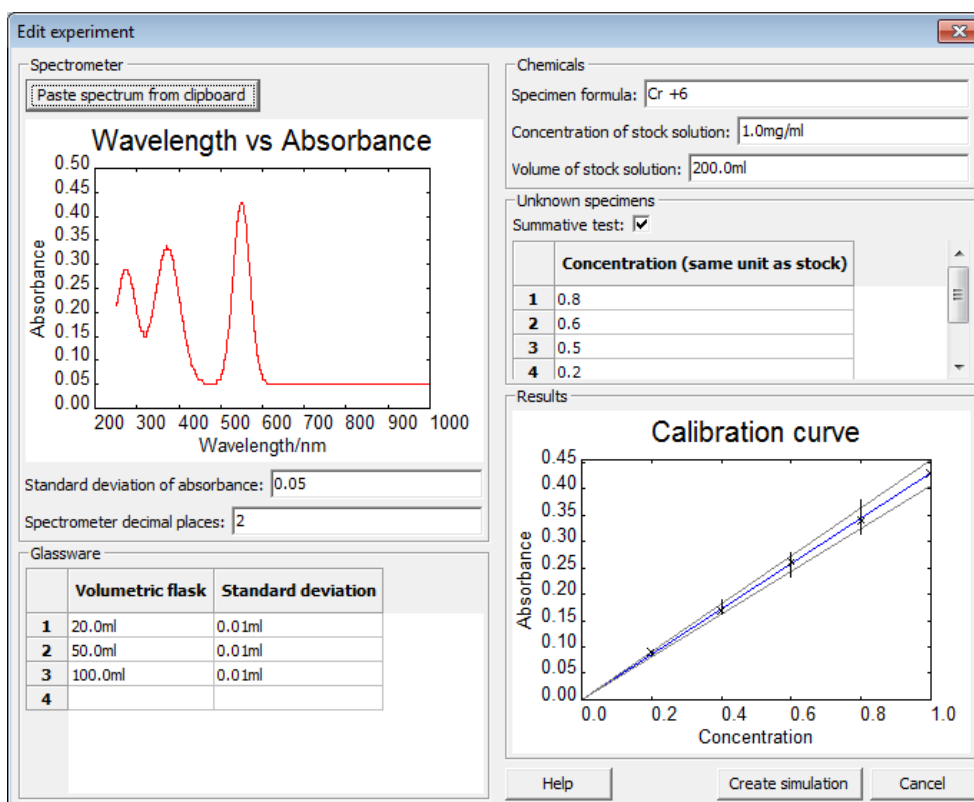
The software comprises two programs, UV-Vis-Sim (the student version) and UV-Vis-Sim-pro (the instructor version). Figure 1 shows a screenshot of the “create new experiment” dialog of the instructor version. In this dialog it is possible to define constraints similar to the ones students would find in the lab, including the spectrum, available glassware, the volume and concentration of the stock solution, and the concentrations of the unknown samples. Random errors can be added at various stages, to simulate real experimental errors. Any compound can be analysed, as long as the UV/Vis spectrum of that compound is known.

Two types of experiments can be created, depending on whether or not the “summative test” tick box is selected. If it is selected, the instructor can define one or more “unknown” samples and set the concentration for each of them. The students will not see the concentrations, so this mode is useful to set up PBL scenarios. If the “summative test”

Custom developed software to simulate the use of UV/Vis spectroscopy in quantitative chemical analysis

option is not selected, the program will generate a random unknown sample each time the student loads the experiment. It will also provide the opportunity for the student to enter their estimate of the concentration and check whether or not it is correct. This mode could be useful to complement a lab session by providing additional practice outside the lab.

Figure 1. Screenshot of the “Create new experiment” dialog in the instructor version. The example will simulate an experiment with four “unknown” samples of Chromium VI.



Once the simulation is set up, it can be saved as a file and opened in the student version. Students can “prepare” their own set of standard solutions, choosing the number of solutions and their concentrations for themselves (limited by the amount of stock solution and the glassware available). Students specify both the concentrations that they desire, and the volume of stock solution to be used. The program disregards the concentration values, and uses the volumes to calculate the “real” concentration and calculates the absorbance based on that value. The program then displays the absorbances of the standards and the unknown sample(s). The results, which show the students' desired concentrations rather than the “real” ones, are presented in tabulated form which can be copied into a spreadsheet and the data treated following standard procedures. The data will be individual to the students, depending on their choices and calculations. Figure 2 shows a screenshot of a set of results generated with the student version.

Figure 2. Screenshot of a set of results generated with the student version, using as basis the experiment for Chromium VI set up on Figure 1. The values for absorbance are generated after the student clicks “run experiment”. The “copy results” button copies the data into Clipboard. This experiment is in summative mode; in formative mode, the “Unknown concentration” box would be active and students could check that their concentration estimates are correct.

UV-Visible Spectrometer Simulation

File Help

Spectrometer settings

Wavelength/nm: 549.2 Select wavelength...

Stock solution

Concentration: 1.0mg/ml
Volume: 200.0ml Remaining volume: 80.0ml

Experiment

	Concentration (mg/ml)	Volumetric flask	Stock volume	Absorbance
1	Unknown sample 1:			0.34
2	Unknown sample 2:			0.24
3	Unknown sample 3:			0.21
4	Unknown sample 4:			0.09
5	0	100.0ml	0	0.0
6	0.2	50.0ml	10	0.09
7	0.4	50.0ml	20	0.16
8	0.6	50.0ml	30	0.26
9	0.8	50.0ml	40	0.33
10	1.0	50.0ml	20	0.16
11				

Run experiment

Results

Copy results Unknown concentration: Check...

3. THE PBL EXERCISE

A PBL scenario has been developed based on this software, to simulate the study of samples from a potentially contaminated river. The scenario was inspired by a similar one called “Tales of the Riverbank”, developed by Belt, Overton, and Summerfield (2002). It was trialed with approximately 90 first year undergraduate Science students, running over the course of 4 weeks. Students worked in groups and were asked to act as environmental consultants for the Unitown River Authority. The authority had received a complaint about a perceived reduction in number and size of fish caught along the River Dribble, which runs

through the town. Their task was to identify whether there was a pollution issue, and suggest further action if needed. Students presented their findings as a written group report, although other modes of assessments, e.g. individual/group presentations could also be used. Students were given a map of the area, which showed the fishing sites affected and various potential sources of pollution (arable land, an electroplating company, water treatment plant, etc.). They were also provided with summary of businesses discharging into the River Dribble, and typical composition of their discharge effluents.

In the initial session students brainstormed what additional information/data they needed, and how that could be obtained. Over the following weeks, students were provided with UV-Vis-Sim files which contained the necessary information to generate data for Chromium VI and Chlorite levels respectively from 10 sampling sites. Additional data to inform their report were fish size data for the two fishing sites at the river Dribble, and a discharge water quality report from the Unitown Water Treatment Plant, containing a selection of physicochemical (e.g. pH, temperature), biological (E.coli) and chemical (organic compounds, anions and metal ions) parameters.

Informal feedback from students was very positive. Students reported no problems with the software, and they found the possibility of generating their own set of data to be stimulating. A common request was the possibility of generating more data themselves, instead of using already prepared data. This has been taken on board, and in future years students will be able to generate data for other chemical parameters besides Chromium VI and Chlorite. Future work will also include the full evaluation of the student experience.

4. CONCLUSION AND FURTHER WORK

This chapter presents a free software package, developed by the authors, called UV-Vis-Sim, which can be used to simulate the use of a UV/Vis spectrometer in quantitative chemical analysis. UV-Vis-Sim can be used to complement UV/Vis spectroscopy experiments, by providing students with additional opportunities to generate data, and then using this information to draw conclusions and extract quantitative information. The software has been used in a PBL scenario with first year undergraduate Science students, to simulate the study of samples from a potentially contaminated river. Informal feedback from students has been very positive. Students appreciated the highly interactive aspect of this part of the scenario, and suggested that future cohorts could generate their own data for other parameters using the software.

Future work will include the revision of the PBL scenario in light of the comments received by this first group of students, and a full evaluation of the student experience. With regards to the program itself, assessing the impact of the program on the student learning experience is a challenging task. UV-Vis-Sim is just another tool to enhance a PBL scenario and, like all tools, it can be used effectively or poorly by those who design the scenarios. Whether the learner's experience is enhanced or not will depend on the full PBL scenario, and how well this scenario has been integrated into a particular lesson or module.

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Chapter 18

EXPLORING THE VIEWS OF PRE-SERVICE TEACHERS ON THE USE OF THE E-PORTFOLIO AS A LEARNING PLATFORM

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ABSTRACT

In the educational context, the e-portfolio provides a platform for social interaction between learners, allowing them to record, share and reflect upon their learning and achievements, thus encouraging greater ownership of learning. This study assessed users' perceptions of the e-portfolio in a number of domains, with investigations on the e-portfolio's effectiveness as a learning tool and whether it enhanced self-regulation and motivation to learn. The study involved around 326 pre-service teachers enrolled in the initial teacher education program at the National Institute of Education, Singapore. The participants used the open-access Google Site as the platform for their e-portfolios in the course of their one-year program. The institution provided the pre-service teachers with technical support and guidance on how to build, maintain and use their e-portfolios. A survey was administered at the end of the program to assess the participants' perceptions of the e-portfolio in terms of its usefulness, and ability to enhance learner motivation. Generally, the study revealed that the student teachers understood the value of keeping their e-portfolios, and this was one of the key motivating factors for e-portfolio usage.

Keywords: e-portfolio, pre-service teacher, motivation, self-determination theory, platform usability.

1. INTRODUCTION

The surge in commercially developed and free open-source applications in Information and Communication Technology (ICT) has resulted in a corresponding increase in the development of e-portfolios by organizations and individuals. E-portfolios have been used for a wide variety of purposes such as repositories of information, for charting personal or organizational development, for showcasing work and achievements, and for assessment and evaluation. In the domain of teacher education, the need to improve quality, to attain established standards, and to resolve accreditation issues have led to the increased use of e-portfolios in many European states and others around the world (Granberg, 2010). Anderson and DeMeulle (1998) found that the e-portfolio promotes student learning and development, encourages student self-assessment and reflection, provides evidence for assessment and accountability, and documents the growth of pre-service teachers. Finally, the e-portfolio provides a platform for social interaction between users and viewers, allowing comments and feedback from peers, tutors, parents, administrators and employers.

2. BACKGROUND

2.1. Users' Perceptions

In education, e-portfolio usage has received increased recognition in recent years and many authors have written about its multiple benefits to users. For instance, Banks (2004) viewed the e-portfolio as providing a learner-centered view of learning and hence a channel for learners to take ownership of their learning. Along this line, other researchers have explored pre-service teachers' perceptions on the use of the e-portfolio. Yao, Aldrich, Foster, and Pecina (2009) explored pre-service teachers' views on the e-portfolio in the development of their reflective skills and for initial teacher certification. Although the participants involved understood the use of the e-portfolio for record-keeping and for developing their reflective skills, they thought further refinements were needed to make the portfolio reflection more meaningful. In a different study, the participants not only recognized the potential value of e-portfolios, but reported improvements in both academic and personal performance, as well as in their development of knowledge in teaching and learning (Bataineh, Al-Karasneh, Al-Barakat, & Bataineh, 2007). Other pre-service teachers who developed their own e-portfolios felt a sense of accomplishment in being assessed in a more authentic way, and viewed technology use as essential (Wilson, Wright, & Stallworth, 2003). Torras and Mayordomo (2011) studied the relationship between the techno-pedagogical design of an electronic portfolio (Transfolio), the teaching presence in relation to its use and the ensuing student regulation processes. They found that patterns of co-regulation and self-regulation characterized the teaching-learning process, with emphasis on the techno-pedagogical support provided by the teacher, namely in terms of its nature, presentation and importance in the teaching-learning process.

2.2. Challenges in E-portfolio Usage

In spite of the good that has been said about e-portfolios, some researchers prefer to take a cautionary stand with regards to its widespread application. Mark Stiles (2011), for instance, advises those who champion e-portfolio usage against "believing in one's own propaganda", and highlights the "need to understand the challenges and barriers" that they confront. Niikko (2002) investigated the profiles and attitudes of five Finnish kindergarten pre-service student teachers toward the use of e-portfolios. It was found that though the students were interested in working on an e-portfolio and acknowledged its importance, they lacked the resources, time and energy to do so. Rossi, Magnoler, and Giannandrea (2008) reported that the benefits of e-portfolio use are undermined by users' the lack of motivation, the demands in terms of time and effort in the creation, upkeep and revision of the e-portfolios, and at times the inflexible nature of the tool.

2.3. Students' Motivation in E-portfolio Usage

It is clear that student motivation is one of the major factors influencing the widespread use of the e-portfolio in teaching and learning. Unlike Rossi et al. (2008), Driessen, Muijtjens, van Tartwijk, and van der Vleuten (2007) showed that student motivation towards web-based portfolios was significantly higher than paper-based portfolios ($p < 0.05$; effect size 0.76). Chang (2009) found that the implementation of the web-based portfolio assessment system had a greater impact on low motivation students, with regards to their self-evaluated learning effect and perceived usefulness of the system.

Motivational theories attempt to explain how behaviour is initiated, influenced and modified. As such they add to our understanding of the factors that prompt and sustain student teachers' use of the e-portfolio. The self-determination theory (SDT) was chosen

for this study as it provides the best theoretical fit with regards to explaining the important constructs underlying the use of on-line applications such as the e-portfolio (Deci & Ryan, 1985). The SDT provides a suitable framework for the understanding of the motivation behind volitional behaviours (Deci & Ryan, 1985). The theory posits that humans are active in their pursuit of behaviours and activities which will result in positive growth and a unified, coherent sense of self (Deci & Ryan, 1985; Deci, Vallerand, Pelletier, & Ryan, 1991).

Motivational regulation is perceived as ranging across a spectrum, with the total lack of motivation (amotivation) at one end, and at the other, intrinsic motivation (self-initiated and arising from personal satisfaction). Between the two extremes is a range of motivational regulations that are deemed extrinsic, which describes an activity undertaken as a means to an end. In SDT, extrinsic motivation is defined as a multidimensional construct, comprising different types of external motivational regulations, each reflecting a different causal attribution for the chosen behaviour. They are termed external, introjected and identified forms of regulation. External regulation refers to behaviour that is controlled by external means, such as rewards, penalties/punishments or external authority. Introjected regulation refers to behaviour that is internally controlled, self-imposed, and ego-protective, such as acting out of guilt or in an attempt to avoid guilt, and is characterised by feelings of internalised pressure, such as “I ought to...”. For identified regulation, the behaviour is self-determined and according to what one values as important. It is characterised by feelings of ‘want’ rather than ‘ought’. These extrinsic and intrinsic behavioural regulations form a continuum that characterises the degree of internalisation of the behaviour, and can be assessed by scales such as the Perceived Locus of Causality scale (PLOC) developed by Ryan and Connell (1989).

2.4. The E-portfolio Platform

Nielsen (2012) suggested that an interface can be evaluated in terms of five quality components:

- learnability or user-friendliness (whether users find the system easy to use at the first try);
- efficiency (how fast users are able to perform tasks with the system once they have learned it), have stopped using it for some time);
- memorability (how easily users are able to re-establish proficiency after they have stopped using the tool for some time);
- error management (the incidence and seriousness of errors made by users and the ease of recovery from errors);
- satisfaction (whether users find the system pleasant and enjoy using it).

In this study, the e-portfolio platform will be evaluated in terms of its user-friendliness, efficiency (inclusive of error management), and user satisfaction. It will not be feasible to assess the system in terms of its memorability, since the participants will be using the e-portfolio on a continuous basis throughout the duration of the programme.

3. METHODS

3.1. Research Questions

The aim of this study was to assess student teachers’ motivation in using the e-portfolio and to evaluate the effectiveness of the e-portfolio as a platform for facilitating learning. The research focused on the following areas:

- What are the student teachers' motivations in doing the e-portfolio? We hypothesize that most of the student teachers would be motivated to use the e-portfolio as they would perceive it to be of value in their learning.
- To what extent did the student teachers find the e-portfolio platform effective in terms of user- friendliness, efficiency/error management and user satisfaction? The answer to this question would address concerns on the suitability of the e-portfolio platform, and would determine the nature of any future refinements to be made to the platform, in terms of its design and administration.

3.2. Procedures

The free open source wiki, Google Sites, was chosen as the platform for student teachers to create their e-portfolios. An e-portfolio template was customized specifically to cater for the needs of the student teachers. The participating student teachers were granted access to the platform for the entire duration of their one-year programme, in the course of which they were provided with the relevant support and guidance on the use of the e-portfolio. They were also briefed on how to use the platform to chart their learning and practice of teaching.

3.3. Participants

This study involved the participation of a total of 326 pre-service teachers. These future teachers were enrolled in two different teacher education programmes, leading to the Post Graduate Diploma in Education (PGDE), which offered a year-long training course to university graduates, in preparation for primary school and junior college teaching. Since all PGDE Primary and PGDE junior college student teachers were involved in the e-portfolio initiative, a non-experimental design was used.

3.4. Survey instruments

A 27 item survey was administered to the participating student teachers. Five-point Likert-type scales, ranging from one (Not true at all) to five (Very true) were used for item scoring. The survey focused on student teachers' perceptions of the usability of the e-portfolio platform and their motivation in using the e-portfolio. 13 survey items assessing student motivation were adapted from the Perceived Locus of Causality (PLOC) scale (Goudas, Biddle, & Fox, 1994). The original PLOC subscales for motivation were amotivation, external regulation, introjected regulation, and identified regulation, intrinsic motivation. There were 14 items on e-portfolio platform usability, exploring 3 subscales (user-friendliness, efficiency/error recovery and user-satisfaction).

3.5. Analysis of outcomes and statistical methods

To estimate the reliability of the survey, the Cronbach's alpha was computed to assess the internal consistency of each of the subscales, followed by a principal component analysis with Promax rotation conducted to examine the factor loadings of the various items. Descriptive statistics were computed to obtain the means and standard deviations of each subscale. Correlational analyses using the Pearson product moment correlation were used to assess correlations between subscales.

4. RESULTS

4.1. Reliability

The reliability of the subscales was assessed and the values of the Cronbach's alpha are shown in Table 1. For all subscales, the reliability indices were above the acceptable level of .70, except for Amotivation which had an alpha value of .57, suggesting the need for further refinement in this subscale. Principal Component Analysis was conducted using Promax rotation with Kaiser normalization. The ensuing findings indicate a four factor structure for the subscales on motivation, but with high correlations between identified and intrinsic regulation items, as well as between introjection and external regulation items. The introjected regulation items segregated into two factors, based on whether the behavior regulation was perceived as originating from the self or from an external source, in which case these items loaded with those pertaining to external regulation. Thus, in this study, the scale used consisted of four factors: Autonomous (intrinsic/identified) regulation (5 items), Externally controlled (introjected/external) regulation (4 items), Introjected (2 items) and Amotivated (2 items). A three factor structure was obtained for platform usability, with User-friendliness (7 items), User-satisfaction (3 items) and Efficiency/error recovery (4 items).

4.2. Descriptive Statistics

Table 1 shows the mean scores and standard deviations for the survey subscales. The findings show that the highest mean score was obtained for introjected regulation, followed by autonomous regulation. This suggests that on average, the pre-service teachers felt compelled to do their e-portfolio as it was one of the programme initiatives although a sizeable number of them understood its value and found interest in the endeavour. In terms of platform usability, the highest mean scores were obtained for user-friendliness and user-satisfaction suggesting that the pre-service teachers found Google Sites platform easy to manage.

Table 1. Descriptive statistics and reliability indices for all subscales.

	Mean	Std. Deviation	Cronbach's alpha
Autonomous	2.80	.77	.89
External	2.61	.76	.81
Introjection	2.89	.91	.82
Amotivation	2.56	.82	.57
Userfriendly	3.05	.69	.93
Efficiency	2.83	.74	.88
User satisfaction	2.87	.71	.75

4.3. Correlations

Table 2 shows that there were high, significant correlations between autonomous motivation and efficiency and user-satisfaction; but moderate, and significant correlations between user-friendliness and autonomous regulation. External and introjected regulation showed low correlations with efficiency, user-friendliness and user-satisfaction, while negative correlations were found between amotivation and all three platform usability subscales.

Table 2. Pearson correlations.

	Autonomous	External	Introjection	Amotivation	User-friendly	Efficiency	User-satisfaction
Autonomous	1						
External	.047	1					
Introjection	.357**	.353**	1				
Amotivation	-.336**	.411**	.027	1			
User-friendly	.431**	.046	.189**	-.127*	1		
Efficiency	.527**	.071	.197**	-.114*	.817**	1	
User-satisfaction	.535**	.047	.205**	-.167**	.712**	.783**	1

**Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

5. DISCUSSION & CONCLUSION

The Perceived Locus of Causality (PLOC) scale was adapted to assess behavioural regulations postulated in the Self Determination Theory (Ryan & Conell, 1989). The original scale followed a four factor, ordered correlation structure suggestive of an underlying continuum of increasing self-determination between the four types of behavioural regulations, namely external, introjected, identified and intrinsic motivation. While amotivation describes students who show total disengagement, the level of autonomy increases progressively from external to intrinsic motivation. However, a number of cross-cultural and cross-contextual studies using the PLOC, have produced conflicting views on the factorial invariance of the PLOC. For instance, high correlations were found between the identified and intrinsic regulation (Standage, Duda, & Ntoumanis, 2005; Hagger, Chatzisarantis, & Biddle, 2002) although other teams have shown clear factor structure (Goudas et al., 1994; Ntoumanis, 2005; Wang, Hagger, & Liu, 2009).

In this study, high correlations were also found between identified and intrinsic regulation items, as well as between introjection and external regulation items. Thus the four factors in this current version of the PLOC were renamed Autonomous (intrinsic/identified) regulation, Externally controlled (introjected/ external), Introjected and Amotivated. This demarcation from the original structure of the PLOC can be explained if one considers the collectivistic context of the current study and the application of the instrument in pre-service teacher preparation. Thus, it is quite plausible that participants, who see the value of the e-portfolio in the progression of their career, would ultimately find it an enjoyable endeavor to develop their portfolio, and to design it in their own personal styles, hence the close association between intrinsic and identified regulations.

In general, the pre-service teachers were not particularly enthusiastic over the use of the e-portfolio, although they understood its value. However, on the whole, they seemed satisfied with the Google Sites platform, most agreeing to its user-friendliness. Participants who perceived the platform to be user-friendly and efficient, and were satisfied with it, tended to be autonomous in their motivation towards the use of the e-portfolio. On the other hand, those who were generally dissatisfied with the platform, tended to be either externally motivated or lacked motivation towards the e-portfolio altogether. This indicates that platform usability is likely to influence motivation in e-portfolio usage, and future research could focus on a qualitative approach to explore in finer detail the aspects of platform usability that could be further refined in order to promote more autonomous motivation

towards e-portfolio usage. The negative correlation between amotivation and platform usability could be attributed to the participants' level of competence in using computer technology, with the less IT-savvy users having difficulty in managing the e-portfolio tool and thus being demotivated in using it.

Although as predicted, the student teachers perceived the e-portfolio to be of value in their learning, they did not show the high level of motivation that was expected in terms of its usage. The findings indicate that they were mostly doing their e-portfolio in compliance with course requirements or because they understood that it was of some importance to them. The generally positive views on Google Sites indicate that the platform is suitable for future implementation of the e-portfolio at institutional level.

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Chapter 19

WRITTEN NARRATIVES:

Potentialities for research and teacher professional development

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ABSTRACT

This chapter presents some results from an investigation conducted along with a teacher professional development program called “Programa de Desenvolvimento Profissional de Formadores e Professores dos Anos Iniciais do Ensino Fundamental no Local de Trabalho: uma Parceria entre Universidade-Escola – UNESP”. In light of this context, we seek to understand the contributions of this program based on a university-school partnership developed and implemented collaboratively at the school. The tools that were employed for investigation and continued education consisted of written narratives from the participating school administrators’ and teachers’ reflective journals collected at weekly in-person meetings with the researchers. Participants included administrators and teachers from a public school and researchers and undergraduate and graduate students from two universities (one public and one private) in the State of São Paulo, Brazil. The results indicate that written accounts are a useful tool for professional development by means of formative and investigative proposals and point to changes in the ways participants perceive themselves and others.

Keywords: teacher education; written narratives; public school; teacher professional development.

1. INTRODUCTION

The use of narratives in research involves the deconstruction/construction of one’s own experiences. It requires the establishment of a dialogic relationship, thereby giving rise to involvement in a two-way discovery process, i.e., while one is discovered in the other, phenomena are also revealed in oneself. Narratives do not only constitute a research method; they also provide an opportunity to construct reality, since they are ontologically grounded. Individuality is explained not only by extra-territorial references, but also by understanding subjectivity, which is a sine qua non condition for social knowledge construction.

“Not only do narratives express important dimensions of lived experience, but they also, more radically, mediate experience and shape the social construction of reality. [...] The play of subjectivities, through a dialogic process, turns out to be a privileged means of constructing knowledge” (Bolívar Botía, 2002, p. 4).

In order to better understand narrative research, we based our study on Clandinin and Connelly (2000, p. 20), who define narrative investigation as a way of understanding experience. It implies the collaboration between researchers and participants over time, at a place or set of places, and in social interaction with their peers.

A narrative constitutes the structured quality of lived experience perceived as evidence. A narrative setting comprises an argumentative plot, a temporal sequence, characters, and a situation (Clandinin & Connelly, 2000). It is a mode, a means of providing the self with an identity, of becoming. The act of narrating gives meaning to events of experience itself as well as revisits meanings produced by past actions.

We presuppose that narratives constitute a mode of knowing that enables the characterization, understanding, and representation of human experience (Rinaldi, 2006). In this study, *lived stories* were experiences and *narratives* or *recounted stories* laid the grounds for studying them or, according to Clandinin and Connelly (1994, p. 415), “people live stories and by recounting them they reaffirm them, modify them, and create new stories”. As an assertion, they indicate that whenever people point something out in their own experiences, or even in others’, they are not merely keeping record of experiences, but registering them in a storied way.

A story, therefore, is not just an “[...] unfinished sentiment nor a cultural form; it is both things. In fact, stories are the closest we can ever get to experience, as we and others recount them” (Clandinin and Connelly, 1994, p. 414). Hence, narratives or recounted stories are the grounds for studying experience. In this sense, narratives comprise both the *phenomenon* and *method*, and as such they determine the structured quality of experiences to be studied as well as the standards of inquiry, herein understood as reflection, for studying them.

Clandinin and Connelly (1994) suggest that the *phenomenon* should be designated as *story* and *inquiry* or *reflection* as *narrative* in order to preserve this distinction. Teachers’ knowledge is seen in terms of narrative life stories, i.e., as storied life compositions that are both personal - in the sense that they reflect a personal story - and social - since they mirror the environment, the contexts in which teachers live. Thus, when teacher knowledge is shaped and expressed in context, it constitutes a story and has moral, emotional, and aesthetic dimensions.

2. METHODOLOGY

This research was conducted at a public elementary school in the State of São Paulo, Brazil. The research implied the participation of seven researchers, fifteen undergraduate students, and six graduate students from two universities (one public and one private) as well as sixteen teachers and four administrators from the said school. From 2012 to 2013, the participants met in person on a weekly basis at the school in question in order to devise and assess activities for a professional development program developed and implemented with and for schoolteachers and administrators.

In general, the “Programa de Desenvolvimento Profissional de Formadores e Professores dos Anos Iniciais do Ensino Fundamental no Local de Trabalho: uma Parceria entre Universidade-Escola - UNESP” (Professional Development Program for Teacher Educators and Teachers of the First Years of Elementary School at the Workplace: A University-School Partnership – UNESP) was planned to take 180 hours. Its syllabus addressed themes such as philosophy and education, teaching of elementary school mathematics, in-service teacher education, teaching of Portuguese focusing on the analysis of the teaching material “Ler e Escrever” (Reading and Writing), differences between learning difficulties and disorders and intervention strategies, school management and collective work as a strategy for coping with daily challenges, democratic spaces for the construction of moral values and their effect on (in)discipline: actions and interactions, and so forth.

The program was implemented by the researchers with the help of the school staff and faculty. It was a collective endeavor from beginning to end, which implied the establishment of a relational basis and bonds of trust among team members, the expansion of the knowledge base on the first five years of elementary education with an emphasis on the teaching of Portuguese and Mathematics, and the endorsement of the educational

proposal on the part of administrators of the city where the school is located. At first, it embraced the participating teachers' and school administrators' knowledge about their school, students, specific contents from diverse curriculum components, educational theories and proposals, public policies (with special emphasis on external assessment exams and full-time curriculums). It also included their pedagogical content knowledge, which encompasses how to teach and how to evaluate some curricular content and implies different 'translations' in order to make a specific content teachable and understandable by students in light of its specificities and those of the population that attends the school in question. In addition, it enabled the expansion of general content knowledge, including dilemmatic issues, e.g., inclusion of special education students and school violence, which was initially understood as a problem of indiscipline in the said context.

The methodological approach to the research was qualitative in nature; it was presumed as a *reflectivity-based process*, i.e., "by taking into account those who are doing the research, identifying the personal and theoretical assumptions that modulate their actions as well as their relationship with other participants and the community in which the study is being conducted" (Sandín Esteban, 2010, p. 130). In line with the research design adopted, i.e., a constructive-collaborative intervention research design, we sought to build a partnership between the university and the school. More precisely, this type of research design is not aimed at immediate change in existing structures or actions since change is seen as resulting from the establishment of new relationships between theory and practice and subject and object. Therefore, this study was based on an intervention-research design which sought to establish a partnership between school faculty and administrators and university academics and students. Likewise, this research did not aim at changing instituted actions straightway as change is assumed to derive from the establishment of new relationships between theory and practice and subject and object.

In addition, written narratives constituted the main raw material for this study. Narratives are viewed not as merely describing reality but as capable of producing knowledge that act as both vehicles and conductors. Clandinin and Connelly (1994, p. 11) state that "the main reason for using narratives in educational research is that humans are storytelling organisms, organisms that live recounted lives individually and socially... thus, the study of narratives is the study of the ways individuals experience the world".

In this case, the participating teachers' texts were assumed to be narratives, i.e., a form of knowledge that enables characterization, understanding, and representation of human experience (Vaz, Mendes, & Maués, 2001). Moreover, lived experiences are understood as *lived stories* and as a starting point for reflective processes whereas *narratives* are *told stories* (Clandinin & Connelly, 1994).

The decision to adopt the writing of reflective journals (written narratives) in order to identify and understand the participating teachers' and administrators' personal views was based on the assumption that they would enable the researchers to elicit knowledge and beliefs that support their pedagogical practices. According to Kramer (2000, p. 112), "writing helps stories to acquire new meanings [...]. [...] Text writing is similar to story writing. Moreover, in formative terms, working with language, reading, and writing can promote reflection, thinking about the meaning of individual and collective life" (p. 114).

It should be emphasized that we have employed this strategy to investigate what teachers and administrators *know*, which in turn is closely related to *what they say they know* (Freeman, 1996). Words are considered the means of thinking and can represent that which exists in people's minds in an isomorphic way, i.e., their words 'comprise' their thoughts, beliefs, knowledge, and feelings. From this perspective, "people are taken for what they say" (Freeman, 1996, p. 754). Therefore, with regard to the data analysis of

narratives, we conducted a *representational* reading of participants' accounts of their experiences as teachers and administrators.

3. REFLECTION IS A PROCESS OF MEANING ATTRIBUTION

Reflection is a process of meaning attribution that takes learners from one experience to the next at a deeper level of understanding of its relationship with previous experience and connections to other experiences and ideas. This is what makes continued learning possible and ensures growth for the individual, and ultimately, for society. It constitutes one of the means to moral ends.

An essential aspect of experience is the *interaction (relationship)* between the individual and the world and its dialectical effect, which modifies both the self and the world. *Continuity* is another important aspect. Reflection can be characterized more broadly so as to include the "march of civilization" or "social continuity." In a more restricted sense, it implies that people attach meaning to new experiences based on their prior knowledge of the world. Without interaction, learning is sterile and passive; it never changes the learner. Without continuity, learning is random and unrelated to the learner and the world.

While experiences constitute the basis for learning, they are not always constructive or educational. When they are constructive, they can broaden the scope of experience, knowledge, and awareness. Otherwise, they can lead to immoral conducts or routine actions, disregarding their effect on the environment.

The function of reflection is to attribute meaning, to establish *relationships* and *continuities* among multiple aspects of an experience and among different experiences. In the case of reflective teachers, they should not merely seek solutions nor act in mindful of their work sources and impacts. On the contrary, they should seek to assign meaning to and construct theories and stories based on past experiences, which can provide structure for their growth and their students'. A theory should always underlie their practice until it no longer fully applies. Then, through reflective processes, the theory in question is revised, polished or discarded and a new theory is constructed.

There follow some notes on the use of narratives in the professional development of the teachers and administrators in the context of this study.

4. SOME NOTES ON THE USE OF NARRATIVE WRITING WITH TEACHERS AND SCHOOL ADMINISTRATORS

Narratives have been used for a long time as a data collecting tool in qualitative research, which has enabled researchers to explore and organize this human potential and thus produce systematized knowledge. The kind of research design that makes use of narratives presupposes a collective process of mutual explanation in which the researcher's experience is enmeshed in the subject's.

The longitudinal examination of the process inherent to this type of formative proposal points to some peculiarities in the way the participating teachers and administrators' narratives are structured. Initially, the participants merely described their previous impressions, usually guided by prior experiences.

I was very apprehensive at first because I had very high expectations about meeting with you here at the school. I believe that all that is 'new' in our lives makes us a little uneasy, anxious, and insecure. [...] We think that we cannot

make mistakes, because we are teachers and you are here to check whether we're doing the right thing. I thought I would be unable to establish a good relationship with you, since most university people come to the school to collect data for research and never come back (Teacher 3's journal entry on March 27, 2012).

Over time, as mutual respect, conviviality, and trust were established among teachers, administrators, and researchers, the school professionals began to write in their reflective journals that were experiencing anxiety, insecurity, and anticipation as well as a host of practical worries, conflicts, and dilemmas with no predetermined solutions. Notwithstanding, they seemed to believe that they could rely on the group to reflect and solve these issues together.

I have to find a resolution to a student problem with a teacher that doesn't participate in this program. It is about a student that speaks at the top of his voice in class the whole time, I mean, very loudly, as if he were in a world of his own imagination. The noise he makes and his lack of interest are 'petrifying' the teacher. [...] What could be done about that? I've studied and thought about the whole thing a lot, but I would like to discuss the issue of discipline with you. I want to help the teacher, I have some ideas, but I want to discuss them with you because I think I cannot deal with this problem by myself (Pedagogical Advisor's journal entry on March 31, 2013).

The excerpt above indicates that reflective narratives can be considered "thinking aloud written on paper" (Clark & Yinger, 1996, p. 176). They provide researchers with written information about what teachers think during the planning process or during any other activity performed by them, as shown in the aforementioned reflective journals (Teacher 3's and Pedagogical Advisor's).

Another example of the effectiveness of narratives as a research and educational tool can be seen in Teacher 14's journal:

[...] I can't recall seeing that when I studied mental calculation. I don't feel comfortable with Math; that's why I don't feel confident enough to teach it. I have difficulty in solving Math problems both in the classroom and my everyday life (Teacher 14's journal entry on August 27, 2013).

This is one of the excerpts in which it was possible to notice some participating teachers' shortcomings relating to the specific knowledge (Shulman, 1986) vis-à-vis curricular contents that directly impact their teaching. In addition to reiterating the need for in-service teacher development, this fact alludes to major problems, which cannot be addressed by a program of this kind. They demand a more intense, systematic process of teaching teachers how to teach curriculum contents. Therefore, it is vital to acknowledge the social importance of teaching and make sure teachers have time to study, beyond that of HTPC (Collective Pedagogical Work Time). Likewise, it is mandatory to raise their wages as this is a sine qua non condition for helping them change their everyday practices and promoting the construction or development of their pedagogical content knowledge as defined by Shulman (1986).

In general, as the program unfolded, it was possible to conduct a type of narrative inquiry in the manner indicated by Clandinin and Connelly (2000), because the researchers relentlessly asked the participating teachers and administrators to define clearly their teaching practices and other activities conducted over time, the personal and social conditions of those involved in them, and surrounding forces/factors.

Furthermore, we believe that everyone involved participated in a reflective cycle in that the researchers encouraged the school teachers/administrators to develop their ability to observe, chronicle, and think critically about students and their learning processes, taking into account the curriculum, specific content, and the contexts in which these aspects interacted.

5. TEACHERS' ACCOUNTS ABOUT THE TEACHING OF PORTUGUESE: READING

With respect to narratives written by the teachers of Portuguese (mother tongue), this article only presents two participants' accounts, in keeping with the initial proposition: "Relate your experience as a reader, a text producer, and a teacher that teaches reading and text production".

It is important to point out that some information relating to the teachers' college and continued education was included in the analyses of the two accounts so as to contextualize their formal education process.

Teacher 1 had attended Teachers College, had not specialized in any of the areas of pedagogy, and had been teaching for 12 years at the time of data collection. She stated that her college education had not provided her with knowledge about reading and text production. Here's her account:

"I love to read, but I would like to devote more time to reading, reading everything I can and have to read unhurriedly. When I'm teaching, I read various texts every day at the beginning of class. As a result, students quiet down and it is much easier for me to conduct other activities. On the topic of text production, because I always teach the first grades, I begin with collective text production and later I introduce individual production activities. I begin the story for them to come up with an ending; I provide pictures or drawings for them to organize and make up a story. Thus, they gradually lose their fear of writing and start writing on their own."

Teacher 2 had a secondary school-level teacher certificate, had majored in History in college, and had specialized in psycho-pedagogy. At the time of data collection, she had been teaching at public elementary schools for six years. It should be mentioned that her secondary school-level teaching program had not provided her with knowledge on reading and text production. There follows her account:

"Ever since I was little, when I was learning to read and write, I have delighted in reading and in handling books. I believe that it was due to my having been born into a family in which mother and aunts were teachers, in whose house there was a small private library with several books at my disposal (because my mother let us free to explore the bookshelves). I was encouraged to read books in spite of not having much money to buy them. Then, I'd go to public libraries or exchange and borrow books from friends. I still do that. Based on that experience, I try to bring reading to the classroom, sometimes for pleasure and relaxation and at other times for defined educational purposes. One of the activities that I've carried out with students, last year and this year, is to get them to use a loudspeaker and microphone to read texts or poetry of their choice to their classmates. They really like that. It is also a quite relaxed activity because I let them decide whether or not they want to participate. In spite of that, student adherence is very good. Text production can derive from an oral activity like the one I've just mentioned."

In the following excerpts from the above accounts, both teachers write about what they think of being a reader and their viewpoints on a pedagogical discourse that values the reading of diverse texts. Although these teachers refer to reading or to the teaching of reading in the classroom (Excerpts I and II), they express misconceptions about reading, i.e., they mention the use of a loudspeaker/microphone when reading poetry and reading as a way of getting students to quiet down so as to be able to carry out other activities. They fail to mention activities related to the teaching of reading strategies, visits to the school library, use of newspapers, and so forth. It should be emphasized that there is nothing wrong about the activities they mentioned, but it is necessary to go beyond reading as mere decoding and to teach reading as a social practice, rising above the classroom context. It is necessary to teach reading as a meaningful, interactive, and reflective process, according to Koch and Elias (2007), Jolibert & Jacob (2006), and Kleiman (1989).

[1]

T2: "I read various texts every day at the beginning of class. As a result, the children quiet down and it is much easier for me to conduct other activities."

[2]

T3: "Based on this experience, I also try to bring reading to the classroom, sometimes for pleasure and relaxation and at other times for defined educational purposes. One of the activities that I've carried out with students, last year and this year, is to get them to use a loudspeaker and microphone to read texts or poetry of their choice to their classmates."

Orlandi (2012) claims that *speech* should not be seen as something separated from the *society* that produces it, since historical contexts are linked to it and interfere with its production. When the participating teachers talk about their reading experiences or the paths they've trodden to become readers, the emphasis they attach to this practice becomes evident. However, it is important that they go beyond the concept of reading as decoding or hobby. At the school under investigation, we noticed an appreciation for reading experiences and a steadfast interest in finding new knowledge on which to base these classroom practices.

6. FINAL REMARKS

The prospect of working with narratives is aimed at helping individuals become visible to themselves. It consists of a dialog between lived practices and theories constructed during and about these experiences.

As to being readers and teachers who teach reading, the participating teachers value reading, are eager for new knowledge and related methodologies. However, they need to internalize and change their inadequate conceptions of reading. The experience acquired great importance to the teachers and researchers involved in this study. By means of written accounts, the participating teachers were able to express their opinions and thoughts on being a reader and a teacher who teaches reading.

The strategy of reflecting on practice with the help of written narratives was shown to be one of the best tools for individual and collective learning per se. From the lived experiences narrated through written accounts, it was possible to notice that the development of teacher professional learning processes (for teachers, managers and researchers) is complex and involves playing a variety of roles such as those of advisor, critic, consultant, teacher educator, researcher of one's own practice, among others. These

roles imply the undertaking, at the workplace, of numerous activities related to the group's educational needs, to collectively established goals, and also to the students' needs.

It is, however, a challenging activity due to a combination of factors - some of which bear a close relationship with interactions maintained among the school administrators, teachers, and researchers: conflicts of ideas and attitudes; lack of trust; incomplete information; mismatch among schedules; communication difficulties; challenges regarding investment in professional advancement, and so forth.

Given the above, it is possible to say that the contributions of a program of this kind were as numerous as its challenges. However, educational processes must be designed from an integrative perspective that encompasses the notions that teaching and learning are interrelated processes, that people construct their own knowledge based on their personal experiences, in order to help students construct their own knowledge (learn to learn), that greater understanding of meta-cognitive processes and their application as in reflective practice is necessary, and that reflective teaching requires support and a type of structure that can be adopted by teacher educators in the school context.

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Chapter 20

NEW METHODS OF TEACHING: INTERDISCIPLINARITY APPROACH AND MATHEMATICAL MODELING*

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ABSTRACT

Every epoch has its own specific style of education connected with contemporary instruments and tasks. The problems of our civilization differ from the ones of the previous epoch very much and demand new approaches in educational technologies. The situation in the Educational field now is the following: it is divided into many parts of special disciplines. It is useful for learning, but in real life we deal with complicated systems and complicated problems. To find solutions to such problems we need to unite specialists from different specialties and fields of knowledge. In this chapter we want to discuss the preparation of students for interdisciplinary methodology during educational processes. The best way is to use mathematical modeling and we are using new methods of modeling connected with a synergy approach. We are also discussing the creation of the methodological base for using it in education.

Keywords: mathematical modeling, interdisciplinary approaches, new methods of teaching, synergetic, business game.

1. INTRODUCTION

The main periods of European culture taken into account are antiquity, medieval centuries, modern history, XX century, and contemporary times. Each period has common features from a philosophical point of view. Russian philosophical tradition describes the beginning of every period as a creation of a World picture or a philosophical model of an entire World. The middle time creates understanding of a human being and the last one looking for a social processes and ethic norms for a person in the society and for the society (Motroshilova, 1995-1999). Mathematical modeling lets us see the main properties and structures of social processes. European culture and education have very deep connection with antiquity and are based on its traditions. Antiquity is a background of European cultural history.

The tradition of European Education goes as far back as Euclid. Mathematics was one of the fundamental disciplines, but the knowledge was interdisciplinary. Plato discussed ethics, aesthetics, and harmony of the world and how to describe them all by mathematical methods with his students. As exemplified by the sign placed above the door of Plato's Academy: "Let no one ignorant of geometry enter here (*ἀγεωμέρῆτος μηδεὶς εἰσὶτω*)". Interdisciplinary approaches are combined in philosophy knowledge and in hierarchy picture of World.

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Despite of the first classification of science made by Aristotle in the 5th century BC, real serious division of science was made in the beginning of 18th century after the science revolution. As the result of this division, great sociologist August Comte concerned application of mathematics in chemistry as harmful. He explained the destroyed effect of mathematics implementation because it contradicts to the spirit of chemistry. According to his opinion, every person and every scientist must only deal with their own job and their own part of science. Ideals of Plato, Aristotle, Leonardo da Vinci, Newton, and Leibniz seemed forgotten in this approach. However, there are examples in the European history when people tried to return to interdisciplinary ideals of Antiquity and we can observe the blossom of science and social life. Renaissance of the 12th century contains the attempt to return to antiquity ideas based on the interdisciplinary approach; and the same effect we can see in the Classic German Philosophy of Emmanuel Kant and Georg Wilhelm Friedrich Hegel. Now we have the same situation when it is necessary to return to ideas of interdisciplinarity. The base of them is applied mathematics approaches with using mathematical modeling. We call them synergetic.

1.1. Focus of the chapter

Changing educational approaches by interdisciplinary in the correspondence with new challenges is the main idea of this chapter. Every time we see the changing of a character of education between periods of history. The process of changing strategic goal of Education leads to changing educational methodology and it causes a crisis in education every time. Now we experience the same situation of changing epochs and technical modes so we can see new methodology and new methods of solving new tasks. Regarding the interdisciplinary point of view, new ways for educational methodology are found. We have revealed that the most of problems and tasks for our civilization from local to global scale have interdisciplinary character now.

2. CONTEXT

The research of educational processes from historical point of view (Malinetskiy & Kapelko, 2013) and contemporary situation in Russia have been the main points of our work during the last few years. We research school and higher education processes in Russia in special projects supported by some grants (Malinetskiy & Podlazov, 2011). We have studied education as a basic requirement to increase skilled personnel in several research projects: 'Interdisciplinary investigation of global processes social foundations and new paths for global problems solution' of Russian Foundation for Basic Research, and 'Interdisciplinary analysis of innovative strategies and processes of modernization' for Russian Foundation for Humanities. One of the previous projects, 'Complex systems analysis and mathematical modeling of world dynamics', has been implemented in the program of the Presidium of the Russian Academy of Sciences 'Economics and Sociology of Knowledge'. The project was completed under the direction of the Rector of Moscow State University, V. A. Sadovnichiy. It has been established that many disasters, wrong decisions and problems have occurred because of lack staff able to cope with these situations (Sadovnichiy, Akayev, Korotaev, & Malinetskiy, 2011). As a result we investigated the necessary changes in education and formulated our point of view.

3. BACKGROUND

The new epoch demands new interdisciplinary approaches. Now we face many problems. Studies and modeling of different social processes for educational purposes was conducted over last several years in our Institutes. We pay special attention to the destructive social processes and different ways for modeling such processes. We study methodology of implementation mathematical models for educational purposes. The mathematical and methodological basis of the project is the theory of self-organization, or synergy. Some articles and books in Russian cover the field of the mathematical modeling of social processes and education and using abovementioned for staff trainings in business games (Vasilenko & Vronska, 2010).

Our experience is also related to the system analysis on macro-level base of the state, system trends and problems of Russian education. These studies were carried out by the Ministry Education of Russian Federation. One of these results is the system of mathematical models is describing Higher education in Russia

4. METHODS

There are special tools such as the research of social and educational policy documents, Site of Ministry of Education of Russia, results of mathematical modeling of global processes and mathematical modeling of social processes in specific situations, as well as personality and building learning strategies. We have used mathematical models specially designed for business games in Public Administration area with interdisciplinary approach for our students and educational process.

The discussion is based on data triangulation – mathematical models of human and global trends along with a literature review, first hand experience in the modeling of social processes and using this models for educational activity. We have designed special methodology for implementation modeling in the process of business games decision making.

5. RESOURCES

This investigation was undertaken with our colleagues under the auspices of the Russian Presidential Academy of National Economy and Public Administration, under the President of Russian Federation (Department of the Project Management) and on the basis of Keldysh Institute of Applied Mathematics the Russian Academy of Sciences (Department of nonlinear processes modeling).

6. CHANGING OF WORLD DYNAMIC OF GLOBAL POPULATION

Global transaction is one of the reasons of changing social and educational processes now. Contemporary life is changing rapidly. In fact, we live in a watershed era. This situation is close to Neolithic revolution when people had to change their life, the way of consuming and social structures cardinally. It is a new epoch-making discovery.

Mathematical modeling helps us realize the tendency of social dynamic. We experience unprecedented changes on an enormous scale. The English clergyman and scientist Rev. Thomas Malthus in 1798 wrote that a population under favorable conditions grows in accordance with the law of geometric progression: by the same number of times

over the same intervals. This law stands true for the growth in the numbers of animals of different species in a situation in which there are sufficient resources.

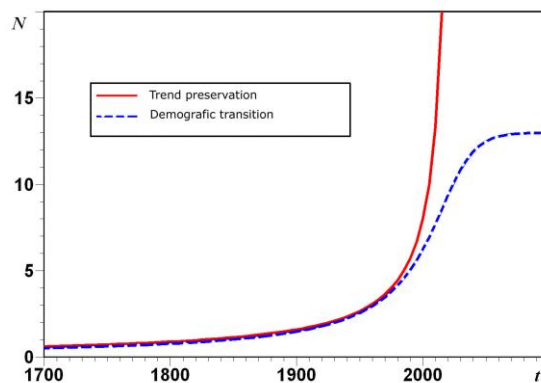
$$\dot{N} = \alpha N \quad \Rightarrow \quad N \sim \exp(\alpha t)$$

However, this has not proven applicable to humans. Studies conducted by paleodemographic scientists and systems analysts have shown that throughout human history the population has increased along the time axis in accordance with hyperbolic law. The asymptote for the hyperbola is 2025 (Vasilenko & Vronska, 2010).

$$\dot{N} = \alpha N^2 \quad \Rightarrow \quad N \sim \frac{1}{t_f - t} \quad t_f \approx 2025$$

Had the law remained constant, by that time there would be an infinitely high number of people (Figure 1).

Figure 1. The law of growth in the number of people



Within the generation now living, the law has changed (Kapitza, 2006). We can observe a sharp deceleration in population growth. Scientists call this phenomenon a global demographic transition. It takes only 90 years and during this interval – 1/50000 of human history – a fundamental change in the mode of growth of mankind will happen.

The Keldysh Institute of Applied Mathematics and other organizations predict global population will stabilize at approximately 10-12 billion. The scale of the difference in demography, and hence economics and energy, can hardly be overestimated. The difference between the previously plotted trajectory and the current one has already reached more than 2 billion people.

7. CHANGING EDUCATION WITH INTERDISCIPLINARY APPROACHES

Traditional education system was created for existence in a slow time. Now we live in a “fast” one, with other quality of characteristics of the time perception and the everyday life perception. The very existence of modern society (not to mention its development) is critically dependent on responsible, professional, creative people. So it is important now to add such competence to educational process and methodology to reach it.

With our students we are using new educational technology for group work and teaching organization process. It helps to use interdisciplinary approaches inside the education. Another moment is using the mathematical modeling of destructive social processes to clear the situation in this area. This modeling became the base for business games for making decisions. The main approach is interdisciplinary or synergy as a way of description through mathematical modeling different systems. Our students have to know how to choose the way of modeling system. There are several ways for modeling that we can be implemented in educational process. The most difficult is imitation modeling where we have to consider tens and hundreds of parameters for every process. But mostly we need very few parameters to see the tendency and the result of the process. Another way is the soft modeling and we are using 5-6 order parameters to see main trends and tendencies and discuss them with our students. Most simple is cognitive modeling when we do not have good data base. Using modeling of educational process we can see same moments and find new technology for solving educational problems.

8. MAIN INTERDISCIPLINARY STRATEGIES OF EDUCATION

We will provide three examples showing alternative interdisciplinary ways of education methodology created with modeling (Malinetskiy & Kapelko, 2013). All of them were created as a result of our investigations. The first one has to do with teaching a number of medical techniques specifically, diagnosing a few rare diseases (for which there are insufficient statistics) which are nonetheless dangerous. One example is an experienced physician who achieved considerable success in treating this disease. His experience cannot be verbalized, formalized or passed on using traditional means. Therefore his students have to (in a manner which is customary in the East) “feel the spirit of the teacher” by observing him at work, following his actions and knowledge, until intuitively they learn how to do something similar. For some it takes 5-7 years, for others 10-15, for others a lifetime is not enough.

The problem is that for a number of illnesses, according to the opinion of leaders and standard books, one should take into account 300 to 1000 signs and parameters of the test results. At the same time according to psychology investigation a person can act with certainty when 5-7 of those key parameters are present (order parameters in terms of synergetic). A successful experienced physician in the course of his professional life will isolate those parameters within the space of a huge dimensionality. His younger colleagues would not be able to do that yet.

In order to single out the parameters with respect to the order of magnitude and separate the most important from the secondary, mathematicians can help. At the Keldysh Institute of Applied Mathematics under the aegis of the Russian Academy of Science in the science school of Academician Gelfand, the method of “diagnostic games” as a direction of business games was proposed in order to resolve this problem. The methodic was the next. The mathematician sees the patient’s history, the progress and outcome of which are already known. The mathematician asks the physician to provide the diagnosis. Based on the questions asked by the physician and the point at which the situation becomes clear to him and he is ready to prescribe the treatment, it is possible to realize what criteria are most important, and what is taken into account. This latent personal knowledge (revealed with the help of mathematicians) could be incorporated into a computer based system for decision-making in training courses and books.

Utilization of this approach has made it possible to bring down mortality rates from a number of dangerous diseases by more than three times. We named that strategy “fire

starter”. If there are specialists who possess the fire of knowledge, in specific situations this fire can be easily and effectively started by others. This method is famous in India as *shaktipad* from very ancient times. The methods of diagnostic games and computer technologies are very helpful for this purpose for contemporary times (Kotov, 2011).

However, in a number of cases there is no such specialist, and the knowledge for an individual or a team has to be developed in the process of learning. This situation happens particularly frequently in the process of concurrent optimization, using a number of criteria, or while searching for a compromise. In this case simulations or team-based computer games are helpful. They are indispensable in the process of designing complex systems and/or reaching critical management decisions (Akayev, Korotaev, & Malinetskiy, 2010).

This was first understood in the design of military equipment. A modern fighter plane entails a rational choice of over 1500 separate decisions. This is beyond the capabilities of one person, but is possible for a trained team. A simulation makes it possible to demonstrate to the team what happens as a consequence of the decisions it makes. What will the performance of the “virtual fighter plane” they design be in a battle with other machines (Moiseev, 1979). Later this experience was expanded to training for decision-making.

During the training of government officials it is possible to use different models and organize the work in a situational or cognitive center. This normally enables all the participants in the simulation, including the teacher or facilitator, to gain a better understanding of the problem and try on different roles in order to better understand one’s true objectives, capabilities or limitations. It is much easier to make mistakes and correct them while ruling virtual cities and countries than make mistakes in the actual running of the country. We named this strategy “coming down to earth” from virtual reality.

The third strategy was tried out in a number of specialized Moscow schools with advanced curricula in mathematics: Schools No. 2, 57, 18, Kolmogorov Boarding School. Unfortunately, domestic school curricula are overloaded with details, particulars and secondary fragments. It comes down to “a little bit about everything, specifically about nothing”. Those Russian schools took a different path: the best way to learn something is to discover it yourself. So both at home and in class students “rediscover” what was invented or discovered by Pythagoras, Euclid, Leonhard Euler and Newton, following along the path of the great scientists. And here the teacher has to take on the role of Socrates, asking precise questions, expressing doubt about the answers, directing the discussion and admiring the achievements of his students. As a result of this methodology, the students reach a “metalevel”, they reach the summit: looking down from it, many specifics and details become obvious. These are schools that produce the highest number of winners of national and international contests in physics and mathematics. We named this method “Rodin’s Strategy”. The great sculptor believed that a true artist “simply” removes from a block of marble all that is extra, in order to create a masterpiece. A teacher needs to understand how to bring his charges to their greatest potential without getting distracted by the details: teach them how to create. There is a serious body of pedagogic tradition in Russia on which one could base solutions of similar tasks (Shklyarskiy, Chentsov, & Yaglom, 1965).

9. FUTURE RESEARCH DIRECTIONS

Need of changing educational way connects with demands of the Future life. Now the period of technological mode changing has started. The previous 5th technological with Kondratiev cycles has finished. The 6th technological mode is starting and it needs in other

types of specialists. The country that will be the winner in the process of preparing new specialists and developing the new mode will be the leader of Modernization and Globalization in the next period of the world history. The new technologies combine with interdisciplinary approach as an index of complication of social Systems and its goals. That's why changes in the education are so important nowadays and have to be new to correspond to the 6th technological mode. We have to realize what type of education is needed for the next technological mode. The base for the New Education could be interdisciplinary contest and self-organization approach according to the logic of evolution systems. Despite the increase of quantity of information we can use the way of self-organization – the “tsar way” for education and use the laws of existence complex social systems for receiving best educational results.

The proponents of the new approach present the comprehensive goal of discussing at a systemic level a broad spectrum of issues related to long-term use. A new vision of goals is needed in order to find an acceptable solution, taking into account new situation in the World. Focus on the interdisciplinary processes in modern education lets us see new goals and tasks of educational process. Conventionally, new education can be called an interdisciplinary or synergistic.

First, we shall argue that the base to the new approaches became mathematical social modeling. It creates new methods of teaching according to new demands.

Secondly, we shall show that the quality of education has to be changed too and we can control the process through the quality of education measurement. We should understand which standards have to be used as educational standards demanded for tomorrow. It is a very difficult process to find new standards and change the standards of education and here the quality can be helpful.

To describe new standards we need to realize that education is a product that creates future and will be needed tomorrow – not yesterday. It is necessary to understand the needs of the society, not only for today (which is already can be considered as the past for education), but for tomorrow. The quality of education needs to manage according to the strategic goals set for that society in which the quality is monitored. Moreover, we must not forget that the overall result of the educational process can only be seen in the future. As such, the quality of the product is the means by which we reveal the correspondence between the end product and a standard product (relative quality) or the ideal product – the absolute quality. This is particularly true for today, when the world is developing rapidly. If the 19th century may be called the century of geopolitics, the 20th century was the century of geo-economics; the 21st century can be the century of geoculture. Culture is becoming a strategic potential. Meanings, values, and a shared vision of the future have acquired fundamental importance, and are influenced by decisions made in politics, economics and education.

After all we shall argue that the cycle of the quality control in education is similar to the quality control of any management process (monitoring, forecasts, prevention, analysis, and planning) and we can study it from new positions. Here we see interdisciplinary features too. At the core of quality control of a management process is monitoring of the process on which we make forecasts, prevention, analysis, and final planning. Management tools here would also be quite traditional and relate to organization, finances, resources, human resources and information. As such, we can highlight the essential elements in the educational quality control such as:

- i) System (it can be argued that education is constructed in a system way);
- ii) Culture, which is the basis and a medium of social existence;
- iii) Mechanisms of ‘cultural transmission’ of social customs, values, attitudes.

Interdisciplinary approach lets us use all the parts of the process in one field of educational knowledge and implement methodology for combining all parts in one wholeness or unity.

10. CONCLUSION

The chapter will conclude that the new aim for education is to prepare staff for solving new problems facing mankind in the 21st century. These problems have interdisciplinary character so and education has to receive interdisciplinary character too. The World has changed a lot with comparison to previous epochs. But education is a very inert process. Today we learn according to the past experience, so instead we must teach for the future needs.

Thus education get new dimension and quality of education became a new characteristic for all the process with monitoring from very beginning till the end.

For good results it is important to organize all-round complex approach to monitor the educational processes. This monitoring system of quality becomes now stimulus for educational institutions for maintenance of necessary educational level and improvement of quality of their educational programs. And finally, we will briefly discuss new approaches in education connected with interdisciplinary context. A lot of problems and risks of contemporary civilization get into interdisciplinary area and need proper specialists for solving them. We can recognize that our education today is in front of its cognitive limits and demands new approaches in future.

The paper concludes that in the USSR and now in Russia we have thought a lot about the future of education and have made many attempts trying to change it. This is interesting that everyone who knows about these educational problems is the key for the future.

Basing on mathematical modeling of the decision-making process in various fields it becomes clear which parameters play the most important role. Selecting order parameters allows us to design new technologies in education.

Experience that has been used for our results at the micro level is also connected with our teaching at the Academy of the National Economy under the Government of the Russian Federation (RANEPA) under the President of Russian Federation, MIRT, and the Moscow Higher Technical School (MHTS) named after Bauman, and with our participation in some international schools as well as workshops at Arizona State University, Riga State University and some other organizations.

As a result, our experience has shown that many tasks, problems and difficulties have hidden general systemic issues associated with the need to radically reconsider the content and style of education with the extensive use of interdisciplinary approaches (Malinetskiy & Podlazov, 2011).

If we all succeed in work out a new interdisciplinary or synergies education, the chances for successful evolution of humanity in the 21st century will increase.

School teachers' and college professors' complains on generality of study programs, fragmentariness and incompleteness of modern education rise sharply nowadays. Science and industry leaders complain about the acute shortage of competent, creative-minded researchers. These are the signs that people today come very close to the cognitive barrier. If we want to overcome this barrier we need to learn new ways of teaching to move from classical "Euclidean model" to a new interdisciplinary approach.

Future human being must be a creator and not an appendage to a computer or other machine. “Leave to human being humanistic and to machine cybernetics” father of cybernetics Mr. Norbert Wiener said. And now we have to convert this challenge into reality.

People who study now should feel confident in their education and should be able to create in all three spheres: rational, emotional and intuitive. Today we can draw desired contours of future education and further self-improving for the eternal students, artists, players of beads, according to the words of Nobel laureate Germany Hess.

In this chapter we argue that the goals of education should be changed and managed according to the strategic goals set for the society. Meanings, values, shared vision of the future have acquired fundamental importance. They are influenced by decisions made in politics, economics and especially in education. Conventionally, new education can be called multi-disciplinary or synergistic.

Inspiring examples of Russian pedagogies and researchers success can be very useful for our colleagues. And the most important issue is public awareness of contemporary cognitive challenges and responses to them that we can and must give. This will determine our common future. This will determine to what kind of history we open the door in the 21st century. We want our distant descendants estimate the age we live in (not as the beginning of the end but) as the beginning of new history of human civilization.

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Chapter 21

WHAT DO WE NEED FOR QUALITY EDUCATION: The introduction of collective reasoning into the educational process and pedagogy of the future

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ABSTRACT

The pedagogy needs to realize a strategic goal of the education of human being. If we pose a question – is a person just a small part of a social mechanism that has to be equipped with the necessary special competencies to conform to its place or; should the personality be in harmony with his/her abilities when using their abilities and skills for the benefit of the society? The answer to this question lies in the understanding of the ways of a progress of pedagogical process. We argue that the progress of the development of educational systems is possible through the understanding of how individuals reason and think. We are using special model of thinking created to help to develop the educational process. At the basis of the argument, pedagogy has always been and will be a socially-relevant science. Physiological, psychological and intellectual parts are always interlinked in the upbringing, formation and education of the student. These experiences collectively lead to the development of an intellectual activity and assist a better societal socialization and adaptation. Today the evolution of the humanity happens so rapidly that with each year's new complex demands are being placed on graduating students to obtain new qualities: constant readiness for change, lifelong-learning skills, the ability to adapt quickly to the changing environment and some degree of professional experience.

Keywords: quality of education, personality model, quality of educational process, pedagogy, development of students' cognition, informational code of thinking/reasoning.

1. INTRODUCTION

For in-depth understanding of the opportunities for effective teaching and learning we are using a newly developed model of brain/mind in its functioning during the education process in the classroom. The idea of such model goes back to Plato according to his concept of a three parts of human soul. According to Plato in the *Timaeus*, reason or thinking soul is located in the head, spirit or emotional soul located in the top third of the torso and, the appetite or acting soul id located in the torso down to the navel. The division of the abilities of a human on mental, emotional and physical parts was quite a common practice at times of Neoplatonism. Using the same idea of division abilities in three parts and adding introvert and extravert behaviour as an activity and reflection gives us 6 main types of personality of students (in terms of ability to perceive information during the learning process). It provides us with the different abilities of individual learning styles as we can continue this process and develop and adopt different educational strategies for various types of students in regard to how they comprehend educational material (Guseva, 2011).

The quality of the education then can be assessed by methods and models of educational approaches which are used in practice. The use of this idea let us increased the quality of education, we also utilised a number of complex systems of monitoring the educational process and testing results and outcomes of studying and learning with special tests of personality/ability to comprehend the information. In practice for effective monitoring of educational process these tests can be conducted twice a year. According to our model of human mind every student (and individual) has his natural information code of thinking. But the question we can pose is – how this principle can be applied within the educational context?

2. BACKGROUND

In our research project we have studied education from the perspective that education is one of the fundamental parts of the processes of dynamics of the social processes in the world. The research project was entitled: Interdisciplinary investigation of the global processes of social foundations and of new paths for finding solutions to the global problems of Russian Foundation for Basic Research. Our research attempts to answer a global challenge that demands an increase in the quality of education.

2.1. Methods

The tools that have been used in our research work included: extensive review and analysis of social and educational policy documents, the data and findings of the mathematical modeling of global processes, and mathematical modeling of educational processes in specific situations, as well as developing teaching and learning methods and strategies for the different types of personality and students' cognition. At the basis of our work is our developed theory of students' thinking and ability to comprehend information. We have developed and employed individual learning styles for our students according their type of thinking. The empirical work on which the study is based was carried out in two schools in Moscow (both at primary and second level classrooms) as part of the pedagogical experiment.

This work was carried out in two schools in Moscow in the period from 2007-2011 with a number of classes. The research used specifically designed questionnaires through which the type of thinking/informational structure of the brain of each participating pupil was identified. The analysis of collected data was carried out and special recommendations in relation to the development of individual learning plans were given to pupils, teachers and parents. As a result of students' participation in research the attainment levels of students have improved, while their communication skills have also advanced.

2.2. General aims

Our aim was to explore the possibility of the creation in pedagogy and education of such approaches to teaching and learning which would optimally correspond to the informational structure of the active brain of the student and, as such, allow optimising all processes of education in primary and secondary school.

The focus of our research was to assess the extent of the development of students' cognition at any point of time by a specially designed questionnaire. We then also suggested a number of individually tailored techniques to advance students' cognitive development.

3. COGNITIVE MODEL OF ACTIVE BRAIN

The three-dimensional model of the macrostructure of the active brain of a pupil according to its functions has been identified in the process of the research work carried out in two schools in Moscow in the period from 2007 to 2009. The functions of the brain were defined as following: perception (recognition) of the information, an estimation of the content of information and the response to this information. As such, the developed model accordingly represented three interrelated parts. Testing of each of the parts and estimation of their work is carried out with the help of specially developed questionnaires. It is believed that on the basis of such testing, the abilities and learning preferences of individual students can be identified. One of the benefits of this approach is opportunity to group and stream students according their abilities. It is recognised that students' development in school should be in harmony with his/her abilities and characteristics. So the developed approaches allow to observe the development of each of the parts of the informational brain of a student so that the 'part' which deemed to be behind the development appropriate to the age of a student, could receive as much attention as possible through assigning creative project work in the classroom or by getting involved in a group work. The paper discusses the ways in which the developed approaches can be beneficial to education at the school level (primary and secondary). Among those are: a better adaptability to changing settings of the classroom, all-round development of students at any stage of their learning without the dependency on the effects of their previous educational experience and their attainment levels (Guseva, 2011).

As such using the principle of student critical thinking, it is possible to implement a new approach to the styles and process of learning. This approach allows us to develop a collective mind in the classroom. In the process of self-education and in the collective search for truth which is based on the goals and objectives of the lesson, the students themselves can organize the collective thinking. The system of "student - teacher" becomes inner-direct, i.e. the collective sphere of thought and all the events that occur during each session will also be in a process of collective thinking. Thinking has its own laws and in the classroom students will work together to seek the truth as it makes everyone think individually. This method allows us to make the pedagogical process more natural.

Education is a process by means of which a teacher instructs "What is it?", "How to use it?" and "Why should I know it?" These are the major questions we ask ourselves during our lifetime and which are asked in our minds. These questions became the base for questionnaire we used for testing students (Guseva & Genin, 2010). The process of teaching and learning – in more general terms is the process of teaching of "what is this?", "what is this for?" and "for what do we need to know that?". These are also the main questions which we ask through all our life when learning about the wider environment and society. These are the main questions which our reasoning/intellect wants to know.

4. THE QUALITY OF EDUCATION

When defining the quality of education as a concept, an educator is guided by an ultimate aims of the education that is to contribute to the education of individual student and the formation of society as a whole.

It can be argued that any teaching and learning process has two aspects: First aspect refers to i) the content of teaching and learning and, the ii) level of teaching and learning (what teaching methods are used). Second aspect: we need to know how a student is able to

understand the material – both in relation to the content of the material (what he/she already knows) and the capabilities of his/her reasoning (informational thinking).

Conceptualising reasoning/thinking in that manner allows detecting individual thinking formula for each individual student. The information structure of human thinking allows determining a specific natural information code of thinking, because each student thinks individually. According to the nature of human mind every man has his natural information code of thinking, which may serve as the basis for the educational process.

The results of our research work indicate that the model of the mind of each student (and any individual in general) consists of three parts (in the informational sense). These three parts are interconnected (Guseva, 2002a):

- Firstly, this is the physical mind we inherit in a genetic sense;
- Secondly, this is also a mind we develop throughout our lifetime. This mind we can call our thinking mind or also an intellectual mind. It also consists of our memory. And it's macrostructure represented by three interrelated parts – reason, sense/meaning and will.
- Thirdly, this is consciousness, which represents a psycho–physical field, in which the process of reasoning/thinking takes place. The results of the processes in this field have the potential to change/develop.

According to our model each individual has his/her own natural 'thinking formula', which can be used in the teaching/learning process. Individual thinking formula (three dimensional), defines the nature of the individuality of the student more precisely than any other characteristics. The thinking formula can be defined by the specially designed questionnaire. It is not within the scope of this research paper to give more details on the questionnaire, but we are aiming at producing more publications in the future. Despite this, we would like to add that this questionnaire is a unique, tested methodological and distinct tool which has no connections with the psychology of individual. Psychology looks at the motivations behind the actions. Our particular approach defines a naturally developed formula of the informational thinking of an individual.

Further, to assist us in effectively managing/administering research work and knowledge, it is possible to build a student information page, which is a multifunction system of a student features, which should consist of individual fields. Each field will show individual information on the following indicators (Guseva, 2002b):

- Short summary of the student details (we this information the student fills in himself/herself);
- The information about the student by their parents (optional);
- The information about the student by his teachers (usually by 2-3 teachers);
- The definition of informational code of thinking/reasoning;
- Assessment of the student through psychological tests;
- Tips for a teacher: according to the tests - questionnaires; by psychologists; generalized recommendations;
- Tips for parents/guardians.

The task is very big and responsible and of course will require monitoring as part of psychologists, educators, IT-workers, and the students/pupils themselves, but importantly, time is required for this exploratory process. In order to get an overview of the development of students at different grades, we can obtain and compare the results across different classes in the same school. In effect, this will show us the scope and the extent of the development of students' thinking across different age groups and classes.

5. FUTURE RESEARCH DIRECTIONS

On the basis of the techniques of the identification of the informational structure of the brain/thinking of each individual student/pupil, the abilities and learning preferences and styles of pupils can be better understood, while the appropriate curriculum content selected and individual learning plan can also be devised for the students. One of the benefits of this approach can be grouping and streaming of pupils according to their abilities, as well as a better understanding of the subject content and its meaning, and a better formulation of the ideas and questions by the students themselves.

These novel approaches also assist the educators to better the attainment of the students, increase students' motivation to and interest in school and learning in general, improve communication skills and better rapport with teachers and even their parents.

The new techniques and approaches to education can be useful in improving the understanding of the subject content and its meaning, and better formulation of the ideas and questions by the students themselves (Kapelko, 2009).

6. DISCUSSION/CONCLUSION

The chapter discussed the conceptual and theoretical foundations of the empirical work carried out in two schools in Moscow (both at primary and second level classrooms). According to our model of human mind every student has his/her natural information code of thinking, which may serve as the basis for the educational process. We are interested in this model of particular structure of human brain, as it can build a new pedagogical theory for the future which relates not only to the ordinary realities of social life but to any school, any institution and any educational establishment which corresponds with the cooperation among students and, which is most important, to the development of a student himself/herself. The individual natural information (triadic) code indicates the informational structure of his/her thinking and cognition more accurately than any other classification system.

We argued that in the first stage of human intellectual activity development, the active development of *reason* takes place. In the second stage of mental activity development, the *will* mainly develops. In the third stage of intellectual development, the all-round development of personality, *the sense making and understanding* mainly develop.

Our research work in the area shows that a new model of education provides for the designated purposes of education to introduce the definition of critical thinking activity of students (Kapelko, 2009; Kapelko & Malinetskii, 2014). It aims to help teachers to better understand their students and to produce the most impact of their discipline. According to the function of the structure of the active brain conceived tests - questionnaires, this will build macrostructure of the reasoning and informational code and structure of thinking.

The paper concluded with a number of suggestions for further research and the remark that the progress of any society is always reflected in the extent of development of its educational systems (primary, secondary and higher education).

In the conclusion we would like to add that the main task of the education for today is the education of students to become participating members of the future society, while the task of the schools and educational systems in general is to direct such development in a best way possible. Importantly, we would like to stress that the aim of any pedagogical process is the desired end result of education and orientation on the future. This has to be accompanied by the all-round development of an individual's intellect and personality.

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Section 3
Teaching and Learning

Chapter 22

STRATEGY INVENTORY FOR LANGUAGE LEARNING: FINDINGS OF A VALIDATION STUDY IN GREECE

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ABSTRACT

Foreign language learning strategies are specific actions or techniques employed by the learner for the purpose of learning language, making learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations, according to Rebecca Oxford. The paper presents a large scale project's (THALES: 379335) first phase findings regarding the validation of Rebecca Oxford's "Strategy Inventory for Language Learning" (S.I.L.L.) with a Greek sample of 1308 school-aged students from 16 schools representing 5 prefectures and 4 regions of the country. 46% of the students attended the last three grades of elementary school and 54% junior secondary school. Following a series of exploratory factor analyses we decided on a 29-item version retaining Oxford's factor structure. The confirmatory factor analyses revealed a marginal level of fit for the whole sample as well as the elementary school and secondary school sub-samples. The analyses indicated moderate to high internal consistency coefficients for the two- and six-category model of the SILL instrument. Based on these findings a number of analyses were performed regarding differences across all the six SILL first-order categories (memory, cognitive compensation, metacognitive, affective, and social strategies) and the two second-order categories (direct and indirect strategies) in relation to gender and school level revealing significant differences. The results are discussed in relation to other similar studies and the next phases of the study.

Keywords: learning strategies, S.I.L.L., validation, school-aged students, Greece.

1. INTRODUCTION

There has been an extensive body of research into language learning strategies, both in second/foreign language (SL/FL) studies and educational psychology, in the last four decades. The literature on learning strategies in SL/FL acquisition emerged from a concern for highlighting the characteristics of effective learners and promoting learner-centered models of language teaching. The focus was on the processes used by learners for managing their SL/FL learning and, more specifically, on identifying those strategies that make learners successful and those that lead to less successful learning. Based on these elements the present paper provide the findings of an empirical study that attempted to confirm a shortened version of Oxford's (1990) six-factor learning strategies classification system in a sample of Greek school-aged (elementary and secondary education) students learning English as second language.

1.1. Defining language learning strategies

Definitions regarding learning strategies are basically found in literature on psychology, where learning is commonly referred to as the process of storing and retrieving information (Dörnyei, 2005; Rubin, 1981). In general, strategies, have been described as

techniques or devices learners use to gain knowledge (Rubin, 1975) or as actions toward achieving a given objective (Cohen, Weaver, & Li, 1996). Their conscious character was emphasized in the work of Chamot (2005) and Griffiths (2007). Thus language learning strategies have been defined as “conscious thoughts and actions that learners take in order to achieve a learning goal. Strategic learners have metacognitive knowledge about their own thinking and learning approaches, a good understanding of what a task entails, and the ability to orchestrate the strategies that best meet both the task demands and their own learning strengths” (Chamot, 2005, p. 14) or as “specific actions consciously employed by the learner for the purpose of learning language” (Griffiths, 2007, p. 91). O’Malley and Chamot (1990, p. 1) define them as “the special thoughts or behaviours that individuals use to help them comprehend, learn or retain new information”. Oxford (1990) describes them as “steps taken by learners to enhance their own learning” (p. 1) and claims that they refer to “specific actions, behaviors, steps or techniques that students use to improve their own progress in developing skills in a second or foreign language. These strategies can facilitate the internalization, storage, retrieval or use of the new language” (Oxford, 1999, p. 518). Weinstein, Husman, and Dierking (2000, p. 727) who studied learning strategies from the perspective of educational psychology, argued that “learning strategies include any thoughts, behaviors, beliefs or emotions that facilitate the acquisition, understanding or later transfer of new knowledge and skills”. Recently there has been a shift in the focus of LLS research from the product (strategies) to the process (self-regulation). In that respect, Rubin (2001, 2005) introduced the term *learner self-management* defined as the ability to deploy metacognitive strategic procedures (such as monitoring, planning, evaluating, problem solving and implementing) and to make use of relevant knowledge and beliefs (such as task knowledge, self-knowledge, strategy knowledge) and Oxford (2011) maintained that self-regulated L2 learning strategies are defined as deliberate, goal-directed attempts to manage and control efforts to learn L2. In educational psychology, on the other hand, research has opted for the term of *self-regulation* (Boekaerts, Pintrich, & Zeidner, 2000).

1.2. The study background

Self-report procedures such as interviews, questionnaires, diaries and journals or think-aloud protocols, while sometimes subject to errors, are mainly used for identifying learner strategies. One of the most efficient and comprehensive ways to assess frequency of language learning strategy use is a questionnaire, also referred to as an inventory or a summative rating scale. Currently, the most frequently employed language learning strategy use screening instrument around the world is the Strategy Inventory for Language Learning (SILL) developed by Oxford in the early 1990s. Originally, it was designed as a tool for assessing the frequency of use of language learning strategies by students at the Defense Language Institute Foreign Language Center in Monterey, California. It was followed by two revised versions (Oxford, 1990): Version 5.1 for foreign language learners with English native language (80 items) and Version 7.0 (ESL/EFL) for learners of English as a second/foreign language (50 items). The self-report items of the instrument’s latter form regarding the frequency of a number of language learning strategies use as indicated by the language learners are organized under two broader factors, i.e. direct and indirect learning strategies, depending on the extent to which each strategy item is involved in language learning. In addition, the items are further distributed under six factors:

- i. “Direct strategies” include
 - (a) *memory strategies* (remembering and retrieving vocabulary), i.e. how learners remember and retain language;
 - (b) *cognitive strategies* (comprehending and producing text), which indicate how learners think of their learning; and
 - (c) *compensation strategies* (compensating for the lack of knowledge), reflecting how learners make up the limited language to achieve successful language use.
- ii. “Indirect strategies” include
 - (d) *metacognitive strategies* (manipulating learning processes), i.e., how they manage their own learning;
 - (e) *affective strategies* (regulating affective state), or how learners adjust their affective status in the learning process;
 - (f) *social strategies* (learning with others) which refer to how learners learn language through social interaction).

The SILL uses a five-point Likert-type scale responses for each strategy described (1= never or almost never true of me, 2= generally not true of me, 3= somewhat true of me, 4= generally true of me, 5= always or almost always true of me).

This originally adult-oriented instrument has been translated into more than 17 languages and appears in plenty major publications involving the study of LLS among SL/FL learners. The psychometric properties of the instrument have been examined mainly with the focus on the reliability and validity of the translated versions (Oxford & Burry-Stock, 1995). In general, the ESL/EFL SILL reliabilities reported in the literature have been high. The internal consistency reliability of the SILL determined by Cronbach’s alpha has been well above an acceptable alpha value of $>.70$ in most studies (Hair, Anderson, Tatham, & Black, 1998; Landau & Everitt, 2004). For instance, the alpha coefficients have been .94 for the Chinese translation version (Hsiao & Oxford, 2002; Yang, 1999), .93 for the Turkish, Korean and Japanese translation version (Park, 1997; Robson & Midorikawa, 2001, Demirel, 2009), .91 for the Greek translation (Gavriilidou & Mitits, 2014), .89 for the Turkish translation (Gavriilidou et al., in press), .86 for the Arabic translation version (Khalil, 2005), and from .67 to .96 for the English version (Hong-Nam & Leavell, 2006; Nyikos & Oxford, 1993; Wharton, 2000).

With regard to the construct validity of the SILL, findings were more controversial and less conclusive. Oxford and Burry-Stock (1995) and Oxford (1996) reported the results of exploratory factor analyses (EFA) that examined the underlying structure of the SILL using data sets from six studies, and noted that construct validity of the instrument has been studied in relation to the ESL/EFL setting, learning styles, gender, motivation etc. It has been found that there is a strong relationship between the SILL score and the aforementioned independent variables. A more recent CFA analysis carried out by Hsiao and Oxford (2002) revealed that among fourteen competing LLS taxonomies examined, Oxford’s six-factor taxonomy provided the most consistent account of college student data, although the fit indices indicated that the model did not offer an adequate fit for the data. This evidence, according to the authors, indicated that there was still substantial room for instrument improvement. This conclusion was further supported by data reported in the studies of El-Dib (2004), Green and Oxford (1995), Nyikos and Oxford (1993), Robson and Midorikawa (2001), Yang (1999), Park (2011) who indicated that the construct validity of the SILL determined by exploratory factor analysis (EFA) has been inconsistent with different factor structures across different learning contexts. For instance, in the Robson and Midorikawa (2001) study of university students in Japan 15 factor structures were found in the SILL. Green and Oxford (1995) studied students in Puerto Rico and found nine

factors. El-Dib (2004) found eight factor structures in the SILL among university students in Kuwait. In Yang's (1999) study six factor structures emerged from the CFA analysis of data among university students in Taiwan. Finally Nyikos and Oxford (1993) found only five factors among university students in Korea and the USA. Differences found in the number of factor structures yielded in the above mentioned studies could be possibly accounted for by the following parameters: (a) in the SILL, items that are appropriate for second language contexts are not well-distinguished from items appropriate for foreign language learning (i.e., while watching shows in FL context represents a conscious learning strategy on the part of a foreign language learner, the same behavior may simply represent an everyday reality for a second language learner); (b) there is no clear distinction among strategy categories, consequently some strategies may belong to more than one category); and (c) items do not bear the same level of item specificity (i.e., they are worded in a way that does not clarify the context of strategy application for all respondents).

The SILL has been used mainly to investigate university students studying various foreign languages (e.g. Ehrman & Oxford, 1989; Nyikos & Oxford, 1993; Bedell & Oxford, 1986; Dreyer & Oxford, 1996; Ehrman & Oxford, 1995; Ehrman & Leaver, 2003) and it is also very acceptable when used with multilingual groups of ESL/EFL learners. In Greece, the most significant evidence of using the SILL to assess language learning strategies when learning English was the work of Kazamia (2003), Psaltou-Joycey (2003), Psaltou-Joycey and Kantaridou (2009), Vrettou (2011), Mitits (2014). Kazamia (2003) focuses on measuring the frequency of language learning strategy use in adult Greek learners of English while (Vrettou, 2011) records the frequency of use in primary school children who are learning English at school. Mitits (2014) focused on adolescent learners aged 12 to 15 learning English as foreign language and Greek as second language. Finally, Psaltou-Joycey (2008) used the SILL in order to study cross-cultural differences in the use of language learning strategies by students of Greek as a second language.

Even though the greatest amount of LLS research focuses on adult LLS use, several studies (e.g., Chen, 2009; Gavriilidou & Papanis, 2009; Gunning, 1997, 2011; Kaylani, 1996; Lan & Oxford, 2003; Magogwe & Oliver, 2007; Agathopoulou, in press; Kambakis-Vougiouklis, in press; Kazamia, in press; Platsidou & Sipitanou, 2015) used the SILL to profile strategy use among school-aged English as SL/FL learners. It was found that more successful students used more or more elaborated strategies (Kaylani, 1996; Lan & Oxford, 2003; Magogwe & Oliver, 2007) while less successful students may “sometimes use strategies even as frequently as more successful peers, but their strategies are used differently” (Chamot, 2003, p. 116). Good language learners have the ability to select the appropriate strategy or a set of strategies for each task, while less successful learners do not have the so-called metacognitive task knowledge to opt for the appropriate strategies (Chamot & El-Dinary, 1999; Chamot & Keatley, 2003; Oxford, Cho, Leung, & Kim, 2004). In addition, there was a difference in preference of the types of strategies between children, adolescent and adults. More specifically, elementary school students preferred affective, compensation (Gunning, 1997, 2011), and social (Magogwe & Oliver, 2007) strategies. Junior secondary school students reported greater use of social, metacognitive, affective, memory, and cognitive strategies; high-school students indicated a strong preference for compensation (Chen, 2009) and metacognitive (Magogwe & Oliver, 2007) strategies. These studies highlighted the need for simplifying, translating, or shortening the SILL for use with school-aged L2 learners together with investigating its psychometric properties either partly, placing emphasis on reliability coefficients for the modified SILL (e.g. Chen, 2009; Gunning, 1997, 2011; Magogwe & Oliver, 2007) and/or content validity

(e.g. Gunning, 1997, 2011; Magogwe & Oliver, 2007), or more thoroughly (Ardasheva & Tretter, 2013).

Given that: a) empirical evidence, particularly with regard to the relationship between L2 learning and LLS, remains inconsistent (Nisbet, Tindall, & Arroyo, 2005) due to the lack of a proper instrumentation that would accurately diagnose LLS and would provide reliable data about SL/FL learning and teaching practices, b) findings concerning the construct validity of the SILL are controversial, and c) the SILL is mainly adult-oriented and thus not appropriate for studying LLS of elementary or secondary school students, the aim of the present study is to illustrate the findings of a validation study that followed an adaptation process of Oxford's (1990) Strategy Inventory for Language Learning (SILL) from English into Greek with the aim of further administering it to school-aged students (upper elementary and junior secondary schools) as a part of a large-scale project (THALES #379335). More specifically, the purpose of this study was to examine whether a shortened version of the SILL reflects the six- and the broader, "second order", two-construct classification system proposed by Oxford (1990) by performing confirmatory factor analysis (CFA) among school-aged (elementary and secondary education) students learning English in Greece.

2. METHOD

2.1. Participants

The participants were 1308 students from 16 schools representing 5 prefectures (Athens, Peiraias, Thessaloniki, Rodopi, and Ioannina) and 4 regions (Attica, Central Macedonia, Eastern Macedonia-Thrace, and Epirus) of Greece. They attended the last 3 grades of elementary school and junior secondary school, and more specifically 46.2% (604) of them attended the 4th to 6th grade of elementary school (4th grade: 180 [13,8%], 5th grade: 224 [17,1%], 6th grade: 200 [15,3%]) and 53.8% (703) attended the 1st to 3rd grade of junior secondary school (1st grade: 231 [17,7%], 2nd grade: 241 [18,4%], 3rd grade: 231 [17,7%]). The mean age of the whole sample was 12.4 yrs (sd= 1.77) and the age range was 9-17 years. Out of the 1295 valid responses 617 (47,2%) were boys ($M_{age}= 12.4$, $sd= 1.76$) and 678 (51,8%) were girls ($M_{age}= 12.5$, $sd= 1.79$).

All research procedures were approved by the Institutional Review Board (Pedagogical Institute) for investigations involving human participants. Written informed consent was obtained from the legal guardians of the participants before they were allowed to participate in the study. The SILL questionnaire was administered during regular teaching hours in May (school year 2013-14) by EFL teachers who were instructed to read and explain the directions to the students.

2.2. Instrument

The instrument that was used herewith and subjected to validation control was the Strategy Inventory for Language Learning (SILL) version 7.0. The study used a recently adapted version of an independent study by Gavriilidou and Mitits (2014) which exhibited sound reliability and validity indices. The process of adaptation was broken down into two steps following Beaton, Bombardier, Guillemin, & Bosi Ferraz's (2000) suggestions in order to maximize instrument's reliability and validity with the particular learner population (see Gavriilidou & Mitits, 2014):

(a) The translation process: The translation process consisted of the initial translations, synthesis of the translations and back translation. The process of translating the SILL from English into Greek took place at three levels and equivalence between the

original and translated versions was considered at each level: linguistic/semantic, technical and conceptual. To these three, the ‘comprehension level’ was added to ensure that the target population – elementary and secondary school students aged 9-15 with Greek L1 understood the translated material as easily as the source population for whom the original questionnaire was designed.

(b) Verification and adaptation: This second step included the expert committee review in the light of the focus group suggestions and other verification methods. According to the written reports submitted by the panel of experts, it can be assumed that the Greek version of the questionnaire is as valid as the original one concerning the item-level equivalence since the careful adaptation procedure has ensured semantic, idiomatic, experiential and conceptual equivalence. Its validity is further improved by resolving technical issues of questionnaire translation (Gavriilidou & Mitits, 2014).

With regard to the validation procedure presented herewith, the adapted SILL was tested for its content validity through exploratory and confirmatory factor analysis, where a six-factor model based on the six subscales suggested by Oxford was retained and tested (see Demirel, 2009). In the final stage, the instrument was verified for its psychometric properties providing internal consistency coefficients.

3. RESULTS

Considering (a) the limited nature of empirical evidence for either supporting or refuting the adequacy of the 50-item SILL for school-aged English language learners (Oxford & Burry-Stock, 1995), (b) the common practice of simplifying and shortening the SILL for younger student populations (e.g., Gunning, 2011), and (c) the existing criticisms and recommendations for enhancing the instrument’s validity (Hsiao & Oxford, 2002), the data processes for the present study were developed in two steps: instrument’s item refinement and calibration and instrument validation.

Initially the items were subjected to quality checks for missing values or incorrectly coded responses. A check for missing values was executed to examine the percentage of items that was reported as missing and whether they were represented uniformly. For 1020 (78%) cases the SILL was fully answered. The control for systematic pattern of missing values in any of the items (in relation to gender and educational level) did not reveal any critical result concluding that any potential differences could be attributed to random factors. In addition, because in none of the items the missing values exceeded 5% of the whole SILL responses dataset, no further checks were performed (Lynch, 2003, cited in Howell, 2008).

In the first step, using SPSS v. 20, a number of exploratory factor analyses were performed in order to proceed with further instrument modifications by identifying potentially problematic items. The analyses involved Principal Axis Factoring with either the two sub-samples (elementary school students, secondary school students) or the whole sample. The trials included a number of factorial solutions. Based on these analyses, the theoretical standpoint and the criteria mentioned above, we finalized a common factorial pattern for all the students consisting of 29 items while adopting Oxford’s factorial structure (Table 1).

Table 1. The SILL items retained for the shortened school-student version:
Descriptive statistics for individual items.

Item #	Strategies	M	sd
<i>A. Memory strategies</i>			
1	I think of relationships between what I already know and new things I learn in the SL/FL.	3.28	1.17
2	I use new SL/FL words in a sentence so I can remember them.	3.05	1.25
3	I use rhymes to remember new SL/FL words.	1.51	0.99
4	I physically act out new SL/FL words.	3.70	1.22
<i>B. Cognitive strategies</i>			
5	I say or write new SL/FL words several times.	3.50	1.31
6	I try to talk like native SL/FL speakers.	3.54	1.26
7	I use the SL/FL words I know in different ways.	3.02	1.31
8	I watch SL/FL language TV shows spoken in SL/FL or go to movies spoken in SL/FL.	2.45	1.31
9	I read for pleasure in the SL/FL.	3.16	1.29
10	I try not to translate word for word.	2.53	1.31
<i>C. Compensation strategies</i>			
11	I use reference materials such as glossaries or dictionaries to help me use the new language	3.02	1.44
12	To understand unfamiliar SL/FL words, I make guesses.	2.88	1.43
13	I try to guess what the other person will say next in the SL/FL.	2.47	1.32
14	If I can't think of an SL/FL word, I use a word or phrase that means the same thing.	3.68	1.30
<i>D. Metacognitive strategies</i>			
15	I try to find as many ways as I can to use my SL/FL.	3.29	1.24
16	I notice my SL/FL mistakes and use that information to help me do better.	3.86	1.20
17	I pay attention when someone is speaking SL/FL.	3.98	1.12
18	I try to find out how to be a better learner of SL/FL.	3.72	1.20
19	I plan my schedule so I will have enough time to study SL/FL	2.86	1.26
20	I look for people I can talk to in SL/FL	2.76	1.33
21	I look for opportunities to read as much as possible in SL/FL.	2.82	1.29
<i>E. Affective strategies</i>			
22	I try to relax whenever I feel afraid of using SL/FL.	3.40	1.43
23	I encourage myself to speak SL/FL even when I am afraid of making a mistake.	3.67	1.29
24	I talk to someone else about how I feel when I am learning SL/FL.	2.34	1.31
<i>F. Social strategies</i>			
25	I ask SL/FL speakers to correct me when I talk.	3.04	1.40
26	I practice SL/FL with other students.	2.39	1.30
27	I ask for help from SL/FL speakers.	3.14	1.36
28	I ask questions in SL/FL.	3.45	1.24
29	I try to learn about the culture of SL/FL speakers.	2.55	1.34

In the second phase, the skewness and kurtosis of the data were examined. The skewness indices of all 29 items but one were ranged between -0.9 and 0.63, which are acceptable with regard to the distribution symmetry (the exception refer to item 3 (“I use rhymes to remember new SL/FL words”) which was 2.13 indicating a positive assymetry. All but one of the kurtosis values were negative ranging within an acceptable range (-1.32 to 0.09); exception was again item 3 (3.88). According to the skewness and kurtosis values the form of the distribution for the whole sample was slightly platykutic and there was an indication that the data do not follow the multivariate normal distribution criterion since one item did not seem to follow the normal distribution pattern. Hence asymptotic Confirmatory Factor Analysis was performed involving the use of AMOS software.

The CFA revealed a relatively satisfactory level of fit to the whole sample (CFI 0.84, NFI 0.8, RMSEA 0.06) as well as the elementary school (CFI 0.85, NFI 0.8, RMSEA 0.05) and junior secondary school (CFI 0.82, NFI 0.8, RMSEA 0.06) sub-samples (see Table 2).

Table 1. Confirmatory Factor Analysis model fit of the 29 items.

Criterion	Total sample	Primary school children	Junior secondary school children
χ^2	1936.388	972.961	1270.442
CMIN/DF<2	5.349	2.688	3.51
RMSEA<=0,06	0.058	0.053	0.06
TLI>=0,95	0.808	0.831	0.793
NFI>=0,95	0.812	0.796	0.798
CFI>=0,95	0.84	0.859	0.828

CMIN: [minimum discrepancy] maximum likelihood estimation chi-square test; RMSEA: Root mean square error of approximation; TLI: Tucker-Lewis Index; NFI: normed fit index; CFI: comparative fit index

The overall pattern of results indicated a “borderline” goodness-of-fit with more powerful index the RMSEA values. Considering that RMSEA is appropriate in more confirmatory contexts (Rigdon, 1996) we may accept for this pilot study phase the structure’s goodness-of-fit even at a marginal level.

In order to examine the internal consistency of the SILL’s two- and six-construct classification system, the reliability of the constructs were investigated by calculating Cronbach’s α , again for the whole sample and the two sub-samples (see Table 3).

Table 2. Items per learning strategies factor and internal consistency coefficients.

	Learning Strategies (LS)			
	Direct LS	memory (4)	cognitive (6)	compensation (4)
Whole sample	.77	.56	.71	.43
Elementary	.79	.58	.70	.50
Secondary	.75	.53	.72	.45
	Indirect LS	metacognitive (7)	affective (3)	social (5)
Whole sample	.87	.83	.52	.70
Elementary	.87	.82	.55	.70
Secondary	.87	.83	.48	.69

The internal consistency coefficients suggest a satisfactory degree of internal consistency using the shortened student version of the SILL in all the trials. It seems that lower, medium size, reliability coefficients were revealed for “compensation”, “memory”,

and “affective” strategies. On the other hand, metacognitive strategies presented the highest coefficients among the six subscales ($\alpha=0.83$ for the whole sample). Moreover, the “higher order” two general factors (direct and indirect learning strategies) revealed the higher coefficients ($\alpha=.87$ for both sub-samples and the whole sample) indicating that the items measure similar characteristics about language learning strategies. The finding is in accordance with the evidence from several other studies’ (e.g. Park, 1997; Hsiao & Oxford, 2002; Yang, 1999).

Finally, using the mean scores of the two- and six-factor structure and with regard to the potential differences in terms of the students’ gender (Table 4) and educational level (Table 5), the relevant analyses (t-tests for independent samples) indicated statistical differences both between boys and girls as well as between elementary and secondary school students.

Table 3. Independent samples t-test between boys and girls on language learning strategies.

	Gender	N	Mean	Std. Deviation	<i>t</i>	<i>p</i>
A. Memory strategies	Boys	614	2.85	0.79	-1.82	0.07
	Girls	678	2.93	0.74		
B. Cognitive strategies	Boys	615	2.89	0.81	-6.53	<0.001
	Girls	674	3.18	0.81		
C. Compensation strategies	Boys	613	2.93	0.83	-3.52	<0.001
	Girls	673	3.09	0.84		
D. Metacognitive strategies	Boys	610	3.13	0.85	-8.36	<0.001
	Girls	672	3.52	0.82		
E. Affective strategies	Boys	616	2.95	0.99	-6.84	<0.001
	Girls	678	3.31	0.90		
F. Social strategies	Boys	613	2.74	0.87	-6.77	<0.001
	Girls	675	3.07	0.89		
Direct strategies	Boys	616	2.89	0.63	-5.17	<0.001
	Girls	677	3.07	0.62		
Indirect strategies	Boys	616	2.94	0.76	-8.67	<0.001
	Girls	677	3.30	0.73		

With regard to students’ gender the analyses revealed statistically significant differences in all the measures except for “memory strategies” ($p = 0,068$). In addition, in all the subscales as well as the two broader factors girls scored higher than boys. The pattern was similar for both elementary and secondary school with very few exceptions.

In a similar vein, in order to examine statistically significant differences between elementary and secondary school students, a number of t-tests for independent samples were performed (Table 5).

Table 4. Independent samples *t*-test between elementary and secondary school students on language learning strategies.

	Educ. level	N	Mean	Std. Deviation	<i>t</i>	<i>p</i>
A. Memory strategies	Elementary	602	3.05	0.80	7.01	<0.001
	Secondary	702	2.76	0.71		
B. Cognitive strategies	Elementary	602	3.16	0.83	4.96	<0.001
	Secondary	699	2.93	0.81		
C. Compensation strategies	Elementary	599	2.91	0.90	-4.17	<0.001
	Secondary	696	3.10	0.78		
D. Metacognitive strategies	Elementary	602	3.52	0.84	7.54	<0.001
	Secondary	688	3.16	0.84		
E. Affective strategies	Elementary	604	3.27	1.01	4.64	<0.001
	Secondary	698	3.03	0.91		
F. Social strategies	Elementary	600	3.05	0.92	5.27	<0.001
	Secondary	696	2.79	0.86		
Direct strategies	Elementary	603	3.04	0.67	3.19	0.02
	Secondary	702	2.93	0.58		
Indirect strategies	Elementary	604	3.28	0.77	6.97	<0.001
	Secondary	697	2.99	0.73		

All the comparisons of the mean scores showed statistically significant differences with elementary school students scoring higher in all the factors but one, namely the “compensation strategies” (i.e. guessing, asking for help, and using gestures).

4. DISCUSSION

The aim of the study was to record how the SILL can be validated in the Greek context for school-aged student population using a translated and adapted version of the SILL (Gavriilidou & Mitits, 2014). Researchers performed EFA to explore latent factor structures and confirmatory factor analysis (CFA) to test *a priori* factor structures in the relationships between observed and latent variables.

Since EFA has shown limitations defining exact factor structures of the SILL because of different findings across studies, CFA was performed to get a better understanding of the latent constructs of the SILL by examining whether it represents either the two- or six-construct classification system, as originally proposed by Oxford (1990). With regard to this latter procedure it is surprising to note that only a limited number of published studies have performed CFA in an attempt to confirm *a priori* underlying constructs of the SILL either among adult participants, mostly university students (e.g. Hsiao & Oxford, 2002; Park, 2011) or elementary/secondary education students (Ardasheva & Tretter, 2013).

Based on the relevant analyses it seems that the modified shortened version of the SILL (Oxford, 1990) that was produced for the needs of the current study following a series of exploratory factor analyses as well as theoretical and methodological criteria, could be used with the Greek school-aged student population. More specifically, the current version with the 29 items seems to be functional both for elementary and secondary school students; the factorial structure of the second level (direct and indirect learning strategies) presented sufficiently high internal consistency; the results of the confirmatory factor

analysis marginally confirmed the factor pattern retaining Oxford's proposal but with almost half the items of the original version. The evidence approximates the findings of Ardasheva and Tretter's (2013) study, the only relevant study in terms of the age-range of the target group using the SILL, both in terms of the items used as well as their content (which items load to each factor).

A detailed examination is required in order to establish and generalize the current findings with data from a larger and nationwide sample. A further study is necessary to examine whether each of the strategy categories may have differential impact on language learning depending on, for example, the developmental needs and English proficiency level of the individual, the outcome of interest (i.e. linguistic, academic, or cognitive/behavioral), the specific learning and teaching goals and tasks etc. These are some of the issues that will be examined in the ensuing main phase of the current study.

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Chapter 23

EMOTION SOCIALIZATION PRACTICES OF EARLY CHILDHOOD EDUCATORS

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ABSTRACT

Because emotional skills learned during the first years of life play a key role in children's adjustment and future academic achievement, the socialization of children's emotions has become an important topic in educational science. Children's preschool experience, in particular, has emerged as a major issue, our understanding of which needs to be extended and consolidated, especially with regard to the impact of adults. While studies have shown that parental socialization practices are related to the development of children's emotional competence (Denham, 2006; Eisenberg, 1998), few studies have examined the role played by early childhood educators (ECEs), even though most children under the age of six attend daycare (70% in Quebec, Canada). To improve our understanding of ECEs' practices related to children's emotion socialization, we interviewed 107 ECEs in Quebec, using the *Coping with Children's Negative Emotions Scale - Caregiver Version*. Our results revealed that the ECEs valued positive reactions to the expression of children's negative emotions, in particular, reactions that focus on problem solving. Some individual characteristics (work experience; educational background; perceived stress, job satisfaction and interpersonal reactivity) also appeared to be associated with the nature of the ECEs' reactions to the expression of negative emotions.

Keywords: socio-emotional development; daycare settings; early childhood educator, preschool children.

1. INTRODUCTION: EMOTION SOCIALIZATION

It is now widely recognized that children's and youths' adjustment and academic achievement do not only involve their cognitive abilities and skills but that socio-emotional competence also plays a determining role. Even if as early as the 19th century Darwin considered the adaptive role of emotions and their effect on mental processes and behavior (Darwin, 1872/1998), it was not until the 1990s that emotions are no longer considered as disruptive elements. The work of Salovey and Meyer (1990) on emotional intelligence, and thereafter studies of Goleman (1995), constitute a turning point for the field. Emotions are then considered as feeling states that conveys information (Mayer, Salovey, & Caruso, 2004), and are associated with critical skills for individuals' functioning (Mayer, Salovey, Caruso, & Cherkasskiy, 2011). Recent studies have shown that emotions play a significant role in children's social and school adjustment and thus impact their academic achievement and, ultimately, their future. More specifically, youths' ability to express, understand and regulate their emotions has an impact on their academic and social skills (Denham & Burton, 2003; Herndon, Bailey, Shewark, Denham, & Bassett, 2013; Izard, 2002; Saarni, 1999). With regard to social adjustment, for example, Rose-Krasnor and Denham (2009) associate children's effectiveness in social interaction with different socio-cognitive and socio-emotional skills, in particular, the ability to resolve interpersonal conflict, the ability to self-regulate behaviors and emotions, prosocial behaviors and social conscience.

These results have led researchers to focus specifically on the socialization of emotion, a process through which children learn to recognize, assimilate and master various skills related to the expression, understanding and regulation of emotions through the exchanges they engage in with the various people in their lives (Coutu, Bouchard, Emard, & Cantin, 2012; Grusec & Hastings, 2007). From this perspective, the skills acquired during the preschool period appear to be crucial (Maccoby, 2007). Several authors have pointed to socio-emotional and behavioral deficits among children who are starting school (Janus & Offord, 2000, 2007; Rimm-Kaufman, Pianta, & Cox, 2000), and stress the importance of better training early childhood educators (ECEs), given that the great majority of children (70% in Quebec) currently attend daycare outside the family before entering the school system. It is thus important to better understand the role played by ECEs in the socialization of emotion and to document their educational practices (Ahn, 2005; Ashiabi, 2000) since, to date, most studies have focused on the role of parents.

Few studies have investigated the educational practices of ECEs related to the socialization of emotion or the way ECEs perceive their role with regard to the socialization of emotion, despite the fact that they engage in educational activities that influence the socio-emotional development of the children in their care (Papadopoulou et al., 2014). In Quebec, this mission of ECEs is, moreover, clearly set out in *Quebec's educational program for childcare services* published in 2007 by the ministry of the family and seniors. While some authors maintain that the mechanisms of socialization identified among parents can also apply to ECEs (Eisenberg, 1998), other dimensions come into play for ECEs because of the group context that their work involves (Hyson, 2004). There is thus a need for research that specifically targets this population

2. THE STUDY

2.1. Objectives

The present study therefore aimed to better determine the role played by ECEs with regard to children's emotion socialization. More specifically, it set out to:

1. Assess ECEs' emotion socialization practices, including their reactions to negative emotions expressed by the children in their care;
2. Determine which individual characteristics influence ECEs' emotion socialization practices (work experience; marital status; educational background; levels of perceived stress, job satisfaction and interpersonal reactivity).

2.2. Participants

Our study population was comprised of 107 ECEs, whose average age was 37.2, working in childcare centers in two regions of Quebec. Table 1 below presents the characteristics of our study population.

Table 1. Description of the Sample (N = 107).

Socio-demographic characteristics		Eff.	%	\bar{M}	σ	
Gender	Male	3	2.8	-	-	
	Female	104	97.2	-	-	
Family status	Married / In a couple relationship (no child)	14	13.1	-	-	
	Single (no child)	8	7.5	-	-	
	Married / In couple (with children)	72	67.3	-	-	
	Single (with child)	12	11.2	-	-	
Family income (\$CDN)	Less than \$45 000	35	32.71	-	-	
	\$45 000 to \$84 000	38	35.51	-	-	
	More than \$85 000	28	26.17	-	-	
Academic background	Number of years at school	-	-	15.67	2.78	
	Early childhood education training	100	93.5	-	-	
	Last diploma	Certificat (1 year post-sec)	4	3.7	-	-
		DEC (3 years post-sec)	78	72.9	-	-
		University (30 cr. – 1 year)	21	19.6	-	-
		Other	3	2.8	-	-
Work	Experience as an ECE (years)	-	-	12.62	7.25	
	Experience in the actual child care center (years)	-	-	8.86	6.38	
	Number of children in the group	-	-	8.95	2.14	

2.3. Measures

To investigate the ECEs' perceptions of their educational practices related to emotion socialization, we used *The Coping with Children's Negative Emotions Scale - Caregiver Version*. Adapted from Fabes and colleagues' questionnaire (1990), the CCNES - Caregiver Version consisted of 12 hypothetical situations in which preschool children are likely to experience distress or negative affect (e.g. being teased by peers, being nervous about embarrassing him/herself in public). For each situation, the ECEs were asked to indicate how likely (on a seven-point scale from very unlikely to very likely) they would be to react in each of five alternative ways. The five types of responses included the following: minimizing responses, punitive responses, expressive encouragement, emotion-focused reactions and problem-focused reactions (the "distress reaction" scale was not included for psychometric and theoretical reasons). Situations that are specific to the family context were replaced by emotional situations typical of daycare settings (see document).

Other measures were used to assess the ECEs' level of job satisfaction, perceived stress and capacity for empathy, based on the three following questionnaires: *The Special Educator Job Questionnaire* adapted from Abelson (1986) (30 items in 6 Job Satisfaction subscales: Team-work, Authority, Positive Feelings, Management Skills, Working Conditions and Leadership Opportunities – the latter of which was not used in our study for psychometric reasons); *The Perceived Stress Scale* (PSS-14) developed by Cohen and Williamson (1988) (14 items in 2 subscales: Perceived Vulnerability and Perceived Control); and *the Interpersonal Reactivity Index* (IRI) developed by Davis (1980) and adapted by Gillet and colleagues (2013) (28 items in 4 subscales: Perspective Taking, Fantasy, Empathic Concern and Personal Distress). The goal was to examine the influence of these variables on the ECEs' emotion socialization practices.

3. FIRST RESULTS AND DISCUSSION

Table 2 below presents the descriptive results obtained from the ECE’s.

Table 2. General Results.

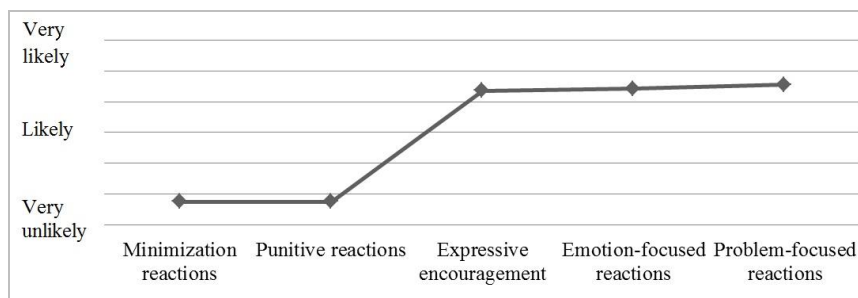
		\bar{M}	σ
CCNES (7-point scale)	Emotion-focused reactions	5.43	0.80
	Problem-focused reactions	5.55	0.67
	Expressive encouragement reactions	5.35	0.94
	Minimization reactions	1.74	0.52
	Punitive reactions	1.74	0.48
Special Educator Job Questionnaire (10-point scale)	Collegiality	7.42	1.39
	Authority and control	7.71	1.52
	Positive feelings	7.80	1.21
	Behavior management skills	6.95	1.22
	Working conditions	5.26	1.52
PSS-14 (5-point scale)	Vulnerability	2.57	0.54
	Perceived lack of control	1.89	0.41
	Perspective taking	5.15	0.81
IRI (7-point scale)	Fantasy	4.54	1.07
	Empathic concern	5.82	0.73
	Personal distress	3.26	0.98

Because our data were ordinal, in order to identify the ECEs’ emotion socialization practices and examine which individual characteristics might influence them, we conducted non-parametric statistical tests such as the Friedman test and the Mann-Whitney and Wilcoxon tests. We also used the Pearson correlation coefficient as a measure of association.

3.1. Self-reported reactions of ECEs to the children’s negative emotions

The results of the CCNES – Caregiver version revealed that, when the ECEs were confronted with children who were expressing negative emotions or distress, they tended to favour certain types of reactions over others ($Q = 323.44$; $p = 0,00$). More specifically, a comparison of the ECEs’ scores for the five categories of possible reactions on the CCNES (Wilcoxon test) revealed that they favoured problem-focused reactions, expressive encouragement and emotion-focused reactions, as clearly seen in Figure 1 below. On the contrary, the ECEs rarely reported using punitive or minimization reactions.

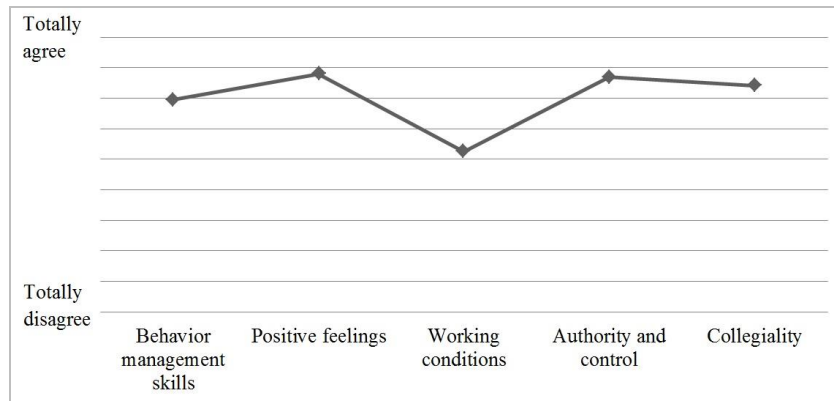
Figure 1. ECEs’ Reactions to the Children’s Negative Emotions/Distress.



3.2. Job satisfaction of ECEs

The ECEs reported a good level of overall job satisfaction. They were happy with their duties and responsibilities and felt positive about their work. They appreciated their level of authority and control and the team they worked with. Lastly, they felt competent in their work. However, they were not totally satisfied with their working conditions (salary, fatigue, pressure). Thus, all analyzes conducted with the Wilcoxon test revealed significant differences between the level of satisfaction with working conditions and that measured by the other scales, namely the Behavior Management Skills ($Z = -7.65$; $p = 0.00$), Positive Feelings ($Z = -8.80$; $p = 0.00$), Authority and Control ($Z = -8.34$; $p = 0.00$) and Collegiality ($Z = -7.96$; $p = 0.00$) scales.

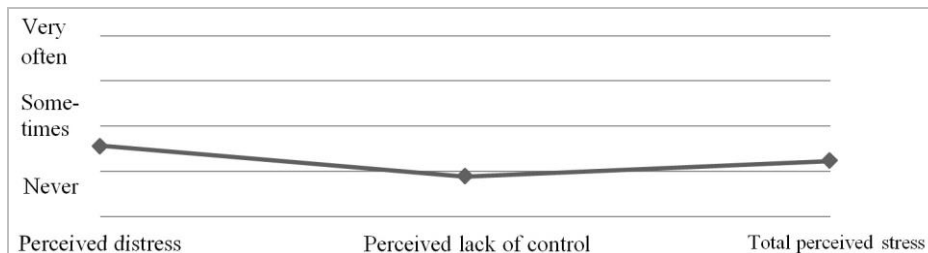
Figure 2. ECEs' Job Satisfaction.



3.3. ECEs' Perceived stress

The results of the PSS-14 revealed that the ECEs reported low levels of stress. Their total raw scores ranged from 16 to 44, and none reached the critical level of 50 defined by Cohen and Williamson (1988). In fact, the ECEs did not perceive themselves as experiencing a high level of distress and felt they were in control of what happened to them most of the time.

Figure 3. ECEs' Perceived Stress.

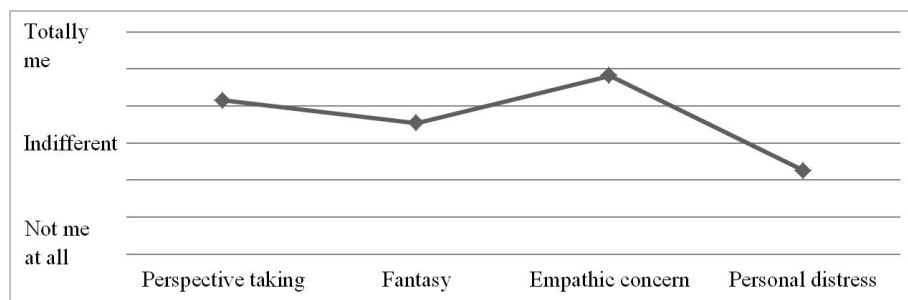


3.4. Educators' Interpersonal reactivity

The results of the IRI indicate that the ECEs saw themselves as empathetic. They reported high levels of empathy, specifically as measured by the Empathic Concern and Perspective Taking subscales, which differed significantly from the two others subscales,

namely, the Fantasy ($Z = -4.61$; $p = 0.00$; $Z = -7.90$; $p = 0.00$) and Personal Distress ($Z = -8.44$; $p = 0.00$; $Z = -8.94$; $p = 0.00$) subscales. Notably, their scores for the Personal Distress subscale (which assesses the tendency to experience discomfort in response to others' emotional distress) were relatively low: the difference with all other subscales, including the Fantasy subscale ($Z = -7.05$; $p = 0.00$), was significant.

Figure 4. ECEs' Interpersonal Reactivity.



3.5. Individual characteristics that might influence ECEs' emotion socialization practices

Several socio-demographic and individual variables were tested to see whether they were associated with different reactions by the ECEs to the children's negative emotions. These variables were: ECEs' educational background, work experience, family status, age of the children in the group the ECEs were responsible for, and number of children in the group. Table 3 below presents the significant results.

Table 3. Influence of Individual Characteristics on ECEs' Reactions to the Children's Negative Emotions/Distress.

		Minimiz. reactions	Punitive reactions	Expressive encourag.	Emotion- focused reactions	Problem- focused reactions
Work experience	Less than 5 years					
	6 to 10 years	-	-	-	13.56*	-
	11 or more years					
Diploma	Certificate					
	DEC	-	-	-	-	-
	University					
Parental status	Child					
	No child	-	-	-	-1.99*	-
Children's age	Under 3					
	3 to 5	-	-	8.04*	-	-
	Multi-age group					
Number of children	Less than 8					
	8 or more	-	-	-	-	-

* $p < 0.05$

Based on the results, work experience appears to have had an influence on the tendency to use emotion-focused reactions. More particularly, ECEs with less than 5 years of experience reported more emotion-focused reactions than more experienced ECEs, with 6 to 10 years of experience ($z = -2.40$; $p < 0.05$) or 11 or more years of experience ($z = -3.74$; $p = 0.00$). It also appears that the ECEs who did not have children of their own tended to report more emotion-focused reactions than those who were parents of one or more children ($z = -1.99$; $p < 0.05$). Lastly, the age of children in the group appears to have influenced the type of reactions reported by the ECEs to children who were experiencing distress. Thus, when the ECEs were responsible for young children, they were more likely to use expressive encouragement, compared to those who were caring for older children ($z = -2.42$; $p < 0.05$) or those responsible for a multi-age group ($z = -2.39$; $p < 0.05$).

3.6. Correlations between ECEs' reactions to the children's negative emotions/distress and their level of job satisfaction, perceived stress and interpersonal reactivity

Table 4 below presents some interesting correlations found between the ECEs' reactions to children's negative emotions or distress and the results of the different subscales of the three other questionnaires, namely, *The Special Educator Job Questionnaire*, the PSS-14 and the IRI.

Table 4. Influence of Individual Characteristics on ECEs' Reactions to the Children's Negative Emotions/Distress.

		Minimiz. reactions	Punitive reactions	Expressive encourag.	Emotion- focused reactions	Problem- focused reactions
Special Educator Job Questionnaire	Collegiality	-	-	0.21*	-	-
	Authority and control	-	-0.19*	0.26**	-	-
	Positive feelings	-	-	0.21*	-	-
	Behavior management skills	-	-	0.27*	-	-
	Working conditions	-	-2.26**	-	-	-
PSS-14	Vulnerability	-	-	-0.27**	-	-
	Perceived lack of control	-	-	-	-	-
IRI	Perspective taking	-	-	0.23*	-	-
	Fantasy	-	-	-	-	-
	Empathic concern	-	-0.28**	0.32**	0.25**	-
	Personal distress	-	-	-	-	-

* $p < 0.05$

** $p < 0.01$

Our results suggest that the greater the extent to which the ECEs reported being satisfied with the quality of team-work (i.e. Collegiality), their level of authority and control and their duties and responsibilities (i.e. Positive feelings), perceived themselves as competent (i.e. Behavior management skills) and as being able to easily adopt another person's perspective or point of view and experience feelings of concern or compassion for others (i.e. Perspective taking and Empathic concern), and experienced a low level of stress (i.e. Perceived vulnerability), the more they reported using expressive encouragement with children who were experiencing negative emotions or distress. Similarly, emotion-focused reactions appeared to be linked with empathic concern. On the other hand, the less the ECEs reported being satisfied with their working conditions and their level of authority and control and the less they perceived themselves as being empathetic toward others, the more they reported using punitive reactions.

4. FUTURE RESEARCH DIRECTIONS

Given that these results only report ECEs' representations rather than their actual practices, caution must be exercised when interpreting them. Indeed, this self-report information needs to be supported by other more direct measures, to confront the data. That is why we are currently conducting observations and interviews with ECEs in order to enhance our understanding of their practices. Crossing data and sources will be essential to provide a more detailed description of the emotion socialization practices used by ECEs in real-life situations.

5. CONCLUSION/DISCUSSION

Although these results should be interpreted with caution, since they refer to the ECEs' representations rather than their actual practices, they nevertheless reveal a degree of sensitivity on the part of the ECEs, who appeared to favor reactions that supported the children and encouraged them to find solutions to the challenges they encountered. By showing interest in the children's emotions and consideration for what the children were experiencing, the ECEs demonstrated qualities that would make them particularly suitable agents of socialization, as emphasized by Denham (1998). Indeed, the reactions they favoured were those that allow children to identify their emotions, validate what they feel, and help them find ways to deal with their emotions (Pollak & Thoits, 1989). Moreover, this means that they appeared to hold attitudes known to be particularly favorable to cognitive and social development (Loeb, Fuller, Kagan, & Carrol, 2004).

Our results also suggest that the working environment is very important and may influence ECEs reactions with children. Thus, it appeared that ECEs are more likely to emphasize the importance for children to express their feelings when the ECEs are in a positive working environment, are happy with their job and are able to understand the children's emotions and experience compassion for them. In contrast, when they are not satisfied with their working conditions and have difficulty feeling compassion, they tend to use more punitive reactions, although this kind of reaction remains minor. Some intrinsic characteristics of ECEs also play an important role, in particular, their empathic skills. Indeed, it appears that the ECEs who are most likely to comfort children and encourage them to express their emotions are those who consider themselves to be particularly able to take into account another person's perspective and perceive themselves to be particularly able to feel compassion for others.

Regarding the children themselves, it was found that while the age of the children in the group played a role, it was not as important as was found to be the case in previous studies, where this variable was shown to have a major effect on ECEs' reactions. For example, Ahn and Stifter (2006) showed that ECEs had different reactions to children's positive and negative emotions based on the children's ages. For instance, while they tended to use physical comforting with toddlers, they used more active emotion socialization strategies with preschool children, involving them to a greater degree in the search for solutions to their negative emotions or distress. They thus supported the children's appropriation of the process of emotion regulation as the children's regulatory abilities developed (Grolnick, Kurowski, McMenemy, Rivkin, & Bridges, 1998). In our study, only the use of expressive encouragement differed according to the age of the children. The ECEs tended to favour this reaction to negative emotions and distress more often with younger children (under 3 years old) than with older children.

Although it would be necessary to examine several other variables in order to better understand the practices used by ECEs, some interesting findings have already emerged from these first analyses. Specifically, the results obtained show that, like parents, the ECEs reported favouring positive reactions to children's negative emotions. If these reactions are backed up by the observational data to be collected in the second part of this study, it will show that, by facilitating the learning of emotion regulation skills and the development of prosocial behaviors among children, ECEs constitute particularly suitable agents of emotion socialization (Denham et al., 2012).

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Chapter 24

EMOTIONAL LITERACY EDUCATION IN A HONG KONG UNIVERSITY Reflection and Proposal

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ABSTRACT

Since the 1970s, emotional literacy has been advocated as a part of the humanistic education project. It is generally agreed that the whole person education should contain what Mayer and Salovey (1997) define as “the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth.” (p. 5). While this set of abilities sounds commonsensical, there is a thriving international popular self-help literature business to indicate that our education system has not addressed the subject adequately. Although there have been quite a number of studies in the Western academia, proposing numerous ways to include emotional literacy in the curriculum, discussion in the Chinese education context has not been as active. Hong Kong has seen a lot of changes in its education system in the recent decades, but emotional literacy has not been an important focus of discussion. 2012 saw the change of university curriculum from 3 to 4 years, meaning that students enter university a year younger, after one public examination instead of two. Educators have noted the general emotional immaturity of the younger freshmen, and their inability to handle problems that come with this new identity. This paper is a reflection on the present educational direction in Hong Kong, and to advocate a more helpful emotional literacy curriculum in the university.

Keywords: emotional literacy, higher education, course development, humanities, student-centered teaching and learning.

1. INTRODUCTION

In the last decade in Hong Kong, new identity-labels have arisen to highlight the emergence of new types of people. Some high achieving school children are referred to as “gao fen di neng” (high-marks-low-ability), because while they demonstrate commendable academic performance, they seem to exhibit rather inadequate survival skills such as self-caring skills, interpersonal skills, and common sense. While scholars are trying to understand the emergence of this new type of school children in Hong Kong, some people refer to the existence of a certain type of parents, labelled as “guai shou jia zhang” (monster parents), who refuse to cooperate with the school authorities, if their own “professional” decisions about their children clash with whatever policies and practices are current in the school. This term is believed to come from a 2009 Japanese TV drama featuring just such type of parents, and is similar in meaning to “helicopter parents” which is the term used in the United States. In a society where proof of good academic training is the sure license to a good job and a relatively stable life, it is no wonder that conscientious parents see the first 20 years of their children’s life as a period of fierce and strategic battle to ensure a good life afterwards.

Surely there are different perceptions as to what a good life means. Economically, to have the means to sustain a reasonably worry-free life is a basic requirement. This is probably the most common view, and the easiest to fulfil – in a way – as many of the monster parents are doing it in their own ways. They plan ahead for their children, move to the best locations to access the best schools, enroll their children in as many extra-curricular courses as possible to equip them with extra skills and talents, and invest in the most advanced technology at home so that their children will not waste time at home not learning. But there are other important requirements besides academic qualification and subsequently economic wealth for a good life. Physical and mental health, emotional fulfilment, a sense of purpose and meaning in life, etc. are the less tangible but significant requirements for a good life. Because of the difficulty to quantify these requirements and ways to satisfy them, they are often not directly addressed in the school curriculum throughout the schooling years.

Daniel Goleman's (1995) book *Emotional Intelligence* brought the topic to the attention of international layman readers, putting emotional intelligence (and emotional literacy, which will be used interchangeably in this paper although there are slight differences between the two indicators) firmly on the map of any discussion of a good life. Although the exact abilities and aptitudes included in emotional intelligence (or literacy) vary with different scholars, it "may be construed as the repertoire of emotional competencies and skills available to an individual at a given point in time, for coping with the environmental demands and constraints" (Matthews, Zneider, & Roberts, 2002, p. 420). Brian Matthews, a veteran school teacher, quotes Steiner to justify having emotional literacy in the school curriculum, "To be emotionally literate is to be able to handle emotions in a way that improves your personal power and improves the quality of life around you. Emotional literacy improves relationships, creates loving possibilities between people, makes co-operative work possible, and facilitates the feeling of community" (Matthews, 2006, p. 69), although many scholars also indicate that as a result of improved emotional literacy, academic performance also improves.

Over the past decades, emotional intelligence has grown from an interest in a potential new intelligence to a research area. Besides the excitement of discovering a potential new intelligence in human beings, the heated discussion around emotional intelligence is also because of the difficulty in its definition. Mayer and Salovey (1997) gave a considered definition of emotional intelligence as:

[T]he ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth (p. 10).

With Mayer and Salovey's definition, emotional intelligence includes four distinct skills of different levels: 1. Perception, appraisal, and expression of emotion; 2. Emotional facilitation of thinking; 3. Understanding and analyzing emotions; employing emotional knowledge; 4. Reflective regulation of emotions to promote emotional and intellectual growth (Mayer & Salovey, 1997, pp. 10-14). These layers of skills describe what an emotionally intelligent person is capable of doing.

But this ability-perspective is not the only way scholars understand emotional intelligence. Some include many personality traits which are generally considered as positive in enhancing interpersonal relationships and even success in career and social life. Mayer, Salovey and Caruso (2008) called these definitions which include these positive

personality traits “mixed models of EI” (p. 504). Some mixed models include personal dispositions which are difficult to measure objectively (unlike abilities), and often are just opinions or personal perceptions. While some personality traits can be seen as the cause of certain emotionally intelligent behavior, they’re not being specific abilities means that there is no objective and systematic means of measuring them, and in turn no reliable methods to train individuals to acquire these skills or abilities.

The problems in defining emotional intelligence have led to even more rigorous discussions. Mayer, Roberts, and Barsade identified three major approaches to emotional intelligence in their 2007 article in the *Annual Review of Psychology*. These three approaches are: “the specific-ability approaches” which concern individual mental capacities important to EI, “the integrative-model approaches” which regard EI as a cohesive, global ability; and a third approach which is the “mixed-model approach” (p. 511). Their article provides a detailed review of these three approaches and how they may or may not help to establish a systematic study of EI which can result in not only better understanding of but also construction of training methods.

Despite the significance many scholars attach to emotional literacy, it is still not a compulsory component found in major school curricular. Brian Matthews discusses the difficulties of having an agreed national curriculum on emotional literacy in UK, and one of such difficulties is the assessment of EL (emotional literacy) of the individual children. Assessment of performance is inevitable for any subjects, but in the case of EL, it poses a risk of putting labels on the individual children. Matthews, Zeidner, and Roberts note the range of programs used in the education and schooling of emotional competencies in their *Emotional Literacies: Science and Myth* (2002), and that they “fall under the general rubric of social and emotional learning programs (SEL) – an umbrella term that provides a common framework for programs with a wide array of specified outcomes. It refers to the knowledge, skills, and competencies that children acquire through social and emotional education, instruction, activities, or promotion efforts” (p. 445). Although these programs have different names and also target at cultivating different skills in the students, they are usually part of other problem-solving skills or survival skills programs; and when the focus is on emotional literacy, often run the risk of being seen as teaching students to feel in a specific “correct” way.

2. BACKGROUND

Compared to the Anglo-American school experiences, the Hong Kong situation is even more primitive in its lack of awareness in the significance of EL education beginning at an early age. Due to the intense competition in schools, even young children are often subject to a lot of pressure in their studies, so much so that UNICEF HK made children’s “Right to Play” the theme of 2013. This contextualizes the special types of parents and students in Hong Kong, the “monster parents” and “gao fen di neng” students. Hong Kong is in great need of school programs which will educate students in EL from an early age. The very emergence of “monster parents” highlights that school children in Hong Kong are not only facing the many challenges or stressors in their attempt to handle school, friends, self-understanding, but their very home can also be a major source of stress. Although in talking about any form of training, the school is normally considered the rightful place to fulfil such needs, in this case of the education of emotions, one would expect the parents to participate strongly because the home is supposed to offer a child the most secure emotional environment. But these “monster parents” do not seem to be reliable trainers to

participate in the education of children's emotions at home. It is therefore left to the official education system to offer the much needed training in the formal curriculum.

The formal education system in Hong Kong is a highly competitive one. Starting from a relatively young age, students are made to be aware of the importance of acquiring good grades so that they can join prestigious secondary schools and ultimately the university. It is therefore understandable that given such a context, formal curriculum will cover "useful" subject areas which will directly benefit students in terms of their performance in public examinations, and external examinations in joining overseas schools or universities. Emotional intelligence is not a component in the formal curriculum and not even an important sector in the gifted education system, which is a special section beyond the regular curriculum. Not only is there no focused interest in developing emotional intelligence training in formal schooling, there are not many studies to evaluate the need for this aspect of education for the young. Chan's (2003) study of gifted students in Hong Kong and their needs in social coping is a much needed but not often seen project type. Indeed, there is an urgent need in Hong Kong to have systematic planning and implementation of educational programmes concerning emotional intelligence across different student sectors. While this is not the place, and I am not in a position to offer any useful suggestion concerning schooling programs for primary (aged 6-12) and secondary (aged 12-17) school students, I would like to propose certain possibilities in the tertiary education sector now that Hong Kong has moved to a 4-year university curriculum. Being a faculty in the Department of Humanities and Creative Writing, Arts Faculty, Hong Kong Baptist University (HKBU), I believe that EL education for university students can be carried out through the "common year" experience and the "electives" component for students in all disciplines.

Since 2012, HKBU has admitted most students by faculty, and the first year is the common year when students have a chance to try the learning experience offered by different departments within the faculty. At the end of the first year, they will declare their major based on their interest and their academic performance. Besides having the freedom to savor different disciplines within the faculty, students are also required to take some General Education (GE) courses in this first year, to ensure a "whole person education" (a vision advocated by HKBU specifically). These courses cover core areas of Languages, IT management, Numeracy, PE, History and Civilization, Values and the Meaning of Life (HKBU website) as well as a choice from distribution areas (Arts, Business, Communication/Visual Arts, Science/Chinese Medicine, Social Sciences). This year of "common" learning experience for all students of HKBU, despite their chosen major, will be a golden opportunity for the introduction of EL courses, which will not only facilitate their learning in their chosen disciplines, but more significantly, in contributing to their "whole-person" development.

On top of that, the Arts Faculty can play a more proactive role in providing EL learning experiences through course development. As Matthews, Zeidner, and Roberts suggest, "children can learn by observing and modeling real, as well as symbolic, and representational models, curriculum based emotional learning comes naturally with many of the liberal arts" (Matthews, Zeidner, & Roberts, 2012, p. 443). I had made use of films in a course entitled "Lifelong Romance with Films" to describe and discuss the human condition at various phases of life – growing up, identity formation, entering the workforce, establishing and maintaining relationships, love and sex, aging, and death – as well as decision-making in the face of different conflicts and situations. In a course dealing with the appreciation and creation of stories, I had made use of a selection of well-known written and visual narratives to elicit personal comments and responses from students on a variety

of issues about human life. As the course engages students in both appreciation and creation, their active participation and contribution is compulsory and natural. From the comments given by the students in the end-of-semester teaching evaluation exercise, it was very clear that they had never had the chance to personally reflect on those issues about human society and life in their learning experience so far. These local students found the opportunity to engage in an honest and intimate discussion about life issues rare and hugely satisfying. It is the best proof that in the lack of any EL programs in our primary and secondary schooling, tertiary education should do its part in bridging the gap.

3. OLD FILMS/STORIES AND ETERNAL SENTIMENTS

One of the films I had used quite successfully in the Humanities classroom was *Sunset Boulevard* (Wilder, 1950), directed by Billy Wilder. Very briefly, the film is the story of Norma Desmond, a bygone silent film superstar, who had retired and hidden herself in her Sunset Boulevard mansion. Unable to accept her own aging and the passing of the silent movie era, she daily dreamed of a return to the silver screen, and had even penned a script for herself – the role of young princess Salome. One day, young scriptwriter Joe drove his car into the mansion garage when trying to evade his creditors. He was invited into the mansion and his profession aroused Norma's interest. She hired him to edit her script, and Joe, having nothing better to do, accepted, thinking that it was the best quick money he could earn.

Their relationship soon develops into something much more complicated than original scriptwriter and editor, and ends with Norma shooting Joe dead at her swimming pool. This famous film was used in my class as a cultural text representing a particular period in Hollywood history, also demonstrating different kinds of languages used in the human community (verbal language, facial expressions, body language, the language of movies, etc.), gender relations and representation, and so on. What is specifically worth noting for us here is the identity of the two main characters and what they represent – silent movie star, and young script writer for sound movies. Norma and Joe embody the differences between facial/body language and our linguistic system; as Norma famously said in the film “[w]e didn't need dialogue, we had faces then”. *These two systems of communicating human emotions can be discussed and evaluated in the classroom by referring to different scenes in the film, and designing different tasks in relation to these scenes for particular teaching and learning purposes. One of my favourite scenes is the first conversation between Joe and Norma, when he recognized her, and said “you used to be big”. What followed is Norma's lamentation of the decline in the movie business due to the introduction of irrelevant and corrupting new techniques. Norma's highly expressive face and her body gestures work in a completely different way in conveying her emotions from the deadpan face and almost monotonal Joe.*

Short in-class tasks could be designed to focus the discussion on how successfully or unsuccessfully these different “languages” convey emotions, the degree of success to a large extent depends on the subsequent development of the story. I feel that this kind of discussion tasks focusing on the expression of emotions can easily become part of the original disciplinary learning experience, and it can further be extended to achieve other learning outcomes such as creating further dialogues (for a creative writing class). This is not the place for a detailed lesson plan but I hope this brief discussion at least demonstrates how emotional literacy can be taught and made into a personal teaching and learning experience for students in the Humanities classroom without sacrificing the original learning outcomes of the discipline. In my class, I have also used episodes from the

American TV series *Lie to Me* (Baum, 2009-2011) which was developed based on some scientific research about micro-expressions. Although the series is entertainment and the stories fictional, the science it refers to is real, and if desired, can be pursued in an academic manner for clarity and accuracy. Using the cultural production *Lie to Me* in class can certainly enhance the learning of how facial expressions convey/hide emotions in a creative and interesting way.

In the same way, filmic or literary narratives can be creatively used for facilitating understanding of the antecedents and consequences of emotions without sacrificing the teaching of the original disciplinary knowledge. In fact, the explanation of what causes different emotions and the consequences of emotions is a core component of film and literary studies. Dorothy Van Ghent in her critique of Jane Austen's *Pride and Prejudice* actually called Elizabeth's reflection and finally understanding of emotions a kind of intelligence. She wrote about the characters,

What will be tested will be their integrity of "feeling" under the crudely threatening social pressures. The moral life, then, will be equated with delicacy and integrity of feeling, and its capacity for growth under adverse conditions. In the person of the chief protagonist, Elizabeth, it really will be equated with intelligence. In this conception of the moral life, Jane Austen shows herself the closest kin to Henry James in the tradition of the English novel; for by James, also, the moral life was located in emotional intelligence, and he too limited himself to observation of its workings in the narrow area of a sophisticated civilization (Van Ghent, 1953, pp. 106-107).

In the case of Elizabeth, she has allowed her feelings about Mr. Darcy to be influenced by her first impressions and also other people's opinions. It is only when she takes the time to replay their various encounters, to reflect on the words and behaviour of Mr. Darcy that she realizes how her emotions come to their being. It is a very well depicted example of how our emotions can be easily manipulated without ourselves realizing it. In fact, before *Pride and Prejudice*, Austen had thought about using "First Impression" as the title of the book, and understanding the power of the first impression is emotional literacy.

Narratives long or short, visual or verbal, can be taught with an awareness to the track of characters' emotions. While *Pride and Prejudice* has a place in the classroom of literary novels, poems and short stories could also become good materials for discussion of the emergence and consequences of emotions. I remember using Kate Chopin's short piece "Story of an Hour" (1894) for different teaching and learning experiences, as it covers such a range of issues such as the gender relations, the working of the human psyche, literary language for representing emotions and psychological status, and the classic pattern of a well written short story. When the scene during which Mrs. Mallard looked out of the window is material for discussing the link between internal emotions and external manifestation, the absent husband makes a good in-class exercise for students to reconstruct emotions based on the known facts in the story. To have the students doing creative writing in the voice of the husband and Mrs. Mallard is a very good exercise to let them trace the development of various emotions between the couple at the specific historical and cultural setting. To follow up, the "what if" exercise gives the students a chance to imagine a different consequence had the characters behaved differently in the course of their life together. This kind of exercise is not only firmly focusing on the teaching of the literary text, but also helping to extend the literary experience to the real life of the students, so that they can understanding the various interpersonal relationships around them by referring to the discussions in class.

4. FUTURE RESEARCH DIRECTIONS

Obviously there is much to be done to cultivate an awareness of the need to properly and formally incorporate emotional literacy in the university curriculum. Ideally, in Hong Kong, where emotional literacy is still not a common subject or focus of learning activities in the primary and secondary classroom, educators should explore the possibility of introducing some elements of teaching and learning which are specifically to cater to the needs of the highly stressed and much pressurized Hong Kong children and teenagers. Before successful implementation, the nature and the extent of this need should be studied. Parker, Summerfeldt, Hogan, and Majeski (2004) study concerning the connection between emotional intelligence and academic success is definitely one type of research that could provide a picture of such correlation in the Hong Kong situation. That will be a task for local educators to take up. In writing this paper and suggesting what could perhaps be done in the higher education, I have benefited from previous researches and studies which have shown a positive connection between emotional intelligence and an overall sense of well-being. Studies such as Nelis, Quoidbach, Mikolajczak, & Hansenne (2009) have also shown that systematic training is possible to lead students to acquire a certain level of abilities in emotional intelligence. Even when Hong Kong students receive training in their primary and secondary education, it still needs to provide continuous learning in this area, because human beings face different challenges and their emotions go through new experiences at different stages of their life. Researchers working in higher education have to continue to seek ways to incorporate emotional literacy training in the formal curriculum. I hope it is not just the Humanities which will take up this task, although it is a suitable field to start with. The best scenario will be when emotional literacy awareness is a fact in all classrooms, across all disciplines. That will mean educators themselves are trained and well-prepared to maintain an emotional literate classroom.

5. CONCLUSION/DISCUSSION

The call for a comprehensive EL education program in Hong Kong to cover the school years is on. For the time being, the universities should do their part when they are admitting younger students than before. The expanded curriculum offers a good opportunity, and the Arts related faculties should also incorporate EL into their discipline-knowledge courses.

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Section 4
Organizational Issues

Chapter 25

REPRODUCTION OF INEQUALITY THROUGH PRIVATE OUT-OF-SCHOOL EDUCATION

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ABSTRACT

This paper aims to explore economic and social implications of educational activities taking place outside formal school education. Parallel to the marketization of all public services, private education has become an essential part of education systems across the world. As an important element of this transformation process, out-of-school education has also become prevalent worldwide. While education has traditionally been perceived as an equalizer in societies with different levels of income levels and social stratification, various forms of outside school learning have been creating opposite effects. Overwhelming scope of central examinations in the education system of Turkey has provided the grounds for the education institutions operating outside school such as private tutoring centers (PTCs), and other preparatory courses. Almost all students attend PTCs at some point during their education, at one level or another, for the hope in attending elite schools and universities. As expected, the ultimate purpose is to achieve a well-paid job and a comfortable position in life. However, only a limited number of PTC goers succeed in entering elite schools and universities as well as in getting well-paid jobs, due to high competition in both university entrance and labor market. This paper argues that, with the diversity it created, and disparity in access among different social classes, outside school education contributes immensely to the reproduction of inequalities in Turkey, and intends to shed light on the complexity of the issue, beyond the framework of economic supply and demand model.

Keywords: Out-of-school education, private tutoring, preparatory courses, social injustice, Turkey.

1. INTRODUCTION

A variety of educational activities, taking place outside school have increased enormously across the world in the last few decades. In some countries, these activities have become so competing with formal education that, a new concept called “shadow education system” has been added into the literature (Stevenson & Baker, 1992). The term was inspired by the research conducted in the beginning of 1990s regarding out-of-school education in Malaysia, Japan and Singapore (Bray, 2010).

Along with Greece, South Korea and Brazil, Turkey makes the top list of countries where a big proportion of school children attends private tutoring centers (PTCs) and/or takes private tutoring lessons. PTCs have become so crucial in the exam preparation that, according to the Turkish Higher Education Strategy Report of 2007, more than 70% of the students attend these centers, while about 17% of them take private tutoring lessons in addition to attending PTCs (Yüksek Öğretim Kurulu [YÖK], 2007, p. 82).

Significant changes have been taking place in Turkey since the 1980s with the implementation of neoliberal politics as in many other corners of the world. Turkey’s education system has been one of the most affected areas in this process, which implies a paradigm shift from public to private not only in education but also all other public

services. Due to the nature of education as a social phenomenon, this shift has also become the source of many other changes in the society. Various forms of “paid education” have become widespread along with many other new consumption trends during this period leading to tremendous stress among children, the youth and their families.

As an important center of attraction in the current phase of capitalism, which needed new capital accumulating areas, education provided a useful ground. *General Agreement on Trade in Services* (GATS) which was signed in 1995 by all the members of the World Trade Organization (WTO) brought about radical changes in the perceptions regarding public services including education systems in those countries. By signing this agreement in 1998, Turkey has accepted the binding rules of GATS, which meant marketization of the public services such as health and education. Following GATS, Ninth Development Plan (Devlet Planlama Teşkilatı, 2006) and the First National Education Strategy Plan of Turkey both of which together cover the period between 2007 and 2014 opened the way to put GATS’ rules into practice (Keskin Demirer, 2012, pp. 54-55).

It is commonly agreed that, education plays an important role in transferring inequalities from generation to generation where quality public education is not prevalent. In Turkey, due to the efforts to establish a public education system since the founding of the Turkish Republic, upward social mobility had been somewhat possible, meaning the children of poor families would have the chance to climb up the socioeconomic scale, thus securing power and status in the society at one level or another. In fact, “[p]rior to 1980, the Ministry of National Education was hostile toward private education of all sorts, which it viewed as an attack on the foundational principles of the republic and the role of education in creating national culture by inculcating the duties of citizenship” (Rutz & Balkan, 2009, p. 5). However, various reflections of general policies along with certain practices within the Turkish education system, especially since the 1990s, have been reversing this process. Today, while lower class parents face the reality of not being able to push their children up the social class scale, middle class parents worry about not being able to retain their class position for their children. Outside school learning along with various practices of privatization within public schools provide substantial examples of this process.

2. METHOD

This paper is based on a study that considers the issues attached to the exams, PTCs and other courses as parts of a wider reality. In other words, social facts related to private outside school education are taken into account from the perspective of political economy, which requires relational analysis of social phenomena. Therefore, the study embraces the critical realist approach, which provides a third way to positivism on one extreme and relativism on the other (Sayer, 2000, pp. 2-3).

The study attempts to provide a socioeconomic and political analysis of outside school education using various data sets such as national statistics and reports made available by Turkish Statistical Institution (TUIK), Ministry of National Education (MEB), and Higher Education Council (YÖK) as well as other resources. In addition, individual experiences of people, who involved in out-of-school education, are taken into account as valuable resources of information and knowledge through semi-structured and informal interviews carried out in an extended period of time. The researcher’s own experience as participant observation is also, inevitably, included in the analysis, since the issue under investigation touches upon every single life in the country including the author herself.

3. BACKGROUND

3.1. National Education

Education has been considered among the most important factors in the nation building process of Turkey, thus the right to education has been in the Constitution since the founding of the Turkish Republic as one of the basic principles. According to the latest constitution which came out in 1982, “[n]o one can be deprived of the right to education... The state provides support for successful students who do not have the necessary resources to continue their education through scholarships and other ways” (Article 42) according to Law No. 2709, November 7, 1982. In addition, the principal of “universality and equality” is considered to be the primary principal among the *Basic Principles of National Education* that are listed in the *Basic Law of National Education*. The same law claims that, “the service of national education is organized according to the demands and skills of the Turkish citizens and the needs of the Turkish society and individuals are directed to relevant programs or schools and trained parallel with their interest, capability and ability (Law No. 1739 of June 14, 1973; Article 5 and 6). The law has been expanded in 1997 to increase the state’s responsibility in organizing the education system to lead the students in such a way.

The basic principles of national education mentioned above have become almost totally irrelevant today due to radical changes in politics of education and in other related areas. Parallel with the general political environment of the post-1980, politics of education have been dominated by the gradual withdrawal of the state from education and providing new opportunities for the private sector. Education has become individualized and marketized in various forms during this process. As a result, principles of national education such as “primary education is free in public schools” and “everyone is provided with equal opportunity and possibility” became invalid. Similarly, neither “public service of national education is organized according to the demands and capabilities of the Turkish citizens and the needs of the Turkish society” nor “individuals are directed to relevant programs or schools and trained parallel with their interest, capability and ability”. Opposite practices of these principles became reality at various levels in both public and out-of-school education systems of Turkey. The state schools are no longer free of charge in the real sense because of ever-increasing expenses that parents have to face. In parallel with this, individuals’ change to continue their education does not depend on their interest, capability and ability, but on their economic resources.

3.2. Outside School Education

Outside school education has become prevalent under such circumstances. Private tutoring have been available in both Ottoman and Turkish history for a long time as supplementary education mainly for the Elite. However, PTCs, called *dershane* in Turkish, had been available only for a limited part of the population, until the 1990s, because they were opened only in cities, serving students mostly coming from urban, somewhat middle-upper middle class families. For example, the number of PTCs was only in 100s in the 1970s, and 1980s (157 and 174 respectively). However, these centers became available for lower income families after the 1990s, reaching over 1.000s by the mid-1990s, and then 2000s in the 2.000s. Today the number of PTCs reaches over 4.000, with about 50.000 teachers and 1.5 million students (Milli Eğitim Bakanlığı [MEB], 2014).

There are three basic types of private tutoring in terms of outside school learning in Turkey. The first one is the oldest form of one-to-one tutoring that takes place either in the tutor’s or the student’s home, involving only one tutor and one student. However, as outside

school learning became prevalent, various types of this form have been invented, such as tutoring more than one student at the same time (group tutoring), which would cost less to each student. This type of private tutoring would take place in the teacher's home or more commonly at a *private tutoring office* or a *study center* each of which constitutes an additional form of PTCs other than *dershanes*. Those centers are smaller in scale as opposed to *dershanes*, and are not subject to the liabilities of regular PTCs. In fact, their existence is somewhat vague; for example, private tutoring offices are usually opened as publication houses but function as small-scale PTCs usually involving one or a few teachers and subjects.

There is no official data available regarding the size of one-to-one private tutoring, however; some studies give an idea. According to a study, which was carried out on higher education students, the proportion of those who have only attended regular PTCs was 71.8%, while the proportion of those who attended a PTC and took private tutoring lessons additionally was 16.5% (YÖK, 2007, p. 82).

The second form of outside school education takes place in public schools on weekends (especially in primary schools), where students receive lessons in a regular classroom in return for extra payment to the school/teacher.

Dershane has been the most prevalent form of outside school education, which is defined as "a private institution that provides lessons to students outside the school" in the dictionary of the Turkish Language Association. Those PTCs prepare students for the exams to enter higher education and open education, as well as special, private and elite schools in primary and secondary levels.

The competition among PTCs ascended as the number of PTCs increased from the 1990s onward. As a result, many PTCs would close doors or change hands every year while new ones enter the market. For example, the number of closing PTCs came close to the number of new PTCs in 2006-2007 education year, 276 and 236 respectively (Türk Eğitim Derneği [TED], 2010, p. 26).

Increasing demand and competition led to new types of PTCs such as *boutique dershane* implying "small is better" concept which added new investors to the market. At the same time, the sector leaders increased their shares in the market through "diversification of products" to attract "clients" from different income levels thus investing in boutique PTCs, VIP PTCs, where the classes are consisted of a limited number of students, and/or the teachers are available for one-to-one tutoring.

In addition to the PTCs and such which prepare students for the exams in order to enter elite schools and universities, another type of outside school institution has also become prevalent in the last decade. These courses prepare graduates for various other exams in order to be appointed to certain public positions as well as acquiring particular certificates. These institutions had traditionally functioned in the areas of individual development and pastime activities such as music and art courses or increasing the employability of job seekers such as language and computer courses. However, the size and the content of these so called "various courses" have changed in recent years. The number of these courses increased over 4.000 by the end of 2000s from around 2.000 in the first half of the decade. These courses can be opened within a PTC or independently as long as they obtain the necessary license to operate.

Another important result of the increasing demand and competition in the PTC sector is the informal courses which reached 1500 in number and 600-750 million Turkish lira in revenues in 2011 according to the Association of Private Education Courses, PTCs and Private Study Centers. The association claims that these courses, opened by municipalities

and non-governmental foundations, operate wrongfully and cause unfair competition (Özel Öğretim Kurslar, Dershaneler ve Etüt Eğitim Merkezleri Birliği Derneği [OZ-KUR-DER], 2011).

4. THEORY AND DISCUSSION

4.1. Education as a Commodity

Once associated only with the high classes and elites, spending for outside school learning has become ordinary and legitimate as a result of marketization and individualization of educational practices even though education is still largely provided by the state in Turkey as in many other countries in the world. While employment opportunities fall behind the high number of young people within a large population, education gains more importance in terms of job opportunities and future life chances.

Parallel with the high size of the general population, the number of students in primary and secondary education have been over 15 million since 2010 reaching 16,5 million in 2014 (MEB, 2014). This means an attractive investment potential for the private sector even if most of these students come from low-income families. In fact, considering the importance of education in future life chances, and the competitive labor market, low-income families have also been spending on out-of-school education, since the sector has been offering varieties of PTCs for different income levels thus incorporating every segment of the society into the process. This creates a huge sector of outside school paid education utilizing all sections of society through various forms of products and prices. However, opposed to common claims, variety in products leads to different outcomes for the receivers of these products. Therefore, outside school education is not only the shadow of the formal education system but also a reflection of its inequalities, even in a more profound way. In other words, outside school education system becomes another realm to reflect and reproduce different levels of welfare and inequalities in the society. While the number of students who attend PTCs increases, educational expenses per student vary significantly. While some students benefit long term private tutoring at relatively better PTCs and take one to one tutoring additionally, the majority attend less expensive, crowded PTCs for short terms. Similarly, while first group of the students benefit from relatively well-paid and experienced teachers, the students of the second group are usually exposed to lowest paid and least experienced teachers. At the end, all of these students have to take the same exams, whether preparing for high schools or universities, in which case one cannot expect the same outcome from the two groups. Therefore, the gap between the children of families who can afford to spend more and those who have limited resources widens while climbing the educational ladders.

4.2. Exams in Creating (In)equality

Studies, which investigate the correlation between inequalities at the national level and using out-of-school education, reveal that children's participation in outside school learning goes up, as the inequalities at the national level increase. As the success becomes hard to achieve in a competitive environment, the use of out-of-school education becomes prevalent which reflects and/or supports inequalities in education (Silova, Budiene, & Bray, 2006; Southgate, 2009).

Competitive exams at all levels of the education system, starting from the primary school are the basic reason for the existence of outside school learning, at least at the practical level. However, these exams are almost ignored in the school system. Therefore, families are forced to spend on out-of-school education to keep up with the exams, making

it the biggest expense item on their household list of expenses. According to a survey, conducted by TUIK, one third (32.85%) of the total educational expenses were made by households in 2002. The ratio of private educational expenses to the GDP was 2.5% in the same year almost double the OECD average (1.3%). Furthermore, the amount of private expenses allocated from the GDP of Turkey is more than those of the countries such as the US and the UK (Türkiye İstatistik Kurumu [TUIK], 2006, p. 148).

Another study, which aimed to find out whether private tutoring is beneficial, and how it affects equality in education and income mobility between generations, supports the argument mentioned above. The study used the results of a survey conducted by the Turkish Higher Council of Education in 2002 with the 10% of 1.2 million students who took the university entrance exam. The study's sample was consisted of 90.410 students who took the exam for the first time. Entering into a university was regarded as a measure of success in the study which found out that, relatively less expensive and short-term private tutoring did not have any impact on success in the best case scenario, while it decreased the chance to enter into a university in the worst case. On the other hand, the minority of students who can purchase relatively more expensive private tutoring in a more intensive way increase their chances of entering universities (Gurun & Millimet, 2008, p. 10). As this study shows, families with high income level and resources provide their children with more quality/expensive private tutoring for a longer time, and get ahead in the race. However, parallel to their limited resources, the majority of families use out-of-school learning in the later time of their children's education, usually as the exam times approach. In other words, only long term, high amount expenses in shadow education seem pay back, while all sections of society invest in this paid education parallel to their resources.

Educational indicators put forward by international studies prove that exam and test oriented education in general and common use of out-of-school education in particular does not result in success among Turkish students. Combining regular school and outside school hours together, students in Turkey seem to spend too much time for education. However, high quantity does not seem to bring quality, as international indicators show. Students from Turkey fall well behind international, European Union (EU) and OECD averages as shown in Trends in International Mathematics and Science Study (TIMMS) in 1999 and 2007, Progress in International Reading Literacy Study (PIRLS) in 2001, as well as in OECD's Program for International Student Assessment (PISA) in 2003, 2006, 2009 and 2012 (MEB, 2003a; MEB, 2003b; MEB, 2005; MEB, 2010a; MEB, 2010b; MEB, 2011; MEB, 2013).

New types of PTCs with fancy names and more to offer are obviously chosen by families with higher income levels and resources since these upscale PTCs charge up to ten times more than a regular PTC. This type of stratification in private tutoring increases inequalities in education and helps create more elitism in the society through education. In other words, out-of-school education deepens class differences and supports the reproduction of inequalities.

These inequalities are experienced even in the area of scholarships provided by PTCs. According to the study conducted by the Turkish Education Association, during the 11th and 12th grades when PTCs are used most intensively, successful students who attend PTCs free of charge are those mostly coming from high-income households. Fourteen percent of students coming from the highest income households (with the monthly income of over 5.000 Turkish Lira) benefit from PTCs without any payment while lower income households (with the income level of under 2.000 Turkish Lira) are provided with the same benefit on an average of 7%. The same study reveals that, higher income households

benefit more from PTC discounts as opposed to lower income households (TED, 2010, p. 245). This means, higher income families do not only provide their children with more quality and long term private tutoring but also pay relatively less for what they purchase. In other words, part of PTC expenses of higher income level families is financed by lower income groups of the society who can afford only less quality outside school learning for a short time thus not being able to benefit from it in the real sense.

4.3. The Role of Family Capitals

A number of studies show that, private tutoring expenses increase parallel to the levels of education and income of the families (Kim & Lee, 2004; Smyth, 2008). The Turkish case proves this argument. Tansel and Bircan (2004) found out that 73% of private education expenses were made by the wealthiest 20% of the Turkish society in 2002. According to the same survey mentioned above, 39% of young people between the ages of 18 and 24, who left the education system early, stated that they left the school due to economic reasons. Adding another 4% who claimed that they left the school to enter the workforce, a significant percentage of young people leave school for economic reasons (TUIK, 2006, p. 148).

Various ways of parents' involvement in their children's education can support their success. Sociologist Coleman mentions three types of capitals in terms of the impact of families on children's education. Financial capital reflects the level of wealth and income of the family, while human capital represents the education of parents. On the other hand, he also uses social capital in terms of the adults' involvement and support for the children within family. Additionally, he also draws attention to the social capital outside the family, which consists of social networks among parents, and parents' relations to the institutions within these networks (Coleman, 1988, p. 113).

Criticizing Coleman's neoclassical use of the concept, French sociologist Bourdieu draws attention to the exploitative character of social capital within economic capital (Fine, 2001, pp. 137-157). Bourdieu considers capital as accumulated labor in its materialized form or its 'incorporated' embodied form, while he believes that social world is accumulated history (Bourdieu, 1986, p. 241). Bourdieu emphasizes the relations between economic, social and cultural capitals. From his perspective, cultural capital supplements the wealth of a class or class fraction thus helping the social reproduction of class, power and status. To put it differently, cultural capital that one obtains is reproduced by economic capital and then turns into social capital which would lead to more economic capital all of which transfer from parents to children or from generation to generation.

Considering different approaches, the theories of forms of capital provide useful tools to understand the relations of education and its social reflections in the Turkish society especially for the last few decades. Along with economic capital, the impact of social capital in the area of education has been increasing in Turkey, especially due to the growing number of private schools. Social networks that are established around these private schools are much different than the traditional "school-family union" of public schools where teachers and parents would get together every once in a while to discuss general performance and manners of students. By the formation and growing number of private schools, parents, usually the mothers, who send their children to the same private school, would establish social networks, through which they organize all sorts of educational and social activities. Along with deciding what PTC they would send their children, which teacher they would hire for one-to-one tutoring, and what kind of study programs they should follow for certain exams, they also organize social activities for children such as going on vacations together. Each of these activities whether it is educational or social,

would usually have positive impact on the success of children. In other words, those parents and their children benefit from additional advantages of social networks, which support the social reproduction mechanism of education in the out-of-school education system as well as the formal one.

5. CONCLUSION

Outside school paid education supports upper classes more than lower ones even though the impression given to the masses claims equality in access. In addition, since upper class families are involved more actively in their children's education, they are more familiar with the language and culture of outside school learning as well as exams thus providing them with class advantage in educational attainment. Social networks become quite useful in this process.

Out-of-school education along with privatization of expenses in the public education system provides a mechanism in legitimization of paid education making it an individual matter as opposed to a social issue. Thus, education transforms into a commodity that serves individual interests rather than social ones.

The state becomes one of the leading actors in this process, by providing the ideological ground as well as the necessary legal and physical conditions. While they are presented as part of the equality rhetoric, exams function as a tool to legitimize competition. Furthermore, this competition culture is not limited to students or to education, as teachers and parents become part of it in various ways. Combining a high number of students with their parents, the majority of the population lives in this culture at any given time in Turkey.

Inequalities in education have been in the social and political agenda for a long time, and it most certainly will be so in the future, as well. Across the world, public education has historically been thought as a political tool in reducing inequalities. In this context, it is usually believed that, making public education prevalent would mean reducing the inequalities even if not removing them completely. Turkey has experienced such periods, when education was made accessible for lower classes other than the elite, and there were no selective entrance exams. However, this function of education is increasingly becoming ineffective due to the current practices in the education system and within its shadow. In fact, outside school paid education has been providing a suitable ground for this discussion. Even though it has become widespread, it did not lead to the prevalence of success in exams, and thus improving positions in life afterwards for the majority of people. In this context, ever-growing examples prove that success in education depends on financial resources first and then social networks, which are established through the help of these resources. In this context, along with formal education systems, out-of-school education provides another significant ground to strengthen these relations and thus the reproduction of inequalities in the neoliberal phase of capitalism.

Closing down PTCs: What would that mean?

A new development that took place while writing this paper has to be mentioned before concluding. The governing Justice and Development Party in Turkey, which has been holding the power since 2002, changed the Private Education Law recently in order to close down all PTCs. According to this change in the law, all PTCs should be either apply to the Ministry of National Education in order to transform themselves into another type of private education institution such as a private pre-school, primary school or high school or be prepared for the invalidation of their license. The Ministry will accept the applications

for the transformation until September 2015. Those that are found suitable for the transformation according to certain conditions will be added to the transformation program. Then these institutions are expected to complete the specified terms and conditions by the end of the 2018-2019 education year in order to function as a private school. The government will provide incentives for the PTCs that are transforming themselves into private schools.

There have been numerous discussions about this change in the law. Even those who had been critical about the existence of PTCs have been criticizing this change in the law including the author of this article for one basic reason that it is not a permanent solution to a problem that is rooted in the education system rather a temporary make up led by a current conflict between certain political/economic interest groups¹. As mentioned above, the importance that has been historically ascribed to education for future job possibilities in particular and better life chances in general, along with competitive labor market and high unemployment rates will stay in the picture. Thus the race for the better schools and universities and related competitive exams will continue to dominate the scene which will lead to the creation of other kinds of outside school institutions, while the former types will take new forms that would somewhat fit to the new law. There will be at least some kind of private tutoring whether in its institutional or individual forms. Besides, profit-seeking establishments, regardless of their area of investment would always find ways to go around the laws as they have always done. In fact, the government might even make it easy for them once the political conflict is removed and pressures from different sides become insistent. In the end, the change in progress does not seem to be a real positive change for the education system in general and for students and their families in particular. Parents will continue to spend money for out-of-formal school education in one form or another, thus the shadow will survive. The change is only about adapting to the new rules of the old system, while confusion remains among students and parents as well as educators.

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¹ It is commonly agreed that the new law to close down PTCs is the result of a recent political clash between two former allies, the governing Justice and development Party (JDP) and Fethullah Gülen's Islamic Movement. The law is considered to be a part of a revenge plan to impair The Gülen Movement that has a considerable number of PTCs as well as private schools.

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Chapter 26

FOUR-DIMENSIONAL MODELING: A TOOL FOR IMPLEMENTING THE ARTS EDUCATION ACT IN MUSIC EDUCATION AT A SCHOOL IN TAIWAN

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ABSTRACT

In this paper, the merits of using Cooper, Fusarelli, and Randall's (2004) four-dimensional model as a tool for evaluating policy making when implementing the educational policies for arts education in Taiwan are explored. In 1997, the Arts Education Act directed the Ministry of Education (2000) to implement teaching art theory and techniques at schools, carry out artistic research and creation, and cultivate a diverse group of arts professionals. The reauthorization of the Act in 2000 as the Arts Education Act of 2000 (AEA) mandated that the aptitudes and strengths of gifted students be taken into account and follow the model of the Special Education Project (Ministry of Education, Taiwan, 2013). The evaluation methodology outlined by Cooper et al. (2004) is structured into a four-dimensional framework, namely, normative, structural, constitutive, and technical, and applied to the policy implementation process. The purpose is to show how the model can be applied to evaluate the implementation of policy using the case of implementing the Arts Education Law at the Tainan University of Technology, Taiwan. Each dimension is applied to analyze the implementation of the AEA policies at the TUT, and in particular, in music education. Application of the model is shown to be beneficial in so much as it provides a means for reflecting on policy implementation and a language through which educational policy in the arts might be constructively developed.

Keywords: educational policy, integrative change, policy analysis.

1. INTRODUCTION

Education in the arts is at the core of developing a knowledge economy for the Arts Education Act (AEA) of 2000. The AEA outlines a vision for how arts education might transform the cultural arts industry. The rationale for the Act is based on claims that current arts education practices in Taiwan lack the capacity to support the changes required to raise the standards of teaching materials and methods that would yield increased effectiveness and efficiency. The AEA explains that effective implementations of policy are central to the demands of arts training courses and will be even more necessary with the advent of globalization. The AEA asserts that the elements that constitute effective training formats can be divided into professional arts education offered at schools, general arts education offered at schools, and arts education training offered to the public.

Many changes to music education programs and practices have occurred in response to the various policies promoted by the AEA (Kos, 2010). Kos (2010) noted that scholars in music education such as Hope (2004) and Jones (2008, 2009) have called for increased attention to policy studies. Policies can be useful tools for effecting change (Morse & Struyk, 2006), but policy analysis, which shapes and informs policy recommendations, has not yet been widely employed by music education scholars who have called for widespread changes to curricular content and pedagogical approaches.

One of the most notable changes to music education programs and practices has been to the quality of music programs in academically selective contexts and the perceptions of students regarding their levels of challenge and engagement in classroom music lessons (Clarke & Rowley, 2008). In 1997, the Arts Education Act, reauthorized in 2000 as the AEA, directed the Ministry of Education in Taiwan to implement teaching art theory and techniques at schools, carry out artistic research and creation, and cultivate a diverse group of arts professionals. In addition, the AEA authorized the Ministry of Education to provide states with financial assistance in their education programs and designated academically selective contexts to support the learning needs of students with appropriate guidance and stimulation (Betts & Neihart, 1988; Gross, 2000).

The policies for music education in the national curriculum until 2000 were based on the Arts Education Law from 1997. Policy amendments in 2000 encouraged significant changes in special education support systems to include its effect on students and involved implementing a single-track educational system after receiving approval from the required administrative authority for arts education (Chang, 2006). The AEA allows schools to provide special classes for students with artistic talents or inclinations, such as arts, music, and dance. Providing special classes for gifted children, however, raises issues with respect to curriculum and assessment, or the setting of standards. The basic elements of music – harmony, melody, rhythm, and tone quality or timbre – ensure music appreciation as a question of personal taste, so evaluation of a work of music lends itself to subjectivity and challenges the attempt to set standards. In the setting of standards, it is important to the quality of music programs that personal opinions not interfere with the decisions of educational experts working within the school system to construct educational policy (Betts & Neihart, 1988). Furthermore, it is critical that the quality and effectiveness of music teaching and learning experiences maintain alignment with the appropriate music programs and the quality of music programs intended by the AEA.

The demand that new policies be implemented and challenges with respect to setting objective standards in arts education provided an opportunity to explore the usefulness of Cooper, Fusarelli, and Randall's (2004) four-dimensional model for policy change as a tool for evaluating policy making when implementing educational policies for music education at the Tainan University of Technology (TUT) in Taiwan.

2. STATEMENT OF THE PROBLEM

The problem motivating the need to reflect on policy making and the application of Cooper et al.'s (2004) model is that existing "school music programs do not prepare students to engage musically in today's society" (Kos, 2010, p. 98), a policy required by the AEA of 2000. In the USA, concerns have been expressed about the lack of higher education music education programs and practices in response policies, for example, the Goals 2000: Educate America Act of 1994 (Ohanian, 2000) and the No Child Left Behind Act of 2001 (Elpus, 2014). These policies clarify state laws governing graduation requirements and local school authorities' decisions about school curriculum (Kos, 2010). In Taiwan, the emphasis of the legislation is on locating arts education in national concerns, which suggests that existing teaching strategies and curriculum, arts education powers, and life aesthetics will need to be integrated into the fullness of and arts education as per governmental policy.

The specific problem in Taiwan is that little attention has been paid to the social context of music and music education. Music education does not reflect the needs and cultures of music students and their communities. The lack of musical skills and knowledge

within communities illustrates a dearth of people in Taiwanese society that produce and consume music because they are unable to relate to music. This integrated research approach will involve applying Cooper et al.'s model to music education at the TUT in order to examine the usefulness of the model for evaluating the policy making process.

3. PURPOSE OF STUDY

The four dimensions of policy theory outlined by Cooper et al. (2004) is applied as a conceptual framework to assess the implementation of the Arts Education Law in professional arts education, and more particularly, music education, at the Tainan university of Technology in Taiwan. In the course of assessing practices, including curriculum and instruction, the need for evaluating the techniques applied to improve educational effectiveness was emphasized. The goal of the policy-making evaluation was to synthesize accountability trends, support curriculum integration needs, and make policy evaluation possible, thereby promoting the goal of improving cultural standards in Arts Special Education. The goal of this paper is to assess the merits of applying Cooper et al.'s (2004) four-dimensional tool for evaluating policy making to the policy implementation of the demands of the AEA.

4. IMPLICATIONS OF THE ARTS EDUCATION ACT

Special education programs are available for individuals with learning or other disabilities and for children demonstrating strong abilities in mathematics or the sciences, as well as for talented students who excel in the fine arts, performing arts, or sports (Executive Yuan, 2014). Education policy is shifting toward recognition of abilities beyond traditional academic gifts in Taiwan (Gao, 2010). The TUT provides arts education programs, which are now divided into the three disciplines of music, dance and fine art. This philosophy is supported by the AEA of 2000, which allows schools to provide special classes for students with artistic talents or inclinations. In the past, schools could choose to allocate dedicated classes to these students or educate them separately within regular classes. Recent revisions to the Act, however, specify that elementary and junior high schools can no longer offer dedicated special classes to gifted students. This could allow schools to form classes grouping fine art, drama, dance or music students and receive funding for the classes. It is very important for art students to spend time together with their peers as part of their training. Music is not just about playing alone, but also about playing with other musicians.

These provisions are important underpinnings for the AEA. The AEA does not mandate that all students with artistic talents or inclinations not be educated in general education classrooms, but the law does presume that as educational needs require, universities, colleges, junior colleges, and senior high schools for arts education implement a single-track educational system after receiving approval from the designated administrative authority for arts education.

5. CONCEPTUAL FRAMEWORK

Policymaking is not entirely a bureaucratic add-on. In their book *Better Policies, Better Schools*, Cooper et al. (2004) asserted as follows:

Systems of and approaches to educational governance will always remain topics of controversy and contention for two basic reasons. First, too much is at stake with educational decisions in terms of individual development, socialization, and societal norms. Second, the nature of education in both its content and access is inherently political and permeated with fundamental values (p. 157).

Drawing attention to the importance of integrating learning through an Arts Special Education program is not a new. Eisner (1985) claimed John Dewey (1859-1952) mentioned how curriculum should be “interconnected and interdependent” (Kieffer, 1997, p. 14). It makes sense to use Cooper et al.’s (2004) four dimensions (the normative, structural, constitutive, and technical) of policy theory as a conceptual framework to evaluate the curriculum integration process of the Arts Special Education program in Taiwan. While the professional arts education offered by the TUT’s seven-year program (established in 2001) for music students reflects only one community of students from high school who moved directly to a bachelor’s degree for academically and artistically talented musicians among 91 higher technological and vocational education institutions in Taiwan, it is anticipated that using the TUT as a case study and applying the designated conceptual framework to its policy decisions would make an important contribution to curriculum integration for Arts Special Education. The analysis is a pragmatic approach and means for providing feedback about the evaluation of policy making for arts special education programs in a particular context.

6. HISTORY OF ARTS SPECIAL EDUCATION POLICY

Art represents humanity’s dreams, traditions, and cultures. Ansalone (2004) asserted, “Education has always held the promise of upward social mobility, economic stability and equality” (p. 37). There are a number of issues related to the policies and practices of arts special education for art, music, and dance students in Taiwan. One issue is “the perceived incompatibility of equality and excellence in a climate of competition for limited financial resources” (Frydenberg & O’Mullane, 2000, p. 78). Ideally, the needs of gifted art, music, and dance students can be accommodated within the usual formal institutional provisions of the school system, and there is no need to form a separate special program for gifted students. In a holistic educational learning practice, an interdisciplinary curriculum should be allowed and encouraged (Browning, 1994). Kieffer (1997), for example, specifically advocated such an “interconnected and interdependent” system (p. 6).

Contemporary implementation policies in music education must be understood in the context of the history of music education in Taiwan. According to Tchen (1998), the Minister of Cultural Affairs, Taiwan’s music education development can be divided into five stages. During Stage 1, from 1624-1661, the Netherlands and Spain occupied Taiwan. They established churches and schools. Their missionaries used the Christian gospel to teach sacred music to the native peoples. Koxinga (a great Chinese general) defeated the Dutch and claimed Taiwan in 1662 (Tchen, 2002); he had a closed cultural policy, thus excluding Western arts and music. Consequently, all contact with Western culture was broken off. At this stage, Western music as an intentional channel to enrich Taiwanese civilization was curtailed.

In Stage 2, from 1860-1895, after the signing of the Treaties of Tianjin in 1858 by the Chin Dynasty (Tchen, 2002), Western music was allowed in Taiwan for the second time. The Christian Presbyterian missionaries from England and Canada established Presbyterian Churches in Tainan and Danshui and had their own schools. They taught a music

curriculum, using music to bridge the language barrier. Music education was developed systematically by means of these schools' music curriculum and through active missionary work. This created a love of Western music in the hearts of Taiwanese citizens.

In Stage 3, from 1895-1945, after signing the Shimonoseki Treaty, China ceded Taiwan to Japan in 1895 (Tchen, 2002). Japan selected a Western education system of elementary and secondary schools. An institute for teachers' education was set up, and a music curriculum established. Japan, as the ruler of China and Taiwan, actively set in action the new music curriculum. This provided a solid basis for Taiwan's future music education.

In Stage 4, from 1945-1987, Taiwan separated from Japan as its colonial ruler. The Kuo-Ming Tang (KMT) government retreated from mainland China to Taiwan and promoted its former educational system and school system, establishing a music department in higher education and an enlarged music curriculum in secondary schools. At this stage, some changes were made, such as music teachers coming from various genres who tended to promote their own cultural and artistic awareness. During this time, there was, in a normative dimensional sense, a change: Music education became more respectable, even prestigious, and at the same time, more exclusive and even slightly elitist.

In Stage 5, 1987 to date, arts education advocates have attempted to integrate dignity culture into the general public culture, with an emphasis on diversification (Taiwan Ministry of Education, 2005). Currently, Arts education's form is not only focused on developing student's creativity, but also emphasizes artistic cultivation that can be combined with students' life interests and social development. This form of music education reflects cultural trends, which can promote students' environmental sensitivity. The current system involves three key elements. The first element is education for curriculum design (Kieffer, 1997), which reflects constructivist-type multiple learning relationships. Second is education for collaborative performances (Kieffer, 1997), which combines the efforts of different departments, such as music and dance, which were formerly separate and competitive. Finally is education that includes cross training, such as giving dancers better and more in-depth grounding in musical basics, such as history and classical music theory.

7. ASSESSMENT PROGRAMS FOR ARTS SPECIAL EDUCATION LEARNERS

Cole (1990) claimed just two concepts constituting academic achievement, namely, higher order skills and advanced knowledge, are inadequate in helping educators think about learning and concluded that educators need to formulate an alternative conception that integrates divergent views of achievement. Integrating divergent views of achievement carries clear instructional implications and emphasizes the need to focus on long-term educational goals (Cunningham & Cordeiro, 2003). In Taiwan, under the Arts Education Law of 1997, programs that provided professional instruction to gifted learners were expected to stay within their specialties. The concerns rose ranged from recognition of and assistance to students with gifts in areas other than traditional academic subjects to how the focus on long-term goals might or should affect music practices in schools. The facilities, class sizes, criteria for teachers, number of personnel to support, and curriculum designs involved using coordinated and standardized assessment procedures to ensure accountability of the programs (Taiwan Ministry of Education, 2005). This policy was to be reviewed annually for progress in the field of arts special education instruction with respect to accomplishing educational goals and meeting the requirements.

7.1. Normative Dimension

The first research question (RQ1) encourages stakeholders to focus on the normative dimension of music education and refers to the integration of decentralized (local interests) curriculum and normative standards (McNeil, 1988). It involves a delicate balance of decentralized (local interests) curriculum and centralized control and authority, in terms of “national and state goals, standards, and national tests” (Cooper et al., 2004, p. 161). The Arts Education Law of 1997 was designed to “set standards, align the curriculum, and assess the result” (Ministry of Culture, Taiwan, 2013). It is essential that assessment achieve the following:

1. Require the student to “engage and empower other domains of knowledge” (Hanna, 1992, p. 602, as cited in Kieffer, 1997, p. 28);
2. Ask students to “work together toward a common goal or vision” (Kieffer, 1997, p. 28); and
3. Involve students in learning concepts or principles related to the learning process.

7.2. Structural Dimension

The second research question (RQ2) encourages stakeholders to consider the structural dimension, or the extent to which teaching music enables students to achieve self-growth and self-knowledge and includes the unique emotional experience of musical enjoyment. The structural dimension refers to the formation of “increasing student achievement” (Cooper et al., 2004, p. 199). Cooper et al. (2004) cited Sunderman (2001), who examined how federal accountability mandates affect the design and implementation of Title I programs and how accountability requires credible assessment tasks. An assessment for structure is designed to achieve the following:

1. Enrich curriculum within the mainstream classroom (either individual or group-based) as the most prevalent option (Frydenberg & O’Mullane, 2000, p. 79);
2. Not rely on secret test items and performance standards and one-shot tests (Cunningham & Cordeiro, 2003, p. 226).

7.3. Constitutive Dimension

The third research question (RQ3) helps stakeholders consider how research about educational policy has incorporated contemplation of the influences and intentions of policies and is focused on personal and professional concerns in the application, implementation, and evaluation of policy. Cooper et al. (2004) calls these “constituents” (p. 199).

Graham and Diamond (1997) found that competition among students and faculty for financial resources is enormous, and this factor derives from the various interest groups that frame problems during policy implementation. Assessments therefore need to achieve the following:

1. Build local high-quality assessment capacity (Cunningham & Cordeiro, 2003, p. 227).
2. Actively involve arts educators, artists, and arts organizations in educational reform (Kieffer, 1997) as suggested by the Arts Education Partnership Working Group (Wolfensohn & Williams 1993).

Cooper et al.’s (2004) model for professional instruction was used. TUT chose a seven-year program in order to demonstrate how emphasizing secondary education (the formative years) is a crucial stage for the development of a musician’s talent. The Special Education Act also stipulates that a gifted student can enter a school at a younger

age than usual or shorten his or her time there. For example, Yu Ling-ya was 16 when she won fifth place among 130 young musicians from 16 regions in the 2011 Asian piano competition held in Taipei earlier this year. The win assured Yu of admission to TUT's Department of Music when the new school year started in August. Previously, she had been allowed to skip one year at junior high school saved more time when she attended TUT, as she did not have to take another national entrance examination to get into the university. Cases of students skipping grades are the exception, however, and do not represent the current mainstream model of gifted education. A major point of the White Paper on Gifted Education released by the MOE in 2008 is the recognition of and assistance for students with gifts in areas other than traditional academic subjects.

7.4. Technical Dimension

The final research question (RQ4) helps stakeholders consider Cooper et al.'s (2004) suggestion that when certain conditions are met, an increased likelihood exists of the technical dimension being used. These conditions include time, educators, resources, and instruction as well as an appreciation of the realistic influence of policies as an aspect of educational institutions (Cooper et al., 2004). Individual teachers may also apply a form of policy evaluation upon implementation or the evaluation may take place years after implementation (Cooper et al., 2004). Cooper et al. (2004) asserted, "The technical dimension of accountability policy is crucial to the effective implementation and ultimate success of the reform strategy" (p. 201). This dimension connects the academic and practical content. It is important an assessment achieve the following:

1. Use "inputs resources" or expertise (Cooper et al., 2004, p. 20) in a "supportive learning environment" (Frydenberg & O'Mullane, 2000, p. 78) for instruction.
2. Have throughputs "converting resources into energy" in teaching and learning (Cooper et al., 2004, p. 24).

The conclusions reached in applying the model to music education at the TUT is that educators in Taiwan need to ensure a system of local fitness for first, encouraging a more constructivist learning environment for integrative change of the policy to what were the changes implemented (steps in the process). Second, educators in Taiwan need to improving educational effectiveness. Third, educators in Taiwan need to introduce strategic management models to ensure continuity of change at the school level. Finally, educators in Taiwan need to increase student achievement by making more inclusive quality higher vocational education a reality.

8. CONCLUSION

McCool (1995, p. 396, as cited in Cooper et al., 2004, p. 8) claimed that policy theories should be practical and "directly relevant to applied policy problems". The implementation of the AEA in Taiwan TUT's music arts curriculum is a case to illustrates how Cooper et al.'s (2004) framework of four dimensions can be applied to evaluate the implementation of educational policy. It is educators' responsibility to ensure "a system that models good assessment practice as it audits local fitness" (Cunningham & Cordeiro, 2003, p. 227) and encourage a more constructivist learning environment when policy is implemented. The application of Cooper et al.'s (2004) model in the particular context of the TUT music education program goes some way toward offering educators a means for reflecting on policy implementation and providing a language through which educational policy in the arts might be constructively developed. The aim of the paper was to show that it is possible to apply Cooper et al.'s (2004) policy evaluation framework to evaluate the

implementation of educational policy. The case of the TUT's music arts policy making was used to demonstrate application of the model with respect to implementing the AEA in Taiwan.

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Chapter 27

THE COSMODERNITY: A TRANSCULTURAL APPROACH FOR THE GLOBAL CITIZENSHIP EDUCATION PROPOSED BY UNESCO

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ABSTRACT

This chapter reflect about the “Global Citizenship Education” (GCE) proposed by UNESCO: creating a framework which respect the historic-cultural characteristics of each community and developing a critical consciousness that addresses common responsibility with the global problems of the world-society. A world-society which must develop a new awareness-identity of “Earth-Homeland”, where the human being is seen as a same biological specie with the same evolution, because the future history of humanity requires knowledge evolution towards new transhumanists and transnational dialectics concepts in order to prevent future war conflicts. Thus, we need new education applications and developments to organize knowledge through a complex, creative, transversal, polysemous, transcultural and transpolitical epistemology that promotes GCE as the causal energy principle of the transformation process of the human being. Metaphorically, GCE has to represent the Big-Bang full of transformative energy in continuously expanding that interacts positively on the lives of people: generating a self-organizing cosmos of infinite potential for personal fulfillment and improving the quality of life in the communities. Then, we propose the Cosmodernity paradigm as transdisciplinary, transnational and transcultural approach to build a new horizon in the GCE proposed by UNESCO for the 21st Century: with the *Constellation of Twinned NGOs-schools* which develop altruistic educational projects of cooperation in all corners of the *Earth-Homeland*.

Keywords: transcultural, global citizenship education, UNESCO, cosmodernity paradigm, complex human condition, constellation of twinned NGOs-schools.

1. INTRODUCTION

The main subject of this chapter is to reflect about the point of no return achieved by the human species in its historical evolution. Since the mid-twentieth century, and for the first time in known human history, the human being has the technological and nuclear potentiality to destroy everything that surrounds itself. In this line of events, the emerging world-society of the twenty-first century need to create and build a meta point-of-view for favoring the meeting between different cultures and coexisting civilizations on the planet, in order to create possibilities for sustainability for all citizens. Therefore, we will focus the discussion on “Global Citizenship Education” (GCE) initiated by United Nations Educational, Scientific and Cultural Organization [UNESCO], using a transdisciplinary methodology with the intentionality to think about the transnational and transcultural problem of safeguarding humanity from an intentional field centered. This field is a combination of a triple area of human condition: epistemological, political and educational. To this end, we will rely on the Complexity Theory to develop a multi-referential understanding of universal interdependence of life on planet Earth: proposing new

education applications and developments with the concept *Constellation of Twinned NGOs-schools*.

2. DISCUSSION: WHAT IS GLOBAL CITIZENSHIP EDUCATION (GCE)?

The notion of “global citizenship” has recently gained prominence in international development discourse with the recently-adopted United Nations Secretary’s Global Education First Initiative (UNESCO, 2012). Traditional conception of national citizenship is changing under the influence of the multiple processes associated with globalization, which is creating new economics, social and cultural arenas beyond national borders. UNESCO, in response to the increasing demand from its Members States for support in empowering learners to become responsible global citizens, has made GCE one of its key education objectives for the next eight years (2014-2021). To advance understanding and identify good practice in global citizenship education in support of GEFI, UNESCO and its partners organized two landmark meetings on GCE in 2013:

- a Technical Consultation on Global Citizenship Education in Seoul, Republic of Korea on 9-10 September 2013, convened by UNESCO and Republic of Korea’s Ministries of Foreign Affairs and of Education, and the Asia-Pacific Centre of Education for International Understanding (APCEIU);
- a UNESCO Forum with the title “Global Citizenship Education: Preparing learners for the challenge of the 21st Century”, in Bangkok, Thailand on 2-4 December 2013, convened by UNESCO Headquarters’ Division of Education for Peace and Sustainable Development, UNESCO’s Asia and Pacific Regional Bureau for Education, the Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP) and APCEIU. As a result of the debates and the technical discussions about GCE, UNESCO issued the document “Global Citizenship Education: An Emerging Perspective”, which elaborated upon common perspectives emerging from the consultation on the following questions:
 - 1) Why global citizenship and global citizenship education now?
 - 2) What is global citizenship education?
 - 3) What needs to be done at the global level to support and promote global citizenship education?

These questions have broadened the notion of global citizenship as a multiple-perspective concept, representing an open opportunity for a transnational and transcultural vision in a way that new generations can become “citizens of the world”: Citizens of the world who are partly linked to transnational social and political communities, civil society and activism, and emerging forms of global identification and mobilization. Therefore, the GCE encourages us to develop a *cosmodern consciousness*, a concept developed by Basarab Nicolescu (2014) which understands dignity and human freedom in its planetary and cosmic conjuncture. The appearing of humans beings on Earth is just another moment at the universe. We are eco-dependent beings with a dual identity: its own, which distinguishes us, and others of interdependence to the environment. An environment composed by all beings which live in, that can only build their existence, their autonomy, their creativity and their individual richness in ecological relationship. A *cosmodern consciousness* as we deem it is intended to compliment the point 2.1.2 of the UNESCO document aforementioned:

In all cases, global citizenship does not entail a legal status. It refers more to a sense of belonging to the global community and common humanity, with its presumed members experiencing solidarity and collective identity among themselves and collective responsibility at the global level. Global citizenship can be seen as an ethos/metaphor rather than a formal membership (UNESCO, 2013, p. 3).

New educational applications and developments are required to face GCE challenges. GCE is clearly a new paradigm that contributes to the clarification of global citizenship without losing sight of the different cultures of the planet, avoiding homogenization in any sense, especially when the concept of global citizenship is used for the profit of a minority. GCE is not and should not be a promotion of citizenship models of a particular country or region. GCE must consider life in its complexity as the focus for everyone in the construction of a sense of global citizenship that attend the principle of alterity, mutual respect, shared otherness by the principle of difference and not just identity, which contemplates dialogically the implicit contradiction of the phenomena. This new paradigm must promote the development of feelings of belonging and the understanding of the living beings as a whole. It must give people the understanding, skills and values to feel citizenship of the world in a *cosmical* perspective, that is, in a cyclical relationship between the conjectural whole and the human being/nature: learning to love, to value and to respect life itself in a multidimensional way.

3. THE TRANSDISCIPLINARY METHODOLOGY: TOWARDS THE PARADIGM OF COSMODERNITY

As a catalyst of the transformative process, global citizenship education promotes the use of a wide range of active and participatory learning methods that engage the learner in critical thinking about complex global issues, and in developing skills such as communication, cooperation and conflict resolution to resolve these issues. This can be a challenge for many formal education systems with hierarchical teaching models and learning environments (UNESCO, 2014, p. 20).

The establishment of the United Nations in 1945 announced the emergence of a global political community, where cultural, religious, societal and economic elements are opened to universal values. At the dawn of the third millennium, introducing pedagogy for transformative learning implies the understanding of the human condition in a pertinent contextualization. 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). The human species is a cosmo-bio-genetic entity coming from the same *post Big-Bang* galactic evolution whose becoming future is interconnected in the space-time. Thus, the co-evolution of human beings with the universe requires a new methodology outside of positivist thinking of the nineteenth and twentieth centuries, which reduces and separates the subject from the object. That new methodology is necessarily overarching, holistic, poly-logic and transdimensional, understanding human beings as an integral part of an autopoietic cosmic totality. In this sense, the pillars of transdisciplinary methodology formulated by Nicolescu (2010) represent a new multidimensional and multi-referential epistemological approach to create new educational applications and developments.

A *transdisciplinary ecology* which is cast in the indefinite and infinite adventure of complex and open knowledge:

1. **The ontological axiom:** There are, in Nature and society and in our knowledge of Nature and society, different levels of Reality of the Object and, correspondingly, different levels of Reality of the Subject.
2. **The logical axiom:** The passage from one level of Reality to another is ensured by the logic of the included middle.
3. **The complexity axiom:** The structure of the totality of levels of Reality or perception is a complex structure: every level is what it is because all the levels exist at the same time (Nicolescu, 2010, p. 24).

The complex challenge of building a global citizenship is an issue that goes beyond the essence of mankind and, therefore, it requires a triple reform: epistemological, political and educational. Reflect about the meaning of GCE in the globalized era of twenty-first century demands an approach of the global dynamics (economics, political, cultural, social, educational, etc.) with a holistic and transnational vision which propose creative alternatives for change. To make this “reading of the world”, it is necessary to start watching the complexity, multidimensionality and interdependence, understanding education as a process in continuous expansion, like the universe itself (Collado Ruano & Galeffi, 2012a). But how could we create a global education applications and developments which respect the historic and cultural characteristics of each community without homogenization and without alienation? How do we prepare for democracy and for a critical and responsible global citizenship in schools which are not teaching how to make transnational and transcultural decisions? Will it be possible to develop a planetary awareness of common responsibility to achieve a current and future sustainable development? Will we learn to live together in the human unity/diversity to avoid the self-destruction during the third millennium?

Answering these questions concerning GCE involves a profound change in the structural construct of thought and a new knowledge organization where Human Rights suppose an articulator meta-point of view of the human effort to become aware of the ethic sustainability of the world-society, which requires a complex, creative, transversal, polysemic, transcultural, and trans-political epistemology. Therefore, the present problem of reflecting about the harmonization of the Earth-Homeland, as a pacific and transhistorical common horizon, implies a complex challenge to develop transdisciplinary knowledge to provide new transnational and transcultural dialogical conceptions capable of preventing future conflicts and achieving a sustainable development.

In words of Nicolescu (2014, p. 14):

The present instant is, strictly speaking, a non-time, an experience of relation between Subject and Object; thus, it contains potentially within itself the past and the future, the total flow of information and the total flow of consciousness, which cross the levels of reality. The present time is truly the origin of the future and the origin of the past. Different cultures, present and future, develop in the time of history, which is the time of change in the state of being of peoples and of nations. The transcultural concerns the time present in *transhistory*, a notion introduced by Mircea Eliade, which concerns the unthinkable and epiphany.

The *transcultural* is the necessary condition for the existence of culture. The complex plurality of cultures and the open unity of the transcultural coexist in the cosmodern vision. The transcultural is the spearhead of cosmodern culture.

Different cultures are the different facets of the human being. [...] The multicultural allows the interpretation of one culture by another culture, the intercultural permits the fertilization of one culture by another, and the transcultural ensures the translation of one culture into various other cultures, by deciphering meaning that links them and simultaneously goes beyond them.

Without doubts, the quantum, biological, and information revolutions of the twentieth and twenty-first centuries changed our view of reality. Effectively, in this cosmopolitan vision of transcultural resides the complexity to build and model human development through GCE proposed by UNESCO. The whole humanity is facing a real leap of nature in a political order of the current globalized world. But it is a leap of nature that implies a profound tri-ethical transformation of the individual-society-species: mental-spiritual, social-planetary and cosmic-environmental. A tri-ethical emergency (Galeffi, 2012) that elapse from the accelerated techno-scientific and global telematics progress, and which requires a new kind of epistemological, political and educational self-eco-organization to create *cosmopolitan consciousness* in the current and future global citizenship. In this sense, our proposal of *Constellations of Twinned NGOs-Schools* promotes new applications and developments between cultural diversity, in accordance with the cosmopolitan paradigm proposed by Nicolescu (2014), which is founded on the interaction between science, culture, spirituality, religion and society.

4. THE CONSTELLATION OF TWINNED NGOs-SCHOOLS: LOOKING INTO THE FUTURE OF HUMANITY

There is a clear opportunity to include reference to global citizenship education in the post-2015 development agenda as part of the knowledge, skills and competencies that learners require in the twenty-first Century and beyond (UNESCO, 2013, p.2).

In our opinion, GCE not only have to be included in the post-2015 Development Agenda, but it has to be a phenomenon of the own human condition that transversely goes beyond to the future Sustainable Development Goals of the United Nations. GCE cannot be regarded as a concept or fashion expression between academia, civil society and governments, because that would result in the introduction of small alterations in the schools curricula, without contributing to the paradigm shift that the world-society of the third millennium is complaining about. A good example would be the present decade baptized by UNESCO as “Education for Sustainable Development” (2005-2014). If it is certain that his intention has mobilized millions of people around the world to walk in this direction, the unsuccessful became evident in the inability to determine and achieve common agreement on the part of government officials who participated in the Sustainable Development Conferences of the United Nations, known as Rio+20, in 2012.

In our worldview, GCE does not have to find solutions for the increasingly complex problems that arise in the current economic system of reference of the world-society during the third millennium. GCE should promote the change of the capitalist system of reference itself, introducing new education applications and developments that comprises the interlinks between the micro-local-simple and macro-global-complex phenomena. Therefore, we have to observe GCE through creative stimulus arising from the current planetary and complex context, and which serve to restructure transversely the future of humanity as a common species. And this transnational and transcultural conception of

education implies a radical rupture with the political-economic and socio-educational structures of the past, because there is no doubt that technocratic education, still in vigor, is the consequence of alienating the social organization model that capitalism has imposed, after the Industrial Revolution, in order to reduce students to submissive consumers and passive citizens (Collado Ruano & Galeffi, 2012b).

What we pretend with the proposition of the *Constellation of Twinned NGOs-Schools* is to establish an alternative education application that can contribute in the creation of an awareness virtual network for global citizenship. A process that UNESCO highlights in sections 1.2.1. and 3.1.3. of aforementioned document:

1.2.1. Phenomenal advances in information and communication technologies (ICTs) have enabled people to connect and interact with others around the globe anywhere, anytime. This has contributed to an intensified perception and reality of being inter-connected and living beyond local perimeters, albeit virtually.

3.1.3. There is a need to support youth-led initiatives. Partnerships with civil society are also needed. Utilisation of new ICTs is critical. New approaches may meet with reservation and/or resistance. An emerging perspective on global citizenship education, however, maintains the need for stakeholders and actors to be open to different, but effective venues and solutions (UNESCO, 2013, pp. 2-5).

But, how could we create virtual spaces that can support youth leadership and can constitute effective solutions for the formulation of a truly transformative GCE of the current economical, epistemological, political, educational, and human crisis? How could we formulate proposals that entail new transnational and transcultural symbioses within the diversity of the current planetary civilization? How could we develop a transhumanist attitude which allows us to understand the tri-identitary poly-logic of the different levels of gnoseological Reality that constituting the individual-society-species? How could we create new educational applications and developments to face global problems from our own locality?

Evidently, answering these questions represents an anthro-socio-political challenge that will be addressed from a new philosophical and geopolitical worldview that makes a special emphasis on the inseparable interdependence of local-global and global-local dimensions. A new worldview which understands that all dogma, political ideology and materialist theory (such as capitalism, Marxism, Nazism, Stalinism, etc.), devastated the twenty century because they were based in a linear structure of thinking founded in just one level of the Reality -derived from classical physics-, because they thought they were in possession of the whole, and, therefore, of absolute truth. For this reason, our proposal of *Constellation of Twinned NGOs-Schools*, based in Complexity Theory, seeks to deepen in the advances of quantum physics, quantum cosmology and molecular biology to develop a *cosmodern consciousness* which allows identifying the plurality of cultural diversity as a source of wealth of the unique “nation-state” legitimate of human beings: the planet Earth.

To this end, we have to remember the birth of the United Nations in its historical context with the problem of safeguarding the world-society from a nuclear self-destruction. Since the second half of the twenty century, humanity began to enter into a new stage of civilization which demands of us the meta-cognitive effort to understand the difference of the *other*, *learning to know*, *learning to do*, *learning to live together*, and *learning to be* (Delors, 1998, pp. 89-102). Thereby, GCE proposed by UNESCO would have to envision the United Nations as the whole of a *complex system*: Earth-Homeland. A complex system

composed by a web of interconnections between 193 member states (with Palestine and the Holy See as non-Member Observer State status): economic, cultural, political, religious, etc. Interdependent Member States that are interconnected by the seven principles of complexity defined by Morin (2011): systemic or organizational, hologramatic, retroactive circle, recursive circle, self-eco-organization (autonomy and dependency), dialogical, and the reintroduction of knowledge in all knowledge.

In this perception of Complexity Theory defined by Morin, the concept of *Constellation of Twinned NGOs-Schools* is a new educational proposal with many applications and developments. It is based, by one side, in the reinterpretation of sister cities concept (Collado Ruano, 2013). A concept that aims to establish cooperation links, mainly in the economic and cultural relations, between two cities from different geographical areas, which often have similar characteristics (demographic, for example). Then, it concerns to extend the concept of sister cities to the educational field, creating new virtual networks among schools from all corners of the world. And by the other side, the proposal would also be based in the catalyst, philanthropic and humanistic character that nonprofits (whether NGOs, cultural associations, foundations, etc.) bring to the awareness process of the younger generations to endow them with criticality, sensitivity, autonomy, leadership, and social entrepreneurship.

Imagine now the parts of our complex system, that is, the Member States of the United Nations, did the effort to submit a list of their national schools to a neutral supranational institution like UNESCO. A list or database that, a priori, would already be ready in most countries highly bureaucratized. Imagine that before such step, the subparts which compose these parts of our complex system, that is, the particles that we would call as “schools”, did the effort to submit a detailed description of its own defining characteristics (number of students, which languages are learned, public or private status, and so on), where it was also included information related to their cities, neighborhood and/or community in which their students-citizens live (as for example the geographical situation, demography, weather, etc.).

Now, imagine that at the local level nonprofits organizations are being created within the neighbors of each community, where there will be place for people of all ages, as well as formal education (primary, secondary, and tertiary), and non-formal (with schools of music, sport, dance, and so on). Imagine also these communal organizations forming small political parties to develop an active citizen participation about local/regional/national/global problems that interact with the seven principles of complexity previously mentioned. Imagine each NGO-School has its own website to be consulted in the UNESCO common database, in order to facilitate the free interconnections between other NGOs-Schools. Would it be possible that own students explain festivities and traditions of their peoples to other students while they are still children? Could it help to understand better the cultural differences and real situations of each community, avoiding the “pollution” of the media controlled by the groups of economical power? Is it possible to imagine such process in a transdimensional level that goes beyond the macro-global and micro-local ambits at the same time? Without any doubts, this proposal comes with many education applications and developments to interconnect the whole humanity to face global challenges.

Let's change now the *microscopium* to use the *telescopium*, and let's take an astronomical look to the world-society, as it was done by the old civilizations (eg.: Chinese, Hindu, Incas, Pre-Colombian, and so on). Let's us observe the world-society as a galaxy composed of a set of planets, with their satellites; with comets and meteoroids; stars and interstellar matter; dark matter; gas clouds; and cosmic dust. All of them are celestial bodies

united by the same gravitational force, which we will call UNESCO in our complex system. Imagine also that local communities were solar systems, where schools are the stars and around them are turning planets of diverse nature as cultural organizations, political parties, religious associations, etc. Imagine, then, that GCE proposed by UNESCO group together the millions of stars (NGOs-Schools) in constellations (twinning), creating a large database in the Cyber-Space-Time (CST). Responsible constellations for performing projects of cooperation and development in the micro-situations of local-global emergency, with the goal to send a feedback in the emerging structures of macro-global problematics. In other words, the sum of political-educational actions at local-global level would finish modifying entropically the global-local tendencies of homogenization process derived from techno-economics structures of globalization. And like all processes governed by the second law of thermodynamics, the degradation of the homogeneity caused by globalization would lead a mestizo, hybrid and cosmopolitan world without nationalist frontiers.

There are no doubt it would be a real backbone program of heterogeneity and pluralism in full compliance with the item 3.2.2. of the aforementioned UNESCO document:

3.2.2. Global citizenship education must reflect the voices of diverse stakeholders from different regions, sectors and populations. A network of stakeholders, who could meet for periodic discussions, can help continually renew interests and reconstruct the objectives of global citizenship education. A strong network and expertise must be made available at all levels – global, regional, national and community levels, via all means of communication and interaction (UNESCO, 2013, p. 5).

In essence, *Constellation of Twinned NGOs-Schools* would not only represent a transcultural and transnational CST, addressing global issues such as poverty eradication, sustainable development or human brotherhood; but also transdisciplinary applications and developments for GCE. This is because when it is about music, art, literature, philosophy and thought, cultural globalization does not tend to homogeneity, but the opposite: cultures from all the world fertilize themselves engendering planetary sons and daughters. In this sense, reflect about GCE supposes look to the transcendental unity of the individual-society-species (*unitas multiplex*), through the tree transdisciplinary axis proposed during the Second World Congress of Transdisciplinarity: *transdisciplinary attitude*, *transdisciplinary research* and *transdisciplinary action*. That is, *transdisciplinary curricula and research* whose epistemological plurality introduce the *transdisciplinary attitude* to build a large human family – founded in the principles of justice and solidarity – and which derives ultimately in *transdisciplinary action* of human beings: proposing the articulation of a new training in relations with the world (eco-training), with other people (hetero-, and co-training), with himself/herself (auto-training), as being (onto-training), as well as formal and non-formal knowledge. In words of Nicolescu:

The Cyber-Space-Time is neither deterministic nor indeterministic. It is the space of human *choice*. To the extent that CST allows bringing into play the notion of levels of Reality and the logic of the included middle, it is potentially a transcultural, transnational, and transpolitical space (Nicolescu, 2008, p. 92).

For us, this would be the true “Treasure Within” by learning, that French political Jacques Delors (1998) reflects at the end of the twenty century: the creation of GCE

through transnational, transcultural, transpolitical, transreligious, and transhumanist CST which engendering planetary sons and daughters. A CST which identifies poly-logically the different levels of Reality that composing the individual-society-species tri-identity: as individual of a local and specific community, as citizen of a determinate society; belonging to a particular Nation/State, and as same cosmo-bio-genetic species in constant process of evolution. An identity opened to the infinite diversity of global citizenship. In other words, a transcultural and transnational tri-identity acting to achieve a peaceful and transdemocratic coexistence during the third millennium: building an authentic and revolutionary *global citizens movement*.

5. CONCLUSIONS

There are no doubts the world-society must develop new *multidimensional* synergies of *global* nature to achieve the future millennium goals performance of the post-2015 Development Agenda of the United Nations, because they are systemic, interconnected and interdependent targets: just like our own neural connections in our brains. Consequently, we must contextualize the goals through a *cosmodern consciousness*, based on the poly-logical tri-identity of the individual-society-species, to identify the world-society as an integrated whole, and not as the sum of their parts dissociated from each other. An epistemological, political, educational, and spiritual change, which transdisciplinary, transpolitical, transcultural and transreligious approach is simultaneously based on plurality and unity of current's planetary setting emergency of knowledge society, which corresponds to the *common-responsibility* of everyone with everything. Therefore, humanity must promote new educational applications and developments in order to create networks of altruistic cooperation in the CST, symbolizing a symphonic orchestra that disseminator of world peace. The Internet is not just another variable of the famous Human Development Index, but it is an emerging element which allows people to restructure and reformulate the complexity of global problems presents in the dawn of the third millennium.

It is necessary, then, that GCE proposed by UNESCO creates right now a global education strategy in the CSP which acts as a transcultural and transnational tri-identity pattern. Drawing a parallel with the past, GCE has to use CST with the same potentiality that Protestant community used the printer to restructure the sacral ideas in the sixteenth century, because the CST symbolizes an authentic *transcultural* universe to propose creative reflections that suppose effective solutions in this historic conjuncture that Edgar Morin (Edgar Morin, Ciurana, & Motta, 2003) called as "the stone age of planetary civilization". Therefore, the concept of *Constellation of Twinned NGOs-Schools* will have to be interpreted as a prehistoric tool for the planetary civilization can begin to write in conjunction their transhistory during this new millennium. History is made by all of us, and for that reason we all have to write it together and without cultural hierarchies in space-time. Cyber-Space-Time represents, effectively, the propitious level of Reality to develop the *cosmodern paradigm* based in the acceptance, understanding and superposition of cultural diversity where different educational applications and developments take place at the same time.

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Chapter 28

USING THE SPELIT ANALYSIS TECHNIQUE FOR ORGANIZATIONAL TRANSITIONS

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ABSTRACT

The purpose of this paper is to describe a new analysis methodology, and provide formats for use, in doctoral level curricula. The acronym SPELIT is an analysis methodology and framework to help understand an organization's environment from the social, political, economic, legal, intercultural and technical perspectives. Developed in the early 2000s, this methodology is sufficiently robust and can be used by undergraduate students, graduate students, and seasoned practitioners doing a market analysis, diagnosis prior to implementing transitions, or benchmarking in anticipation of an intervention. This paper shows how this methodology aligns with many change theorists, such as Christensen, Kaufman, Holcomb, and Cummings and Worley, theorists who stipulate benchmarking or diagnosing the current condition as a first step in the change process. One of the remarkable advantages of the SPELIT analysis methodology is that it can be readily adapted to unique organizations by adding or deleting environments, such as educational, ethical, historical, physical, religious, temporal, and security environments. This paper describes several different formats where the SPELIT analysis methodology has been incorporated at several universities, as incorporated into a doctoral level *comprehensive examination* curriculum where the students examine organizational transitions.

Keywords: organizations, analysis, benchmarking, environments, SPELIT.

1. INTRODUCTION

There is a need to analyze one's environment in many aspects of life. To meet this need, the SPELIT analysis methodology was developed in the early 2000s and is presented in this paper. In the chapter sections below, the authors show how this methodology aligns with many change theorists, such as Christensen, Kaufman, Holcomb, and Cummings & Worley. These theorists stipulate benchmarking or diagnosing the current condition as a first step in the change process. The authors continue by providing several different examples where the SPELIT analysis methodology has been incorporated at several universities, as incorporated into a doctoral level *comprehensive examination* curriculum where the students examine organizational transitions.

1.1. Theorists' Need for Environmental Analysis

Change theorists, described in this section, include an evaluation of the environment as part of their philosophies. Christensen (1997) discusses a three-stage method for defining a detailed strategy to guide a company. The first of his three stages is *identifying the driving forces*. He states: "The first stage ... is to identify at a fundamental level the root causes of the issues the company needs to address. These are the *driving forces* – the economic, demographic, technological, or competitive factors in the company's environment that either constitute threats or create opportunities" (p. 5).

Kaufman (2000) has a four-step model of assessment, and the second step is *measuring current results (What is)*. The first of Holcomb's (2001) five guiding questions is the environmental analysis question "*where are we now?*" (p. xi). Holcomb's five questions are targeted to collaboration and school change, but these questions can be applied to almost any transition process. The SPELIT analysis methodology is a tool to answer these questions.

To do any reframing of the views of an organization, the reframer will need a starting point. Bolman and Deal (2003) identify four frames of reference: 1) structural, 2) human resource, 3) political, and 4) symbolic. Each of these frames is a point of view and can be useful for evaluating the environment of an organization. These four frames are incorporated into several categories of the SPELIT analysis methodology. Kotter's (2012) first step, of his 8-step change model, is to create urgency. This involves understanding your market and competitive environment with regard to opportunities and threats. Bridges (2003) has a three-step process to describe the process of transitions. His first step is "ending" (p. 4) which addresses the pre-existing environment and that it must end. A key step in the "general model of planned change" (Cummings & Worley, 2005, p. 28) is diagnosis. The authors discuss diagnosing organizations, groups within organizations, and individuals prior to designing interventions. To this list we would add diagnosing the environment outside of the organization as suggested in the 5C model by and Bygrave and Zacharakis (2004).

All the above theories include a step for analysis or diagnosis of the current environment that *define the way things are now*. The SPELIT analysis methodology is a tool that is used to systematically analyze the environment of a large organization such as the European Aeronautic Defence and Space Company (EADS), individuals such as yourself or your boss, a situation such as graduate school or an impending marriage (or divorce), a physical community such as your homeowner association or your church, or a more-symbolic (or spread-out) community such as a professional society (e.g., which may be represented by the attendees of a conference).

2. BACKGROUND

There are different ways to describe perspectives about the environment. Bolman and Deal (2003) listed terms such as "schemata or schema, representations, cognitive maps, paradigms, social categorization, implicit theories, mental models, root metaphors" (p. 19), and frames. Christensen (1997) uses the terms *mapping* and *factors*. We use the term *environments* to describe the elements of the SPELIT analysis methodology. Many theorists systematically evaluate the environment of an organization if for no other reason than to have a baseline to determine if a change occurred after an intervention. The next section describes the SPELIT analysis methodology environments.

2.1. Theory: The SPELIT Environments

SPELIT is an acronym for social, political, economic, legal, intercultural, and technology. The first step of many change or transition theories is to evaluate the existing environment. This can be analyzed using the six-environment SPELIT analysis methodology. Each of the six major environments that created the SPELIT acronym are described below, and additional environments can be added as described in subsection 2.1.7.

2.1.1. Social Environment. Sociology is the study of how people behave in various group interactions, such as work, home, family, church, sports team, driving, and so on (Macionis, 2005). The SPELIT social environment addresses the social character of an organization. It would include Bolman & Deal's (2003) *structural* and *human resources* frames of reference.

2.1.2. Political Environment. Politics is the process of making decisions within groups and is closely tied to the concepts of power and influence. A political environment is associated with any group of people. The SPELIT political environment can address organizational structure and sources of power (position, expert, charismatic, etc.). This environment would include Bolman & Deal's (2003) *political* frame-of-reference and *competitors* and *collaborators* from Bygrave & Zacharaki's (2004) model.

2.1.3. Economics Environment. Economics is concerned with production and consumption of resources. The SPELIT economics environment addresses resources of an organization such as facilities, trucks, people, goodwill, or money. This environment would include *customers* from Bygrave & Zacharaki's (2004) model.

2.1.4. Legal Environment. The legal environment includes official laws or accepted rules. The legal system can be based on civil law, common law, customary law, and religious law. The SPELIT legal environment addresses the laws, customs, and ethics of the organization. This environment would include *customers* and *company* from Bygrave and Zacharakis' (2004) model.

2.1.5. Intercultural Environment. Being interculturally sensitive "is to be aware of the points of view of others and to recognize differences in cultures" (Schmieder-Ramirez, Fortson, & Madjidi, 2004, p. 7). The SPELIT intercultural environment addresses culture and differences between cultures that would be a driver for an organization. This environment would include Bolman & Deal's (2003) *human resources*, and it would include *symbolic* frames-of-reference and *context* from Bygrave and Zacharakis' (2004) model.

2.1.6. Technological Environment. Technology is the use of tools that society has developed to become more efficient, and technology is driving how the majority of businesses operate. The SPELIT technological environment includes the obvious computer and cell phone. This environment could also include the physical infrastructure such as the internet, highways, facilities, and food distribution channels.

2.1.7. Other Environments. The ability to delete existing or to add new environments is one of the remarkable advantages of the SPELIT analysis methodology. SPELIT can be adapted to unique organizations by adding or deleting environments. These unique environments could include the educational, ethical, historical, physical, religious, temporal (schedule), and security environments (Schmieder-Ramirez & Mallette, 2007), any of which could be very important in specific organizational analyses.

The authors have seen variations of the SPELIT analysis methodology that use parts of the original earlier SPEL and SPELT models, or expand to other environments. These variants include acronyms such as PEST, SLEPT, STEEPLE, PESTLE, PESTELEM, and POST (12Manage, 2015). Furthermore, some environments can be deleted if they are not applicable. For her doctoral dissertation on traditional and current states of marriage, a

student stated that she deleted the legal and technological SPELIT environments and renamed her research model *PIES* (Andrea Little Mason, personal communication, December 21, 2012).

3. PRACTICAL APPLICATIONS

The need for an environmental evaluation was formulated in the Section 1, the SPELIT analysis method was outlined in Section 2, and practical applications will be presented in this section. The SPELIT analysis methodology has been voluntarily incorporated into the comprehensive examination class for a doctoral program for several years. The purpose of the comprehensive examination:

...is to assess the doctoral student's ability to integrate the doctoral coursework by preparing a paper which will address a real-world problem, dilemma, or issue synthesizing the coursework. The paper will be evaluated and defended orally before a committee of faculty members (Pepperdine University, 2012-2013, p. 120).

The doctoral students are mid-career professionals interested in becoming scholar-practitioners, pursuing the doctor of education (Ed.D.) degree in Organizational Leadership. Several different formats of SPELIT matrices, used during comprehensive examination papers, are discussed below.

3.1. Comprehensive Examination Formats

The following subsections provide descriptions and examples of 1) the driving forces format, 2) the positive and negative forces format, 3) the SWOT format, 4) the fishbone format, and 5) the non-tabular, word format.

3.1.1. Driving Forces Format. The driving forces can be itemized in a two-column, or multiple-column, tabular format. Each SPELIT environment would be listed in the first column. The driving forces would be identified in the second column, starting from most important and ending with the least important. This is the simplest presentation format. Multiple driving forces could be added in the first column or added as additional columns as shown in Table 1.

Table 1. SPELIT matrix shown in the driving forces format.

SPELIT Driver	Driving Force 1	Driving Force 2	Driving Force 3
Social Drivers	Integrated interest by three healthcare entities.	Similar interest in outcomes.	Willingness to work together.
Political Drivers	Strategic planning synergy.	Heightened visibility.	Community outreach initiatives.
Economic Drivers	Funding for extended hours of operation.	Reduced education costs for two hospitals.	Leverage non-profit status for funding.
Legal Drivers	TX treatment Act.	Need to stabilize acute cases.	
Intercultural Drivers	Community participation in healthcare training. (medical vs lay.)	Culture, education, language, and literacy.	Increased opportunity for physician: patient relationship building.
Technological Drivers	Treatment and referral tracking.	Shared resource tracking.	Patient tracking system. (pre & post)

3.1.2. Positive and Negative Forces Format. Opposing driving forces can be juxtaposed for each SPELIT environment in a three-column format. Each SPELIT environment would be listed in the first column. The second column would be positive forces, and the third column would be negative forces. Alternatively, these columns could be labelled strengths and weaknesses, pluses and minuses, pro and con, right and wrong, good and bad, credits and debits, or driving forces and restraining forces. Table 2 provides an example of the SPELIT matrix with driving and restraining forces. Table 3 provides an example of the SPELIT matrix with positive and negative effects.

Table 2. SPELIT matrix shown with driving and restraining forces format.

SPELIT Driver	Driving Forces	Restraining Forces
Social	<ul style="list-style-type: none"> • Widespread unhappiness with the status quo • Capable, educated faculty • Community desire for a guiding direction • Urgent need for a strong sustainable community 	<ul style="list-style-type: none"> • Mistrust of administration by teachers and parents • Feelings of powerlessness by teachers • Little no sharing of ideas or thinking • Fast paced, superficial shifts
Political	<ul style="list-style-type: none"> • Influential staff members with leverage in the community • Desire of faculty to be heard • Authentic desire in faculty for children’s learning and success 	<ul style="list-style-type: none"> • Power games and coercion • Top-down decision making • Constraints and mandates by district impeding innovation
Economic	<ul style="list-style-type: none"> • Parents fundraise and businesses willing to donate • Skilled faculty and parents as resources • More resources available (being withheld) 	<ul style="list-style-type: none"> • Declining funds and fiscal uncertainty • Untapped human capital, low involvement • Non-distribution (or inequity) of resources
Legal	<ul style="list-style-type: none"> • Strong advocacy leadership for change; some flexibility on how to implement policies • Members of the community eager to participate in governance 	<ul style="list-style-type: none"> • Bound to district and state policies and laws • No clear or current site management by-laws
Intercultural	<ul style="list-style-type: none"> • Some rich cultural and ethnic diversity • Opportunity to share and celebrate community 	<ul style="list-style-type: none"> • Certain groups tend to show segregation • Lack of recognition or celebration of differences
Technological	<ul style="list-style-type: none"> • Some skilled parents and staff in technology uses • Technological resources available 	<ul style="list-style-type: none"> • No mass email, no website, poor knowledge sharing • Underutilized computer lab at the school

Table 3. SPELIT matrix shown with positive and negative effects format.

SPELIT Driver	Positive Effects	Negative Effects
Social	<ul style="list-style-type: none"> • (Leadership Style) collaborative across guiding coalition • SME boomers leave a legacy • New hire competence and self-esteem • Self-analysis effective for change design 	<ul style="list-style-type: none"> • (Communications Style) little inter-disciplinary communication, silos • New techniques resisted • Change is painful
Political	<ul style="list-style-type: none"> • IDs partner with SMEs • Top executive support • Operating company support 	<ul style="list-style-type: none"> • (Resource Allocation) SMEs lose control of process • (Authority and power structure) SMEs lose control of budget • (Law and Regulation) courses out of date for copyright and export laws
Economic	<ul style="list-style-type: none"> • Faster time to competence • Build long term capabilities • Training more effective 	<ul style="list-style-type: none"> • Training competes with operations support • Training helps corporate, not operating company • Instructional design costs excessive
Legal/Ethical	<ul style="list-style-type: none"> • Fewer accidents and injuries • Training that ensures the workplace is ethical • Local content easier 	<ul style="list-style-type: none"> • Intellectual property laws • Standard formatting rules • Export restrictions
Intercultural	<ul style="list-style-type: none"> • Global sharing • Shared experiences • Broader community 	<ul style="list-style-type: none"> • Language barriers • International work ethic • National vs. corporate loyalty
Technological	<ul style="list-style-type: none"> • Moore's technology adoption life cycle • Potential remote delivery • Reduced travel needs 	<ul style="list-style-type: none"> • Difficult oil locations demand sophisticated technology • Stricter environmental standards • Exercises unfamiliar

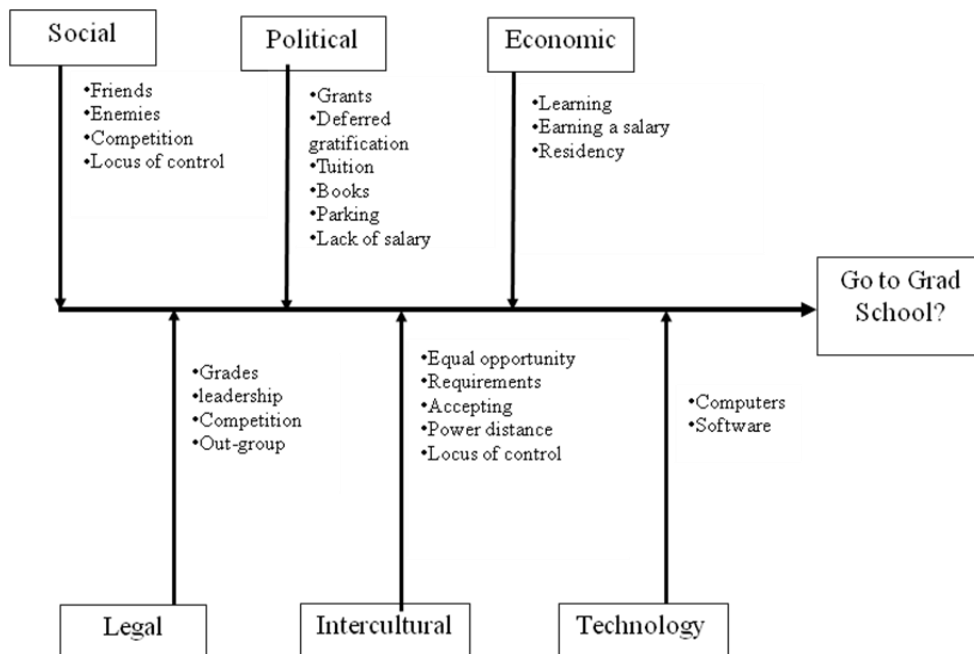
3.1.3. SWOT Format. This last format leads to the idea of marrying SPELIT with SWOT analysis (Wikipedia, 2014). A SWOT (strengths, weaknesses, opportunities, and threats) analysis can be performed for each SPELIT environment in a five-column format (Table 1). Each SPELIT environment would be listed in the first column. The remaining five columns would be labelled 1) internal strengths, 2) internal weaknesses, 3) external opportunities, and 4) external threats. Within each cell, the driving forces can be ranked in order of importance. A SWOT/SPELIT matrix could be created as in Table 4.

Table 4. A blank SWOT analysis incorporated with SPELIT analysis methodology.

SPELIT Driver	Internal Strengths	Internal Weaknesses	External Opportunities	External Threats
Social				
Political				
Economic				
Legal				
Intercultural				
Technological				

3.1.4. Fishbone Format. The fishbone, cause-and-effect, or Ishikawa diagram, (Wikipedia, 2015) “is an analysis tool that provides a systematic way to observe cause and effect” (Geisen, Evans, Mallette, & Suwantee, 2005, p. 10). It is often used as a brainstorming tool by failure analysis teams. The problem is listed on the right in a box and a series of lines, resembling the bones in a fish, are on the left. The major bones of the diagram are labelled as each of the SPELIT environments and driving forces are listed along that bone. An example of a SPELIT matrix in a fishbone format is shown in Figure 1. The diagram is read by saying: If [one of the items on the bone], then [the effect in the box at the far right] could happen. For example, the first couple lines under *social* could be read: *If* I have friends (or enemies) at the school, *then* it might lead me to (or away from) going to graduate school.

Figure 1. SPELIT matrix shown in a fishbone or Ishikawa diagram format with some possible entries.



3.1.5. Non-tabular, Word Format. Another simple format is to write out a description of the driving forces for each SPELIT environment. The SPELIT environment is listed as a heading and the driving forces are discussed in the following sentences and paragraphs. The advantage of this format is that the driving forces can be described in great detail. The disadvantage is that the reader can lose track of the organization in several pages of text. An example of the non-tabular format is shown in Table 5.

Table 5. SPELIT matrix shown in the non-tabular format.

<p>Social</p> <p>Examining the social environment within the FCYE program provided me with a sense of teamwork and communication. In the FCYE program I assessed the social area for improvement. I noticed that the FCYE program lacked management infrastructure within the organization to support the program mission. The lacking management infrastructure for the program created a non-structured environment where there were missed conceptions about the services that are provided to emancipated foster youth. The data collection showed that staff felt discouraged and unappreciated by the CEO and the previous director of the program. Throughout its history, the FCYE staff never expressed their feelings about how the program was being managed until the new director came along. The staff feels that there are never any staff workshops or training to better their work skills nor any that relate to the program mission. The staff showed positive gratitude and were willing to move forward with the new program plan to ...</p>
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4. ANOTHER APPLICATION TO GRADUATE LEVEL CLASSES

The SPELIT analysis methodology has been incorporated into graduate level classes. In addition to the many formats described in this paper, a brief overview of its use by Professor Ronald Reidy at Clark University is summarized here.

...for the past two semesters I have taught the SPELIT Power Matrix as part of my graduate global marketing and global consumer behavior classes with extremely positive results. My approach is to teach the basics of SPELIT and then to divide the class into three or four groups. They are all asked to read the same case study or current events article. This semester the article concerned the new generation of Chinese workers and how they are more selective in choosing jobs, purchasing habits, etc. One group created a SPELIT matrix from the context of Chinese students about to join the workforce; the second as managers at a Chinese manufacturing company who would be hiring; the third were American managers looking to outsource to the Chinese manufacturing company. Each group met for 1 hour then presented and discussed the findings to the class. The context differences, and in some cases similarities, were amazing.... It is a great tool and I will continue to promote it (R. Reidy, personal communication, May 11, 2012).

As shown above, the SPELIT analysis methodology can be used by faculty to explore similarities and differences. It can be used by undergraduate and graduate students to analyze the environment of any organization. It can be used by managers in business to prepare themselves for business transitions that occur. It can also be used by individuals to assess events in their lives.

5. CONCLUSION

This paper delineated a new environmental analysis technique that is used to systematically analyze the social, political, economic, legal, intercultural, and technological environments. The SPELIT analysis methodology was introduced, its significance was presented, and several different formats were described in this paper. This technique is intended for practitioners doing a market analysis or diagnosis prior to implementing changes, transitions, or interventions and can be used by undergraduate students and seasoned practitioners.

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