2ème Conférence Internationale Éducation, Économie & Société

Paris 21-24 juillet 2010

2nd International Conference on Education, Economy & Society

Paris 21-24 July 2010

Actes
/
Proceedings

Volume 1
Articles évalués / Refereed Papers

Direction / Editor
Guy Tchibozo

ANALYTRICS

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Avant-propos

Les trois volumes de cet ouvrage rassemblent différentes contributions à la 2ème Conférence Internationale Éducation, Économie et Société, tenue à Paris du 21 au 24 juillet 2010. Comme lors de la première édition en 2008, ces contributions reflètent la diversité et la richesse de la recherche contemporaine en sciences de l'éducation au plan international, couvrant la plupart des domaines de la discipline. Certes, les travaux regroupés ici sont de qualité variable, certains nécessitant encore de sérieux efforts de réécriture, d'autres de renforcement méthodologique. Mais nombre de ces travaux suggèrent aussi des pistes à creuser, touchent à des questions vives d'éducation, et témoignent du souci de contribuer avec rigueur au processus de création et d'accumulation de connaissances.

Cette année, la conférence innove en étendant l'évaluation par les pairs – jusqu'ici réservée aux propositions de contribution – à la version finale des articles publiés dans les Actes. Un tiers de ces articles ont ainsi été positivement évalués, et fournissent la substance du Volume 1. Je remercie tout particulièrement les auteurs qui ont accepté de jouer le jeu, et qui nous apportent ainsi leur soutien dans notre engagement aux côtés de tous ceux qui contribuent au progrès qualitatif de la recherche en éducation. Nous espérons pouvoir franchir l'année prochaine un nouveau cap avec la généralisation de l'évaluation à l'ensemble des Actes.

Je remercie toutes celles et tous ceux qui ont bien voulu apporter leur contribution à cette conférence et aux Actes : M. Pascal Marquet, Professeur à l'Université de Strasbourg, Doyen de la Faculté des Sciences de l'éducation et Directeur du LISEC, qui a accepté de prononcer l'exposé inaugural ; les participants à la conférence et en particulier les auteurs des contributions rassemblées dans ces Actes ; les membres du Comité scientifique ; et l'équipe organisatrice. J'espère que les textes rassemblés ici serviront utilement à alimenter la réflexion.

Professeur Guy Tchibozo
Coordonnateur de la conférence

Foreword

These three volumes put together various papers for the 2nd Paris International Conference on Education, Economy and Society (21-24 July 2010). As was already the case in the first 2008 edition, these contributions cover most areas of contemporary international education research, and are illustrative of the diversity and liveliness of current trends. No doubt that the papers gathered here are uneven in quality, some certainly still needing methodological reframing and/or language editing. Yet, most of them pose interesting research questions, raise hot education issues, and prove commitment – or at least willingness – to properly meet the methodological requirements of scientific research.

Refereeing the Proceedings – not only the proposals – was a new feature in this year conference. One third of the papers submitted for inclusion in the Proceedings were thus successfully peer-reviewed. These are presented in Volume 1. I am especially grateful to those contributors who entered the refereeing process, thus supporting us to engage along with so many other quality improvement agents in educational research. Hopefully we may take a new step next year through refereeing all the Proceedings articles.

I would like to thank all those involved in this conference and its Proceedings: Professor Pascal Marquet, from Université de Strasbourg, Dean of the Faculty of Education and Director of the LISEC Education research institute, for accepting to deliver the keynote address; the participants to the conference and especially those whose papers are included in this book; the members of the Academic Committee; and the Organising Committee. I do believe that the papers presented here will inspire and sustain fruitful debates.

Professor Guy Tchibozo
Conference Coordinator

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Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

TABLE DES MATIÈRES / CONTENT

Proceedings 2nd Paris International Conference on Education, Economy and Society – 2010

Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

The Answer to Overcoming Math Anxiety: Student's Perceptions

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Abstract

The problem of student performance in mathematics in the United States remains a national concern, despite more than 50 years of attempts to improve mathematics education. This is due in part to math anxiety. This qualitative phenomenological study examined the perceptions of 20 college students who overcame mathematics anxiety. The in-depth interviewing of these students provided data regarding the students' perceptions of strategies that helped to reduce their mathematics anxiety. Three themes emerged that were consistent with the literature and reinforced the fact that there are strategies that can be incorporated in the classroom to help math phobic students. The three themes were: mannerisms of math phobic students; instructional strategies that helped reduce the student's math anxiety; and the demeanor of mathematics instructors and the way they interact with their students.

Keywords: Mathematics–Anxiety-Phenomenological-Student-Perceptions

Introduction

One of the greatest challenges facing education in the United States is the performance of students in mathematics and their avoidance of mathematics courses and related careers (Friedman, 2007; Else-Quest, et al., 2008; Warfield, 2008; EdSource, 2008). The purpose of this qualitative phenomenological study was to understand the perceptions of college students who overcame mathematics anxiety and to determine strategies that led to this phenomenon. The results of this study are intended to provide college professors of mathematics with an understanding of mathematics anxiety and provide them with strategies to help reduce the anxiety.

Literature Review

The problem of student performance in mathematics remains a national concern. Mathematics is no longer a subject that can be avoided in the professional world, and mathematics is a requirement for success (Noel-Levitz, 2005). Few careers are available that lack basic mathematics skills, and the job market has increased demand for technical skills (Noel-Levitz, 2005; EdSource, 2008) However; improving mathematics education in the United States remains a challenge.

16

Numerous reports such as the National Commission on Excellence in Education's document *A Nation at Risk* (1983), the National Center for Education Statistics (NCES) reports on international testing comparisons, *Principles and Standards for School Mathematics* (National Council of Teachers of Mathematics, 2000) and the No Child Left Behind Act have documented the need for and responded to this need through mathematics reform. Education officials are rethinking the teaching of mathematics in American schools.

Mathematics Anxiety

There is an array of definitions of math anxiety, with Tobias (1978) given credit for first defining math anxiety as feelings of tension and anxiety that interfere with manipulation of numbers and solving math problems. The phobia was given its own diagnosis code from the American Psychiatric Association: 315.1 *and was defined as "Students with a mathematics disorder have problems with their math skills. . . .significantly below normal considering the student's age, intelligence, and education" (p. 53).* A variety of different types of math phobia were also identified including global fears which occur all the time or subject specific such as towards algebra. Chisolm (1980) found that the fear of failing and avoidance of mathematics are also considered forms of mathematics anxiety. Clearly math anxiety is a real condition that students experience and feel*.*

Affects of Mathematics Anxiety

Math phobia causes a phenomenon that may impair normal intellectual functioning. As a result, the basic skills necessary for learning become inaccessible as a form of panic takes hold. Students believe that they cannot do mathematics and so learn to avoid it with some students exhibiting physiological symptoms of a severe nature. Perry (2004) described a variety of symptoms and reactions that can occur such as sweaty palms, nausea, heart palpitations, and paralysis of thought.

Ruffins (2007) studied the relationship between math ability and anxiety, finding that people who fear math have a tendency to avoid math-related classes, which decreased their math competence. College level students openly admitted their fear of math and subsequently did not complete assignments, avoided the teacher and the subject, and acted very nervous. Adult students exhibited avoidance behaviors such as not attending class, not participating, and even acting out. Karimi and Venkatesan (2009) found as students' levels of math anxiety increase, there is an increase level in the avoidance of mathematics. Farrell (2006) cited the incidence of math anxiety among college students was evident as many students chose their major on the basis of how little math was required, with only about 2 percent of undergraduates majoring in mathematics. As a result of avoiding math related majors, these students are blocked from many careers. Scarpello (2007) found that 75% of Americans stop studying math before they complete the educational requirement for their career or job. Projections from the Bureau of Labor Statistics' (BLS) Occupational Outlook Handbook (2009) indicated that many jobs in today's labor market require a

mathematics background, and that jobs requiring the most education and training will be the fastest growing and highest paying. The literature indicated that math anxiety has short and long term affects, and that providing solutions to remedy or lessen the levels of this anxiety are necessary.

Causes of Mathematics Anxiety

The literature review is replete with studies regarding the origins of math anxiety. Furner and Duffy (2002) recommended identifying the source of the anxiety, distinguishing the factors of how math anxiety came about in the first place. Knowing the source then would guide actions to overcome the anxiety. Varsho and Harrison (2009) concluded that students attributed feelings in math to five contributors: previous teachers, math ability, teaching styles, previous course, and family experiences.

Much of the literature pointed to dismal experiences in the classroom. Furner and Duffy (2002) identified teaching techniques that could cause math anxiety such as assigning the same work for everyone, teaching from the textbook, and insisting on only one correct way to complete a problem. Warfield (2008) found that traditional math instruction did not work for most students claiming that "It produces people who hate math, who can't connect the math they are doing with anything in their lives" (p. 16). Farrell (2006) found that professors taught mathematics with great use of large lecture halls and passive methods. Therefore a lack of variety in teaching-learning processes occurred, with an emphasis on memorization, speed and doing one's own work, and authoritarian teaching contributing to students' mathematics anxiety.

Studies related to solving word problems in mathematics have shown mathematical rigor and linguistic complexity as the two major areas of difficulty in solving word problems (Norgaard, 2005; Treacy, 2005). According to the secondary school longitudinal study conducted by the National Center for Education Statistics (2009), only 4% of the 2004 senior class exhibited a mastery of complex multi-step word problems in mathematics (Schroeder, 2005). Therefore, factors affecting the ability to solve mathematical word problems must be of utmost concern to all mathematics teachers.

Fraser and Taylor (2003) investigated the relationship that existed between the classroom environment and level of math anxiety from the perspective of high school students and determined that there was a strong relationship between the classroom environment and students' levels of math anxiety. Uusimaki and Nason (2004) investigated possible causes of math anxiety with eighteen Australian pre-service primary teachers. Their research determined that for the most part the participants attributed the cause of their math anxiety to primary school experiences.

Shields (2006) conducted a mixed method study of 91 students' perspectives on the causes of mathematics anxiety. Participants attributed their math anxiety to teachers, even though, society led them to believe that mathematics would be important in their future. This may have added to their level of anxiety since

they felt they couldn't do what society would require. Being taught in small groups and working with a partner seemed to produce the least anxiety, whereas individual and team competitive math activities made the most number of participants anxious.

Family/Society

Warfield (2008) conducted a qualitative study regarding family attitudes and concluded that the attitudes of parents affect student attitudes about mathematics. Warfield summarized this attitude by a comment from a parent: "Honey, don't worry. I never could do math either" (p. 16). A 2007 report from the American Council on Education found that 70% of Americans acknowledged that math was very important yet 44% believed students avoid math because this subject was too difficult (Clarkson, Covington, Fawcett, Smith & Goldman, 2007).

Disposition

The causes of math anxiety related to disposition, motivation, and self efficacy have also received attention in the literature. According to Marzano (2003) feelings of competence and belief in the potential to solve new problems serve as powerful motivation, This shows a direct relationship between confidence in ability and achievement in mathematics. Ercikan, McCreith and Lapointe (2005) also found that confidence in mathematics was the strongest predictor of mathematics achievement. Therefore, in order to learn and achieve well, it is important that students have a positive concept of themselves and their ability to learn, and a positive attitude towards mathematics.

Higbee, Arendale, and Lundell (2005) suggested that learning about student experiences and perceptions might produce further insights into improving performance. It was their belief that improvement in student demeanor had to do with the process of learning mathematics. Zan and Di Martino (2007) found that students' emotional disposition, perception of success, and value of mathematics contributed to their overall attitude towards mathematics.

Self confidence in math, the perceived value of the subject, and enjoyment of mathematics have been shown to be related to the students' receptiveness to learning math and ultimately their motivation to do well in the subject. Karimi and Venkatesan (2009) continued that a student's motivation and hardiness in mathematics directly related to their mathematics performance. In conclusion these studies have shown that students' beliefs in one's own ability are good predictors of achievement.

Practices to Reduce Mathematics Anxiety

Numerous studies (Barnes; 2006; Farrell, 2006; Faryadi, 2007; Johnson, Johnson, & Smith, 2007; McCoy, 2006; Townsend & Wilton, 2003) researched

strategies for overcoming math anxiety. Tobias (1993) stated that ". . . math anxiety can never be eliminated. The point is to manage it . . ." (p. 40). Tobias suggested that conquering math anxiety requires initiative and confidence about learning and one's own ability to learn. Perry (2004) explained that there was no simple solution to the problem of math anxiety; and suggested that a positive attitude was a first step. Reducing and eliminating mathematics anxiety continues to be a challenge for students and teachers.

Best Practices for Mathematics Instruction

Barnes (2006) investigated strategies to lessen math anxiety in the high school classroom. Ten students with the highest levels of math anxiety were selected to be interviewed. Barnes concluded that a positive and supportive learning environment aids students in overcoming math anxiety. McCoy (2006) revealed that high school students felt that teachers could be doing a lot more in the classroom to decrease math anxiety, including the following: discussing and writing, providing good math instruction, practicing study techniques, developing calming/positive ways to deal with fear, and experiencing success to build math confidence.

In the 21st century, emphasis has been placed on improving mathematics education. This requires high expectations with strong support for all students by accommodating to their differences. Farrell (2006) suggested that teaching methods at the college level should be re-examined with an emphasis on less lecture and more student directed classes. Cooperative learning groups, discussions, and manipulatives were suggested by Furner and Duffy (2002); Uusimaki and Nason (2004) also recommended exploring and communicating about mathematics in a supportive group environment. Dangel and Guyton (2004) ascribed to cooperative learning with the use of discourse and collaboration for learning to occur. Murray (2007) claimed the need for differentiated instruction as students learn at different rates, in different ways, with different successes and challenges. Instruction must be flexible enough to meet the needs of all students and to address the frustration that often leads to math phobia.

Using a constructivist philosophy coupled with the use of cooperative learning was not as clear, especially for the adult learner. Brewer and Daane (2002) found that students in constructivist classrooms had greater understanding of mathematics and experienced more success than those in traditional classrooms. Cooperative groups provide students with a chance to exchange ideas, ask questions, explain to one another, clarify ideas, and express feelings about their learning. Townsend and Wilton (2003) examined changes in attitudes towards mathematics. Their findings suggested that when cooperative learning is used, there is a significant positive change in mathematics self-concept. Uusimaki and Nason (2004) interviewed pre-service teachers, suggesting that the learning environment should allow free exploration and communication, a supportive group environment and application of mathematical knowledge. These constructivist practices in the college mathematics classroom are essential to breaking the cycle of mathematics anxiety in the American society.

Research Question

The following research question guided this study: What is the lived experience of college students who have had a significant reduction in mathematics anxiety; and what do the students perceive as effective strategies, activities, curriculum choices, and learning environment that helped lessen or resolve their fear?

Methodology

This study used a qualitative phenomenological design, with in-depth interviewing to collect data about students' perceptions of strategies that helped to reduce mathematics anxiety. Selection of the participants was based upon students reporting a reduction in their level of mathematics anxiety. Each interview was recorded, transcribed, and coded with the analysis dividing the interviews into categories. This method provided the participants with the opportunity to recall their stories, informing the researcher about what occurred to cause an attitude change. This study took place at a four year private university located in central New Jersey, USA. The primary investigator has taught mathematics at the university for more than ten years. Other mathematics professors at the university were asked to administer a short questionnaire to their students. The 5-question survey was used to identify students who once feared mathematics, but no longer do, and were willing to participate. Of the 350 students surveyed twenty students met the criteria for selection and participated in one-on-one interviews. During the interview, students were asked a series of open ended questions to determine what strategies helped to reduce their level of mathematics anxiety. Students were specifically asked about their attitudes, feelings, emotions, values, peer influences, parental expectations, and teacher influences as they related to mathematics.

Data Analysis

The researchers and debriefers applied codes to the transcripts, finding elements that included descriptions of people with math anxiety, causes, and possible methods to reduce this anxiety. Based on the works of Farrell (2006), Morris (2007), Ruffins (2007), Tobias (1978), and Turner, et.al. (2002) and the processes of coding described by Hatch (2002), Creswell (2003), Rubin and Rubin (2005), a list of codes was developed. These codes included the following: Characteristics, Causes, and Reduction. The exact quotes were reorganized according to the codes. From these codes, the results created themes that helped answer the research questions.

Results

Three themes emerged from the data analysis of the interviews. The first theme was that math anxiety causes students to act in unique manners. Some of the participants referred to their own mannerisms with the following statements: *"My body language said I can't do it . . . my hands sweat… I wanted to crawl under the desk…I felt frustrated…sometimes I just refused to attempt a new concept"*.

The second theme that appeared was that there are specific instructional strategies that teachers can employ to help reduce a student's fear of mathematics. The interviewees stated that they were helped in the following ways: *"The teacher took us through the problems step by step."* Slowly and methodically explaining the math material seemed to help students clarify and make sense of the math. The interviewees repeated several times that they simply did not understand the math. They claimed that *"I didn't know it and I'd do the homework and I'd get it wrong. . . I didn't understand how to think that way."* This perpetuated their math anxiety. Some participants maintained that their math anxiety was reduced because of the efforts of family members. *"So my dad pulled me through and he's the reason why. . . My sister taught math and she would work with me"* One participant described working with her dad when she said *"It was partially being comfortable in the setting and we'd be home and he would be sitting in the easy chair and he would check my work."* All of the interviewees credited a specific math teacher with helping to reduce their fear of math *"She [the teacher] would go over it. My answers would be right. And I'm sure that was something that helped."…"the hands on experiences that she [the teacher] helped me to understand."…"Working in small groups on word problems helped me to understand"…"I always felt he [the teacher] cared"…"I felt I could ask questions ad not feel stupid"…"My teacher would work with each of us individually and made the class fun."* For students to succeed in mathematics they need a nonthreatening environment in which they can take a risk.

The third theme indicated that although teachers may enter the profession to help students, they may actually become an obstacle. The interviewees described being overwhelmed in the classroom. They described this setting when they said *"I wouldn't have done any better if I had taken it again. I didn't know it . . . I'd get it wrong. . . 'I had a bad experience with a previous teacher"…"The teacher would stand over me and make me nervous"…"She would not take time to answer my questions"…"I never had enough time"…"I never felt that my teacher cared."* Such findings served as a reminder of the powerful affect that teachers have upon their students.

Conclusion

Although the study of math anxiety is not a new concern for American education, it has a far reaching affect on the American society and individuals themselves. Friedman (2007) noted, "How many times do we adults say to one another, I'm just not good at math? That may be true for some of us. But it won't be good

enough in the new generation of jobs" (p. 302). Educators can no longer allow the perpetuation of math anxiety.

This study interviewed individuals, who once experienced math anxiety but also experienced a reduction in this fear. While the study included only 20 interviews, three themes emerged that were consistent with the literature and reinforced the fact that there are strategies that can be incorporated in the classroom to help math phobic students. The interviews revealed that there are behaviors that mathematics phobic students might demonstrate such as avoidance of the subject and physiological reactions. Paramount is the finding that there are ways to help these math phobic students The words of the interviewees emphasized the fact that a caring teacher in a supportive environment who uses multiple teaching strategies to address the needs of all students is the best remedy for reducing math anxiety.

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Why can't we play (video)games at school?

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Abstract

Children's interest and abilities for the online environment in general, and especially for videogames, has raised a lot of attention by the companies operating in these markets, but did not raise the same interest among the education community. If the integration of ICT (Information and Communication Technologies) in Portuguese schools has been somehow controversial, the acceptance of videogames at school provokes much highly contradictory feelings and reactions among educators. Playing games, and most of all playing just for the fun of playing, not to learn some specific topic, is not fully understood as useful by many educators. And when playing means using electronic devices, then we are putting together two things that are both often seen as useless for educational purposes. The adults' speech about this is quite clear: school is a very serious issue, and neither games, nor playing, nor these new electronic "toys" can fit this request for seriousness. However, technologies are not good or bad in it selves.

This text is the result of a research carried out in two Portuguese schools, with children aged from 6 to 10 years and their educators.

Keywords: Children – Culture – Technology - Videogames and Play

1. Introduction

Information and Communication Technologies (ICT) represents, nowadays, a new way of living a great change at all levels: educational, cultural and social. The contact with the digital world, the access to information, distance learning, e-mail, e-government, e-banking, video conference, online shopping, etc... are changing significantly the way we live and work as well as the way we interact with the new generations. The appeal of this technological advance is, as described by Valentine and Holloway (2001), the promise of greater speed, power, control, knowledge, pleasure and development. We all know different pedagogical methods and projects for education as well as different ways of learning and teaching, but we have not yet fully studied children's online uses at school either in a formal or informal way (Lencastre & Araújo, 2007).

Considering that international studies showed a positive correlation between the use of Information and Communication Technologies (ICT) in the context of the classroom and good learning results, Portuguese Government implemented, in 2009, a Technological Programme for all school levels[1]. The plan set as its main

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[1] http://www.min-edu.pt/np3/2237.html Within the scope of the Technological Plan, 2 million Portuguese citizens will have access to specialized training on the Internet and will strengthen the internationalization of research efforts in Portugal.

goal to rate Portugal among the five more advanced European countries in technological modernization of education. The plan was to provide internet access to all students of all school levels, to equip classrooms with a Technology Kit that included, in addition to computers, interactive whiteboards and other specific equipments. However, the process of implementation has been somehow controversial, either by financial or administrative reasons but because this plan demands also changing peoples minds about learning. Our findings show that more than 50% of the teachers could not understand the usefulness of the new equipment in the classroom and where rather critical towards its use with young children. Furthermore, a considerable number of teachers lacked the technological skills to deal with the equipments, so a special training programme has been implemented (to all teachers in all schools that would like to attend it) in order to overcome those specific difficulties.

For young children, however, technology seemed not to be a problem as in fact the computer literacy and access to ICT at school has been preceded by informal learning in kindergarten, community centres, at home or with friends, through the use of electronic devices as the Game Boy (console launched in 1989), among others. Moreover, our research shows that the massive access of children to such devices is prior to their access to computers at school. Videogames and consoles are, for the youngest, the first training experience in the IT (Information Technology) world, as also shown by the research made by Casas (2001).

In fact, we are in the presence of a new concept of literacy, which brings together and integrates images, sounds and words, visual symbols and artefacts. Unlike television, which is a passive device for children to watch and listen without interaction, videogames allow a great interactivity. As Paul Gee (2007) refers, this is a new concept of literacy with a broader scope. The written language is no longer the main way we can communicate ideas. Images, symbols, graphics, artefacts and many other visual symbols regain their importance and become very significant. Moreover, images and words are juxtaposed and better integrated in this new world. In new books, in Internet pages and in games, images become more present, more important, occupy more space and sometimes don't even require a written explanation. Learning becomes easier for children. "People tend to think school is about 'content' (facts, information) and games are just about actions. Games have lots of content, but 'teach' it in ways radically different from school" (Gee, 2007:4).

The level of knowledge required to deal with this new reality seem very complex to many educators, but when it comes to children they find it very easy. Most children are very practical and want to experiment and explore and they do so with a purpose that is not exactly the same of adults: they do it for fun, to play. And an interesting feature of this playing attitude is that it is a good way of learning, of acquiring knowledge and experiencing life. In this sense, it is necessary that teachers understand these new digital worlds as well as the children's culture and try to learn through it.

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http://www.cnel.gov.pt/InnerPage.aspx?idCat=422&idMasterCat=417&idLang=1&site=coordenators-office

2. The research

To study these issues we have developed a research with children from 6 to 10 years old, and their teachers in two Portuguese primary schools, in order to be aware of their habits and routines in what concerns online experiences, contact with technologies, knowledge experiences and uses of different electronic devices either at school or at home. We wanted to know the impact that these electronic toys have in their life and their way of learning. We also tried to understand whether it is possible, in the current context of education, a pedagogical perspective that takes into account children's culture and preferences in order to promote literacy in an active and participative way, i.e, a type of participation in which children can be engaged voluntarily and express themselves culturally as authors of their own way of learning. In fact, a perspective that is focused on matters that interest children, as electronic devices, videogames and face-to-face games, may bring new meanings to school culture, attenuating the symbolic violence, inevitably present in the dominant school practices.

After collecting data from direct observation, we gave a questionnaire to 230 children (boys and girls) as well as to their teachers. The result of this work showed that, in what concerns ICT, 100% of the children know how to use computers and at school they mainly use them for research or other schools activities; 94% of the children have computer at home but just a small percentage has internet, although all of them know and use internet at school at least once a week; 98% are familiar with different computer games and sometimes they play at school library. Children are also familiar with different electronic devices like mp3 and cell phones either as communication tool or to play games, but only 10% have one of their own.

Concerning videogames, 82% referred they have videogames at home; 50% of the children have more than just one brand, but all of them know different ones: PlayStation, PlayStationPortable, Nintendo, X-box or other; they know the characteristics of these consoles and are up-to-date in what concern new models, prices and where they can get them; 22% play videogames every day more than once; 94% play time to time and/or during weekends either at home with their own equipments or at friends or parent's houses. All children mentioned they love to play and find these games suitable both for boys and girls, although boys are more enthusiastic. 60% of the children mentioned their parents don't let them to play all the time they would like to, but even so they always buy them new games. Only two children referred that they have already played with their mothers and several play frequently with their fathers. They prefer to play with friends and they mentioned that, at school, nobody would let them play (either their parents or teachers). They also mentioned that they would not have time to do so.

To the question: "*can you say why do you like to play these games*?" they mentioned: "*it is cool*", "*I love it*", "*to relax*","*fascinate*", "*to be with my friends*", "*to pass different levels*", or just "*to play*". To the question: "*What do you learn?*"

they referred*:" lots of things".* Some mentioned they learn English and others that with these equipments they can play educative games.

They have difficulty saying clearly why they enjoy so much playing videogames and mentioned "*play is to play ... that's the good thing*" but they also mentioned that they love the challenge of the game. All of them like games related to football; but they also mentioned games about history and monuments. Easy games are not so good, not so pleasant, difficult games are more interesting. "If we know how to play it easily it is not interesting".

In the book "Jouer et Apprendre", Brougère (2005), analyses the relationship between playing and learning and specifically in what concerns videogames, he refers that what is really important for the game players is the adventure the game proposes: finding the enemy, passing different levels, changing places and pieces, defining strategies, sharing, controlling and having the illusion of entering into action. Concerning interactivity, Brougère refers that it has different levels and so it is necessary to think and understand what really matters in these games and why children love them so much. According to Paul Gee (2003), good videogames incorporate good learning principles, principles supported by current research in Cognitive Science. This author has developed a scientific research on the subject, explaining why we need to pay attention to these issues. Considering that electronic games industry is growing and that children spend a lot of money in it, engaging themselves in playing games that are often hard, long, difficult and complex, he became intrigued by the implications good videogames might have for learning in and out of schools. So, he realized that this persistence of the students to play long, hard, complex and very difficult games and yet enjoying it, was really the question schools should face. Being so, his aim was not to say how teachers should teach, nor to take these games to school, but to understand the role of design, experience, cognition and pleasure in attracting children's interest. In fact, his long work on the subject show that, at a deeper level, challenge and learning are a great part of what makes good videogames motivating and entertaining and that's why school should explore its potentiality (Gee, 2003). We often mention the difficulties children have to understand and to like school so maybe one way of making them participate more in school activities is to have there the games they like so much. Furthermore, scientific research today shows that good games are essential for good learning, either electronic games or games and playing in general.

Teachers interviewed during this research mentioned that they use laptops mainly as a communication tool. They use them especially to write documents and sometime to make a visual presentation. Few teachers mentioned they use IT in classroom with their students. The ones who don't present several reasons, like:
1 - The Internet is not seen as an essential activity, a daily necessity for small children in their school activities;
2 - ICT is better for older children and to do special and thematic activities;
3 - Children who attend the 1st year are starting reading and writing, and therefore, it is assumed that reading and writing should precede the handling of computers;
4 - The pedagogical relationship (student-teacher) in primary schools is very

close: the work on the computer could create some isolation on the learning process, limiting the length and quality of the relationship teacher-student and student-student.

The data collected shows that for some teachers ICT is not seen as the possibility children have to access more easily to information and communication and so the possibility to enlarge their way to contact with the world. Regarding this subject David Buckingham[2] in an "Overview on Media and Literacy" published by EU Committee on Culture and Education in April 2008, mentioned that when we are talking about media in school we are not talking about technology but about education.

Regarding electronic games, most of the teachers find that these games should be played at home and that it is better that students don't have them at school. They feel that children already play too much time and they feel it is not good for their health. They also referred that electronic games are the responsible for children's lack on interest either on reading books or studying to improve school activities. 20% of the teachers find that videogames are a waste of time and don't see any advantage to the learning process. In general, teachers feel that their students play a lot at home an so it is not necessary to have videogames at school, even considering that in Portuguese primary schools small children spend a lot of time (more or less 7 hours every day). They feel that after school hours children should participate in educational activities that are related to their improvement as students and for those teachers games are recreational activities only. Even so, some teachers referred they where willing to try to understand why children love these games so much and if they found a positive reason they could even start using games in class. To the question: "Have you already played videogames?" only three answered affirmatively.

Listening to children and paying attention to their cultures is a challenge to the traditional school and schooling. As Niels Kryger (2005) mentioned, the school is seen as an authority in matters of knowledge, ensuring the transmission of a valid culture, and activities that are out of school, or outside the curriculum guidelines, are considered of lower quality and sometimes even poor. This way of seeing the school still stands, and does not help to look at children as they really are and to value what they like to do. Unlike adults, children are not concerned with ICT, or with the Information Society, or to accomplish any specific learning program, but only to express themselves, to play. As Jackie Marsh (2010) also refers, children are becoming more and more interested in virtual worlds, spending a lot of time online. Consequently, we cannot ignore the impact these activities may also have in their formal education progress.

3. In Brief

In this article we presented some results of our ongoing research. We focus our analysis on data related to children's interest considering that for them ICT offers

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[2] David Buckingham is one of the leading international researchers in the field of media education, and in research on children.

Proceedings 2nd Paris International Conference on Education, Economy and Society – 2010

a wide range of opportunities to play and engage in learning, but this research also shows that children cannot be left to their own devices, they need to be accompanied. In fact, electronic devices can be bad in those conditions. Next step of this research should be more specific in what concerns skills and specific contributes to learning.

Playing games, especially when related to schooling and educational institutions, often appear as secondary activities. Furthermore, when we think about videogames, we think on fun and when we think about learning, we think on work. This way of understanding videogames is not only because they are electronic devices, but because playing is not considered a serious issue. However, children play to discover the world, the people and all things that surround them. Playing is to be in action and it is through action that children construct their perception of the world, even if the kind of action games proposes cannot be confused with the action of school activities. To play it is not only an important activity, but it is absolutely vital for children's lives, as much as sleeping or eating. If we pay attention the way children play, we will notice the spontaneity, the voluntary commitment, the regularity and consistency of the act of playing, an activity closely related to the development of the child and consequently to it's learning process. In fact, children "*don't play to learn but learn because they play*" (Epstein, 1996:8). Furthermore, playing is essential for children to develop their creativity, autonomy and responsibility.

Playing is part of children's cultures and for them it is a very serious matter, a foundational element of their culture. "Playing is the condition of learning and learning at the outset of sociability" (Sarmento, 2004:26). Bearing this in mind, educators like Froebel, Decroly, Montessori and others, have proposed, several decades ago, a framework for school activities that allowed children to live a school life where playing could reveal all its potential benefits (Araújo,2009).

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Music and Drama Beyond School

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Abstract

This paper aims to present a critical reflection on a pioneer project of Music and Drama and its specific ways of artistic expression and communication carried out by GCEA (Gabinete Coordenador de Educação Artística) in Madeira Island. For 30 years Madeira primary schools provides music and drama to all children, from 6 to 10 years old, involving them as well as their parents and teachers in a relationship that is beyond pedagogic and educational purposes. Our research focuses the curriculum orientations, teachers training, structure and organization of the project as well as dissemination, to understand the role that Music and Drama, as key areas, have on the integrated development of young children, mainly in the domains of creativity, self-expression, and autonomous thinking.

Keywords: art education – expression – music – drama - teacher training

1. Introduction

In the twentieth century there has been all over the world an incidence in the scientific disciplines in curriculum orientations. Although, in the last two decades there has been a growing movement that imposes a critical point of view of the implications of that choice in the children development, which UNESCO (International Appeal for the Promotion of Arts Education and Creativity at School) is a great example.

The literature provides us a remarkable number of studies and arts experiences with children that prove the effective contribute of the arts in the human development (Hargreaves, Marshall and North, 2003; Sloboda & Juslin, 2001; Sloboda, 2003; Pacheco, N. A., 1999). Iwai, K. (2003) summarises these research findings in five domains: aesthetical, socio-emotional, socio-cultural, cognitive and academic achievement.

As said in the UNESCO Positional Paper "by giving its rightful place to the teaching of arts in places where knowledge is transmitted (schools, cultural institutions and centres, training centres), this teaching, by its very nature, becomes a tool to strengthen ethics, social and aesthetic values." (p.1,2).

The music educator's community agrees that teaching music implies involving children with diverse musical activities from playing and singing to listening, improvising and composing. Small, C. (1998) named it *musicking*, as present

participle of the verb *to music*, with implies the engagement in any kind of music performance, even dancing.

Drama Education is "pedagogy of the process", a process where children develops *ways if knowing/doing* and *ways of being* (Barret & Landier, 1991; Bolton, 1985, 2007). These is one of the most difficult aspects of having drama education in curriculum, once the products of its teaching are personal, and its quite easy to fall into the trap of confusing drama education and theatre, or with socialization games. On the other side, in Portugal drama education doesn't have a specific course, what brings some indolence to the decision of who is teaching it.

In Portugal, the primary curriculum is composed by Portuguese (main language), Mathematics, Study Field and Expressions (mainly drawing). Although since 1996, the Ministry of Education issued a law that defines music education as an extra-curricular activity which implies that, as a curriculum subject, it has not been implemented as desired (Mota, 2001, 2007; Boal-Palheiros and Encarnação, 2008).

In 1980, in Madeira Island, an autonomous region of Portugal, was born a unique project of music and drama. This project aims to give the opportunity to all children in primary school of the island to experience music and drama. In order to accomplish that, the two mentors of this project (Carlos Gonçalves e Lígia Brazão), with the endorsement of Regional Secretary of Education, have founded the GCEA (Gabinete Coordenador de Educação Artística - http://dre.madeira-edu.pt/gcea/). In this article we analyse the structure and the organization of this institution in order to accomplish their goals, what have it done in order to keep the government support and the implications of it progressive growing, in its 30 years of existence.

This is a case study that adds qualitative methodologies, such as ethnography, content analysis and narrative inquiry (Bresler, 1992; Clandinin, 2006), and a small proportion of quantitative methodologies, statistical analysis of the questionnaires that were sent to classroom teachers, music and drama specialists, and parents.

In this paper we made a critical reflection about the implication of the continuous growing of the GCEA in the teaching of music and drama, and its potential contribution to the children development.

1.1. Madeira Island

Madeira Island is the main island (740 km^2) of Portugal and is located in the Atlantic Ocean west from African Coast (Morocco), 978 Km southwest from Lisbon (capital of Portugal). Madeira is an Autonomous Region, with the main town in Funchal and have approximately 245 000 inhabitants, the majority in vulnerability to poverty (Bruto da Costa et al., 2008). Tourism is perhaps the major force of Madeira's economy, providing a significant number of jobs in tourism activities.

1.2. Gabinete Coordenador de Educação Artística (GCEA)

GCEA have a structure and principles very similar to the scout movement. Its hierarchical structure (cf. figure 1) includes one director (one of the mentors), tree coordinators for the different division interventions and the music and drama specialist teachers.

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                    │             Director             │
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        │       Regional Coordinator of Music and Drama          │
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        │           Music and drama specialist teachers          │
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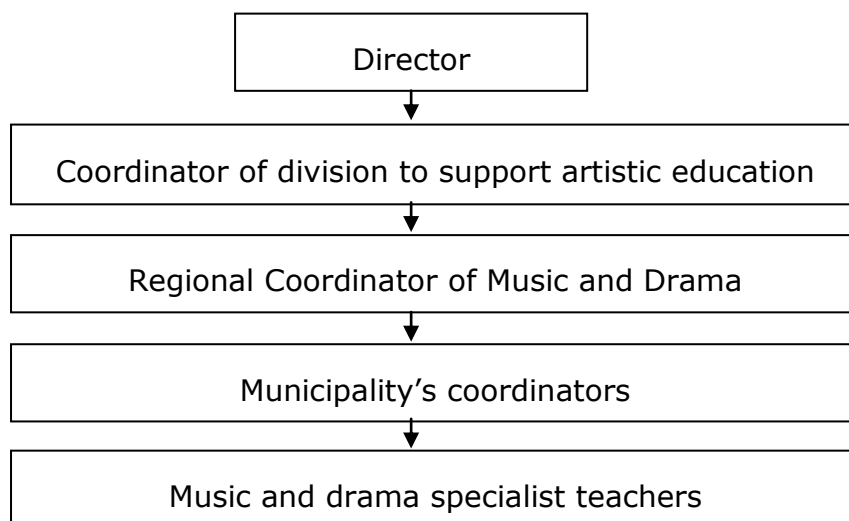
In order that all the children have the same opportunities GCEA has progressively introduce rigidity to its functioning. This is justified by GCEA discourse that "college graduate is only a license to learn" (director of GCEA).

Since 1980, 261 music specialist teachers (Portugal doesn't have drama specialist teachers) are taught in Madeira primary schools. GCEA supports them in very different ways: on-going training (they are obliged to attend at least one per year), supervision and working meetings.

The supervision is understood by GCEA as a manner of facilitating the teacher's adaptation to the project and it's done in a biweekly basis. The municipality's coordinator is responsible for a group of specialist teachers, supervises their classes (participating one a month) and plan collectively. In each observed lesson is made a report agreed by both parts to GCEA direction. Participating in the institutional activities is hardly advised, particularly in choir and instrumental groups.

The project provides one hour in curricular time and 90 minutes in extra-curricular, defined by the specialist teacher according to his own skills: drama, Orff instruments, choirs, dance and Madeira traditional instruments. In the curricular time teachers, generalist and specialist are in the classroom and work together. Only in the extra-curricular activities the specialist teacher is alone, although the teaching should be articulated with the class. Through out the entire year, GCEA promotes several public events that allows the demonstration

of project's practices, culminating with a huge television show event at the end of the school year (June).

Two years ago the GCEA also launched the music and drama manuals that should be used as guidelines to the children work, even though the specialist teacher can use other kind of materials teachers should give priority to textbook. GCEA also provides all the material needed to teach music lessons in schools, such as music instruments, cd's and dvd's, and stereos.

2. Methodology

In order to understand the complexity of this project, concentrating our efforts only on the work that GCEA develops with the children in primary schools and within schools, we combined qualitative and quantitative methods. The data was gathered in two years of research, from November 2007 – September 2009, and the whole study is expected to be complete in November 2010.

Qualitative methods were manifold: analysis of GCEA's documentation; unstructured interviews to key figures/ mentors of the project, and other coordination elements; semi-structured interviews to music teachers; observations of several music and drama classes; attendance of public presentations; children's focus group interviews, and researchers' field notes.

The topics that constituted the design of unstructured and semi-structured interviews were priory discussed by all the team members; the same was done by the children's focus group. Some of the key elements of GCEA were re-interviewed for clarification purposes and to return them our understanding of their voices. All interviews (31) were tape-recorded, transcribed and analysed using both content analyses for identification of emerging themes, and narrative inquiry for the analysis of the different actors' discourses. 37 music and drama lessons were observed, and whenever a parent's permission had been signed, the classes were video-taped.

A few weeks from the final television event, we developed several children's focus groups, with parent's authorization. Each group was constituted by 6 or 7 children including children that had already participated, were going to participate or had never participated in that event.

All interviews (31) were tape-recorded, transcribed and analysed using both content analyses for identification of emerging themes, and narrative inquiry for the analysis of the different actors' discourses. 37 music and drama lessons were observed, and whenever a parent's permission had been signed, the classes were video-taped.

Quantitative methods were used only in statistic analysis of questionnaires send to specialist teachers, classroom teachers and parents so that we could have an integrative vision of this project from all the actors involved.

3. Results

3.1. Questionnaires

3.1.1. Questionnaires to classroom teachers

107, from the 132 questionnaires sent out to classroom teachers, were returned. The statistic analyses reveal that the majority of these classroom teachers (ca. 60%) did not have any kind of preparation to taught music or drama. Recalling that in Portugal the initial teacher training does not include arts teaching and also the primary curriculum only concerns drawing. The ones that reported to have had music and drama education (only 33%) received on-going training mainly through GCEA and 64,5% referred total lack of confidence due to poor preparation if their have to assume total responsibility in music and drama teaching.

As we could confirm in our class observation, the majority of the classroom teachers have a passive presence in music and drama classes, only 9.3% reported an active collaboration.

3.1.2. Music and Drama Specialist Teachers

75 questionnaires that were sent out to the specialist teachers and 71 were returned. The majority is a music educator graduated (ca. 49%), but there is also others specialist teachers with music and drama training provided by GCEA, such as primary school teachers (ca. 14%) and kindergarten teachers (ca. 10%). 13% are Music Conservatoire musicians and the other 10% are non-graduated music and drama professionals (certification provided by the GCEA). The lack of collaboration of the classroom teachers are reported and remarked as the key factor that invalidates the continuity of the work developed in music and drama class.

3.1.3. Parents

226 parents answered the questionnaire. The majority of the parents have low level of academic studies, only 18% have college studies. In the same way, the majority does not have any kind of music or drama formation and never participated in music or drama groups. However, 76,5% indicates a regular attendance to the events in which their children are involved, and 98,7% would support a choice of a musical career.

3.2. Interviews

3.2.1. Interviews of GCEA members

Content analysis of the interviews of GCEA members evidenced the following themes: 1. recognition that this is a pioneer project very updated with the best practice done in the eighties; 2. overall control of artistic education practices in the whole Island, due to high structure and organization of the program; 3. unison discourse (even entire phrases) that is shared by all the elements of GCEA, which reveals a big sense of ownership and leadership; 4. recognition of lost of some the initial ideas of the project as the collaborative work between classroom and specialist teachers.

3.2.2. Interviews of music and drama specialist teachers

The interviews with the specialist teachers allow us to trace two different profiles. In one side, there are the specialist teachers coming from the mainland that see this project as a transitional phase in their career and, although they may criticize some practices, try to avoid confrontation. On the other side, there are the island origin specialist teachers (some of them returning after absence to graduate in the mainland), who are comfortable with the project, having prior knowledge about its existence and for that demonstrating a more intensive involvement in it. This provides them with the capacity to questioning more accurately the practices of the project and to propose new ones.

3.2.3. Focus group with children

The primary students reveal enjoyment in music and drama classes. However, it was quite representative the difficulty that children revealed in participation of music or drama improvised moments. The majority of the children unknown the process of the public events, focusing only in the importance of being chosen to attended it, regardless their effort or their level of involvement.

3.3. Music and drama class observations

The majority music and drama classes are mainly musically performed focused in public events performance. The pedagogical methods used are old fashion (on-going repetition) and do not implies the children involvement.
Drama Education was quite rare observed and limited to miming songs and small choreographies. Rarely, if not ever, creative movement was promoted with the group. The specialist teachers revealed lack of drama formation and very restrictive ideas about what is drama education.

3.4. Public events

GCEA considered that public visibility is indispensable to the continuity of this project, in order to maintain the government support. The school year is replete of public presentations in the community that are prepared following the work done in extra-curricular activities.

The school year ends with a big television event that it's supposed demonstrate the work done in regular music and drama classes. This is a television event that is all held in playback (vocal, instrumental and theatre dialogue). The event starts as a live concert but soon turn into a full playback, sustained by the public expectation and television demands.

Although GCEA discourse highlight the importance of the public events performance being the final result of teaching-learning process, the highly structured organization around the final year event shadows all the work done in class, requiring all attention of specialist teachers since January, when the event only turns on in June.

4. Discussion and Conclusion

The complexity of this project can be wisely defined by the two types of relation with the practice that defines education sciences: 1. the immediate practices of the actors and 2. the macro social practices (Berger, 2009).

Starting with the actors' practices is important to bring to discussion the pertinence of artistic education in educational places, such schools, contributing to integrated development of young children, mainly in the domains of creativity, self-expression and autonomous thinking. GCEA initial idea for this project should in fact promote this development, however the progressively stiffening of structure and functioning leads no space to teacher creativity and children implication in music and drama classes, as Beauchamp & Harvey (2006) referred teachers are understood as part of the operational and implement curriculum proposals.

The lack of opportunities of experiencing music and drama other than performing does not allow the children to embrace arts as a reflection of their own self-expression. At the same time it only provides stereotyped relations between teachers and children that do not allow the advantage of individual differences.

Barrett (2000) challenges all music teachers to wonder if they expose their students to the new and supported their capacity development. With it she highlights the importance of creativity moments, integrating composition, improvising, as well as thinking in autonomous way.

On the other side, the straight collaboration between classroom teachers and specialist (as GCEA try to promote) requires the assurance of quality teacher training in artistic expressions, with the required adaptation of performances to

pedagogical practices as long as a continuous work through out the primary school (Mota, 2003).

This is highly connected with the second axe: the macro social practices. GCEA project have a formal school culture, characterized by a relation with the exterior and the need of the public recognition, or in more particularly the government support. That is to say that contradictorily to the recognition of the importance of arts to children development, what is proposed to the children is a education based on the reason, over the affectivity and the treasure of a integrated development (Carasso, 2005).

Nevertheless, GCEA effort should be recognised, once that as Anne Bramford (2006) exposed, in an international study for UNESCO, that there are great international art education programmes but the economical imperatives tend to reduce the place of the arts in the education policies. Likewise, Maestracci (2006) highlights the importance to control the quality of educational activities, which implies the clearly definition of objectives to work with the children, because school culture is explicitly based on curriculum contents.

5. In Brief

Our findings show that this is a very ambitious and organized project. All children attending primary schools have to have the chance to contact with music and drama education in a formal way. Artistic Education is foreseen as a responsibility of school and in this sense music and drama classes are rigorously organized and controlled by GCEA taking into account that all children should be able to learn exactly the same things, with having the same opportunities as in any other area, proving that a consistent pedagogical perspective is respected, feeling that directive pedagogy is good for children and for the project. The responsible and coordinators of the project mentioned several times in a formal or informal way that they where also critical to some of these aspects that we presented were in this text and that is their aim to introduce new and different perspectives that give the possibility to children to explore by themselves in a more autonomous and creative way. That's why they are confident that our research could bring new contributions and ideas to improve and enlarge their project.

6. Acknowledgements

Finally, we would like to thank the full collaboration of the GCEA, unrestrictedly opening for us the doors that enabled our understanding of this fascinating project.

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Managing major educational change: Is the Cyclical Integration Model the answer?

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Abstract

Where minds meet, there lies the change vector. I have for a long time been fascinated by the way in which change, and specifically educational change, is managed. More often than not it seems, minds fail to meet in a crucial change-space. They either unwittingly zip past each other, deliberately avoid one another, or worse still, collide with excruciating force. This paper examines the interrelated role of government, the public service and teachers in successfully transitioning major change. It is argued that unless these bodies operate in synchrony, change negotiation is likely to be hampered. To this end, a model of 'cyclical integration' is presented and supported by driving questions for each of the three agencies facilitating the change process. Although it is considered that these questions are sufficiently broad to encompass change management across any number of enterprises, what is being considered in this paper is the arena of education.

Keywords: change management – policy – Australia – education

1. The Challenge

I have a friend, Ken, recognised as an excellent teacher who left the profession several years ago citing a very disturbing reason for his exit. He claimed that he was leaving because he was fed up with "all the outcomes-based education bullshit that has been dumped on us from on high". Although I share his sentiments about outcomes-based education *per se* and have said so publically (Berlach, 2004; Berlach & McNaught, 2007), his comment provided a catalyst for deeper thinking about the nature of change itself. Why did he think that something that came "from on high" was best described by an expletive? How did he see himself in relation to the amorphous "on high"? Why did he express powerlessness in the form of "dumped on us". We shall return to Ken later, right now, let us plot a different trajectory.

According to respected change management theorist Michael Fullan (2007), not too many people relish the thought of change. With a touch of irony, Fullan suggests that "if people were given the literal choice of 'change or die'…" (p. 42), societal evidence suggests that the likelihood of choosing change is nine to one against them. Fullan's grim view of change, as cited above, is unlikely to come as a revelation to those who have been involved in the enterprise of managing educational change for any extended period. Whenever change is mooted, securing universal agreement regarding its necessity is rare. What is not rare, however, is resistance, often encountered in the form of direct attack, passive-aggressive posturing, or begrudging acquiescence.

Half a century of research in motivational theory has verified that change comes in one of two ways, as a response to a stimulus presented in either the external or internal environment. Response to an externally mediated stimulus normally results in extrinsically motivated behaviour in the form of compliance; whereas an internally generated stimulus results in intrinsic motivation in the form of desire. It has been shown that both forms of motivation are powerful and highly efficacious for human endeavour (Bandura, 1986; Barry & King, 1998). It is the intrinsic form of motivation, however, that tends to be the more enduring as it is more closely aligned with personal goals (Deci & Ryan, 1985; Schunk, 1995; Schunk & Zimmerman, 2003). Essentially, change from within the individual (self-motivated) is less stressful, more highly motivating and more enduring than change which is externally mediated. In Rotter's (1954) terms, if the locus of control is internal, change is likely to succeed for, in the language of deCharms (1972, 1984), the driver sees him/herself as the origin rather than the pawn in the transaction. Given such an understanding, externally imposed change is likely to be a potentially unpalatable motivator.

The further individuals are from the source of a change decision, the greater will be their psychological alienation and associated angst (Hargreaves, 1998; Rosenholtz, 1989). Education is not immune from this general principle. Decisions are typically generated by government, regulated by the public service and implemented by teachers. This hierarchical model is represented in Figure 1. Although informed communication between these stakeholders is often attempted via focus groups, committee representation, individual and group submissions and the like, there is normally little continuing effectual dialogue once each agency has attended to its designated task. Decisions are made, policy is drafted and consequent implementation expected.

Figure 1. Change agent relationship: Hierarchically-based model.

Such a top-down model typically begins to fracture as decisions are moved further and further down line, as people lose sight of origins and begin to feel like pawns. The reasons for potential hierarchical fragmentation are perhaps self-evident. Nevertheless, key factors are worth highlighting. In the first place, politicians are by definition political creatures – they play the public image game necessary for holding government at the next election. They have a confident approach, are full of optimism, and use the sort of jargon (often illusionary) that tends to suggest they know what they are talking about and really do have the answers. By way of example, we can quote verbatim the inspirational language peppered

throughout a recent speech to Teaching Australia given by the Australian Federal Minister for Education:

"committed to improving… improvement in quality… collaborative reform… new era of quality and reform… share responsibility for educational outcomes… teacher quality… raise achievement in disadvantaged school communities… Improving our schools… higher impact and performance… rigorous shared evaluation… for every child, in every school, in every community… Education Revolution… transparency and openness… better education system (Gillard, 2008). »

Unlike politicians who make pronouncements, public servants are expected to administer the process of turning a ministerial statement into implementable policy. This is an unenviable task, for it is invariably the public service (department) that will be the proverbial meat in the sandwich – politicians pushing down (deadlines, budgets, accountability) and teachers and their professional associations pushing up (policy criticism, workload and remuneration issues).

Given the nature of the interplay between politics and the public service, hierarchical fragmentation may not be an unreasonable expectation. Bourgon's (2008) representation of this interplay details the intricacies of the decision making process (Figure 2). The diagram shows that although the work of the two bodies intersects in the middle of the 'figure eight', each by-and-large operates in its individual world. Policy so produced is then presented to teachers for implementation.

Figure 2. Bourgon's (2008, p. 395) interplay between administration and politics. [Model embellished with a loop to Teachers]
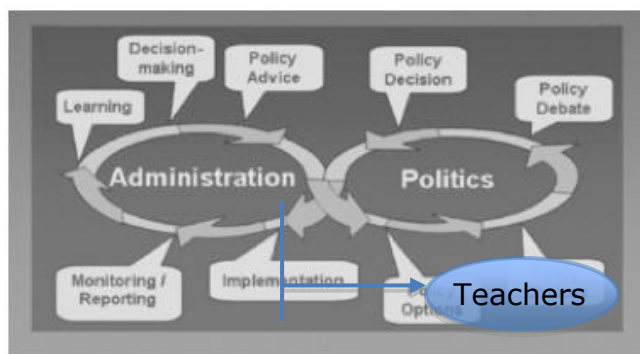
It is often at this point of 'now do it', such as in the case of the outcomes-based education scenario mentioned previously (Berlach, 2004; Berlach & O'Neill, 2008), that a grass-roots outcry erupts. Research literature suggests that it is not unusual for teachers to feel "dumped upon from on high", to use my friend Ken's words, when encountering implementation directives for which they feel no ownership (Conley & Glasman, 2008; Fullen, 2001, 1993; Hargreaves & Fink, 2006; Horsley, 2009).

Fragmentation *en route* from idea to policy to implementation has the potential of torpedoing any initiative. Success at the point of delivery is always the best

indicator of an effectively managed change process. Bourgon (2008) is insightful when she writes,

"A good public policy is one that achieves the intended results at the lowest possible cost to society while minimising unintended consequences. While policy decisions receive most attention, *policy implementation is where success is defined*. This is where we can see the difference between grand ideas with no future and good ideas that generate long term benefits for the country (p. 394, italics added)."

Given that the hierarchically-based model has the potential to suffer from down-line fragmentation, change management based on a more stable foundation may yield better results. The alternative presented here is the Cyclical Integration Model (Figure 3). Following Fullan's (2007) lead that modern theories of change management lead "inevitably to the conclusion that working on 'coherence' is the key to dealing with the fragmented demands of overloaded reform agendas" (p. xii), the model as presented acknowledges the unique contributions of the three stakeholders under consideration – government, the public service, teachers – while at the same time attempting to strengthen the relationships between them. How this is undertaken, together with an investigation of the role of the Integrator, is now considered.

Figure 3.   Change agent relationship: Cyclical Integration Model.
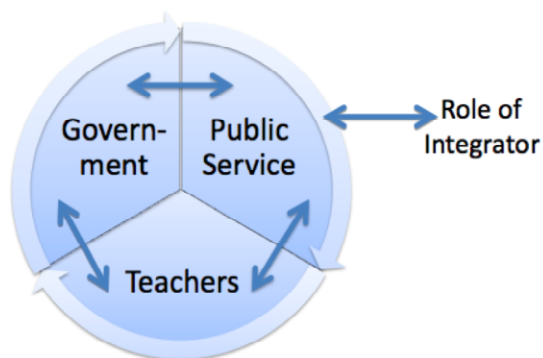
2. The Cyclical Integration Model of Change Management

The model presented in Figure 3 is comprised of an integrated operational component (government, public service and teachers; as encountered earlier) and one external Integrator having an executive function. The operational component is created to deal with introduction of significant change initiatives. We will return to the notion of what may be termed as significant later. More immediately, the discussion revolves around the function of the operational component and then moves to a consideration of the role of the integrator.

The model is organic in nature in that rather than operate in a push-down fashion, members of the operational component are engaged in collegial dialogue during the formulation of a proposed change. Government still sets agendas, the public service still produces policy documents which teachers still implement, but each does so in an environment of ongoing dialogue and mutual cooperation (Figure 3, arrows). Each party's representatives sit together at the discussion

table armed with what I have termed 'framing questions' rather than with predetermined objections, premature solutions or prepared ideologies. The framing questions are big picture in nature.

The kind of change management being advocated in this paper is premised on consensus rather than dictum. Framing questions for guiding the process have been developed for each of the key stakeholders (Tables 1, 2, 3). These are not exhaustive but more illustrative of the kinds of questions that need to be considered when major change is being contemplated. Attention to the matters raised in the framing questions may go a long way to helping alleviate the angst often associated with change. It may also lead to fewer ineffectual policy decisions and concomitant implementation failures occurring (such as Western Australia's ill conceived foray into outcomes-based education; and the recent federal government policy of distributing laptops to secondary students without giving preliminary thought to matters such as hardware storage, technical support, and software updates).

The framing questions for government (Table 1) focus on big picture issues, while at the same time recognising the importance of national priorities and international trends. Considered answers to questions such as these is likely to result in establishing greater jurisdictional respectability, providing a clearer project rationale, and leading to a more satisfactory outcome.

Table 1. Framing questions for government as an agent of change

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Enterprise Focus
Does a clear understanding exist of precisely what is meant by the term 'compulsory education'? If not, why not; if yes, how does the proposed change fall within defined parameters?
International Respectability
Does the proposed change model have any international pedigree? Are countries who are performing strongly on measures such as TIMMS[1] and PISA[2] adopting/ considering similar changes?
Driving Agency
What hard evidence is there that this change ought to be considered? If little, should a report be commissioned? If so, how will objective committee representation be guaranteed?
Budgetary Possibility
Is a report being commissioned to buy political time or is funding available to implement report recommendations?
Clarity of Purpose
Is the primary aim of the change to gain political leverage or to secure real, beneficial and lasting educational advantage?
Public Service Achievability
Given other tasks currently being undertaken, are sufficiently experienced personnel available in the relevant government department to do 'due diligence' to this task at this time? If not, how will the issue of required personnel be addressed?
Change Evaluation

How will 'bang for the buck' be evaluated? How will it be determined whether or not tax payers' money has been appropriately invested?

Integrator Profiling

Given the expertise on both sides of the House, who is in the best position to take on the role of Integrator for this particular project?

[1] Trends in International Mathematics and Science Study.
[2] Programme for International Student Assessment.

Whereas the government framing questions are change policy related, public service questions (Table 2) focus more on the change process. Giving serious attention to such questions is likely to result in a better coordinated approach, fewer resolutions later proving to be unworkable, and greater receptivity by teachers.

Table 2. Framing questions for the public service as an agent of change

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Theoretical Justifiability

What theory with an established track record is being used to interpret the proposed change? What proposed model is being considered?

Conceptual Coherence

How is the change being conceived of in terms of resourcing, responsibilities, professional development and implementation timelines?

Structural Integrity

In line with developmental learning theories, is content sequenced and incremental in presentation? Is the proposed change so structured that its various components sequenced and integrated?

Linguistic Clarity

Can the proposed change be understood in 'plain language'? Is it free of jargon, spin and embellishment? Is it accessible to the general public?

Psychometric Validity

Are evaluation regimes easily comprehendible or does one have to hold a PhD in statistical analysis to understand how children are being assessed?

Empirical Veracity

Prior to being adopted for system-wide implementation, have field trials shown the proposed change to be efficacious?

Courageous Humility

If field-failure is evident, is there a preparedness to go back to the drawing board rather than press on regardless?

The framing questions for the teaching profession (Table 3) centre on implementation imperatives. At the heart of these questions is an overarching question which asks 'what could possibly hamper policy delivery?'. In the ultimate sense, as identified earlier in this paper (Bourgon, 2008), policy without successful delivery is ineffective, frustrating and for many individuals, psychologically and emotionally costly.

Table 3. Framing questions for teachers (and their professional associations) as agents of change

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Industry Support
Do the arms of the profession potentially affected by the change see it as being desirable and generally advantageous?
Professional Integrity
How does the proposed change generally align with the nature of "teachers' work" (Connell, 1985)?
Workload reality
How much extra time will teachers be required to give to implementing the proposed change? What will be the overall impact on workloads?
Curriculum Viability
Will the proposed change impact further on the crowding of the curriculum? Is it a replacement for something or an addition?
Pedagogical Integrity
Are teaching methods expected to change as a result of the initiative? If so, have the proposed methods been tested?
Provision of Professional Development
What and how many PD events will be required to resource teachers prior to the change being implemented?
Practicability Feasibility
Given the nature of the school year, is the change achievable within the timeframe proposed?
Transition Arrangements
How will students be transitioned so that their learning will not be negatively affected by the change?
Parental Acceptance
Are parents likely to see this change as positive and have they been provided with sufficient information to make such a judgement?

These are big questions which are undergirded by four assumptions. The first is that each member of the operational component has a genuine desire to put children's educational needs ahead of their own professional posturing. The second assumption is that ongoing dialogue in a spirit of collegiality produces greater internal motivation leading to results superior to those obtainable by forced compliance. A third assumption is that the earlier in the process that participation occurs, the greater will be the sense of ownership and the lower the resistance to change. In the words of my friend Ken, the less chance of feeling like one is "dumped on". The final assumption is that all members of the operational component accept accolades for success and responsibility for failure, as a unit. In other words, no one plays the "blame game" – the unit either succeeds or fails as one body. Such an assumption acts as a powerful success motivator.

The proposed model necessitates risk-taking on the part of all parties – the risk of accepting the underlying assumptions; the risk of surrendering the power that comes with status; the risk of having to accept compromise; the risk of

operational component failure despite the genuine efforts of all parties. Leaders need to see such risks as worthwhile if taking them is likely to result in more favourable outcome for end users, namely students. In a significant – in terms of size and scope – meta-analytic study relating to learning undertaken by Leithwood *et al.* (2004), it was found that successful leaders displayed three sets of core practices: setting directions, defined as providing clarity of purpose; developing people, defined as creating shared ownership regarding the direction to be taken; and redesigning the organisation, defined as delivering change which makes something obviously better. The model being advocated here allows for all three core practices to be engaged.

A second platform of the proposed model is the function of an Integrator (Figure 3) and this will now be considered. This individual's role is one of consulting, after a scheduled meeting, with parties who have indicated that they would appreciate an independent and objective view on anything that may have transpired during the course of the meeting. The arrow heads on the outside circle of the model (Fig 3) represent the fluid environment in which the Integrator operates. S/he is available to all parties but is not aligned with any. The Integrator listens to concerns and after due deliberation (possibly following discussion with other members of the operational component), proposes a way forward. S/he may be able to provide a different perspective on a particular impasse or stalemate that the group as a whole has encountered. Who should fulfil the role of Integrator? The counsel of Bourgon (2008), provides direction in this regard,

"We need to find ways to engage ministers in the decision-making process surrounding risks, innovations and experimentations. This is obviously lacking at this time in many of our countries… (p. 401)."

The recommended approach in the present model is that a politician, but not a minister, accept responsibility for the role of Integrator. It is probable that for any significant change measure the Minister (or minister assisting the Minister) will be a member of the operational component. Accordingly, it is recommended that the role be undertaken by a parliamentary backbencher. There are a number of reasons why a member from the backbenches (from either side of the House) would fill this role admirably. The first may be represented by the words of Fullan (2007) who writes,

"If we are to achieve large-scale reform, governments are essential. They have the potential to be a major force for transformation. The historical evidence to date, however, suggests that few governments have gotten this right (p. 236)."

In the present model lies an opportunity for governments, and future governments, to make a difference, to be a force for transformation in a bipartisan fashion. Secondly, an Integrator selected from either side of the House, has a greater chance of being seen by all parties as an apolitical appointment. Thirdly, as a member of the parliamentary fraternity, such an individual is less likely to be intimidated by the government representative of the operational component. Fourthly, backbenchers have the requisite experience as they sit on and chair numerous committees on a regular basis. Finally, there is a

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strong likelihood that they will still be around after the next election, although not necessarily holding government, thereby providing continuity of process.

3. Epilogue

If change management was to be approached differently, it is likely that outcomes too would be different. In terms of teacher retention, for example, evidence exists showing that the profession is haemorrhaging teachers. A national report titled *Top of the Class* (House of Representatives, Standing Committee on Education and Vocational Training, 2007) cited statistics which indicated that it is,

"…estimated that up to 25% of teachers may leave the profession within five years. In the recent survey of beginning teachers by the Australian Education Union, 45.6% of respondents did not see themselves teaching in 10 years time (p. 9)."

The Cyclical Integration Model of change management presents an opportunity for major stakeholders to formulate ideas in a collegial environment with the counsel of an experienced but operationally uninvolved parliamentarian, in a fashion that will make a real difference. It provides an opportunity for doing things differently. Bourgon (2008), President Emeritus at the Canada School of Public Service, whose insights have been cited earlier, is adamant that a fresh perspective on change management is required. She writes,

"These days, the hierarchical model of government increasingly co-exists with the management of networks. Modern government entails the management of the traditional power structure and of non-hierarchical, non-traditional relationships (p. 396)."

Perhaps now is an opportune time to take a closer look at models which favour "non-hierarchical, non-traditional relationships". Perhaps this could result in change being managed in a way that is more palatable to those affected down-line – teachers. Perhaps Ken would be the first of many change-damaged teachers to return to the profession.

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La formation des étudiants masculins en contexte minoritaire de l'éducation à l'enfance : comment maintenir leur engagement dans les études ?[3]

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Résumé

Au Québec comme ailleurs, la formation d'éducateurs à l'enfance (ÉE) attire à peine 4 % de garçons et de ce pourcentage uniquement le quart terminera sa formation. À partir de la perception d'étudiants masculins et d'enseignants, la présente recherche décrit la réalité des étudiants masculins en ÉE et dégage les facteurs qui peuvent influencer leur persévérance scolaire. Au moyen d'une méthodologie qualitative, les perceptions ont été analysées et interprétées sur la base de la recension de différents facteurs reconnus en lien avec la persévérance scolaire des étudiants de niveau collégial, regroupés selon le modèle écologique de Bronfenbrenner (1979). Les résultats font ressortir l'importance des préjugés auxquels ces étudiants sont confrontés, du rôle de la relation avec l'enseignant ainsi que des stratégies d'adaptation déployées par ces étudiants en contexte minoritaire. Les données recueillies pourront alimenter une réflexion quant aux modalités à privilégier pour soutenir le parcours scolaire de ces étudiants.

Mots clés : Formation collégiale – Genre - Formation non traditionnelle - Éducation à l'enfance - Persévérance des garçons

1. Introduction

Les formations en éducation et tout particulièrement celle d'éducateur à l'enfance (ÉE) sont reconnues pour attirer essentiellement des filles. Le faible intérêt des garçons pour ce domaine d'étude est présent dans la majorité des pays industrialisés (OCDE, 2006). Par exemple, au Québec, le taux d'inscription moyen des garçons en ÉE est de 3,6 % (MÉLS, 2009). Ce phénomène se répercute dans les services de garde à l'enfance (SGE) où l'on retrouve habituellement ±5 % d'hommes éducateurs (Jensen & European Commission Network on Childcare, 1996; U.S. Bureau of Labor Statistics, 2008). Plusieurs sont d'avis que l'on devrait inciter les hommes à œuvrer en SGE. Auprès des enfants, ils représentent des modèles masculins positifs et peuvent pallier l'absence du père à la maison (Coulter & McNay, 1993). Par rapport aux garçons, les éducateurs seraient plus enclins à répondre à leur besoin psychomoteur et favoriseraient un meilleur engagement dans les activités d'apprentissage (Huber, Vollum & Stroud, 2000). Le fait de recevoir des soins et de l'affection de la part

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d'un homme permettrait également aux garçons de développer leurs comportements prosociaux (Jensen et coll., 1996). Certains auteurs établissent même un lien entre cette quasi-absence de modèles masculins dans les institutions et la présence accrue de difficultés d'adaptation scolaire chez les garçons (Lajoie, 2003).

Cooney et Bittner (2001) ont identifié différents enjeux pouvant expliquer le faible attrait des garçons pour cette profession, dont la surféminisation de la formation. De fait, du peu de garçons intéressés à la formation en ÉE, seulement 25 % la terminent. Face à de tels pourcentages, on est en droit de s'interroger sur la persévérance des étudiants masculins en ÉE. Sont-ils les bienvenus ? Le programme serait-il trop féminisé pour qu'ils y trouvent leur place ? D'autres facteurs sont-ils en jeu ? Si certaines études se sont déjà intéressées aux étudiants masculins en ÉE sous l'angle de leur vision de la profession (Anliak & Beyazkurk, 2008 ; Cunningham & Watson, 2002 ; Timmerman & Schreuder, 2008), à notre connaissance, aucune étude n'a porté spécifiquement sur la persévérance des garçons dans la formation ÉE.

La présente recherche a voulu décrire la réalité des étudiants masculins en ÉE et dégager les facteurs qui peuvent influencer leur engagement dans ce programme. La plupart des modèles théoriques explicatifs de l'abandon et de la persistance des étudiants sont interactionnistes et supposent que la décision d'interrompre ses études est la résultante d'un cumul de facteurs (Sauvé & coll., 2007). Dans une perspective écologique, les facteurs reconnus pour influencer la persévérance des étudiants masculins au niveau collégial ont d'abord été recensés, puis regroupés selon le modèle théorique de Brofenbrenner (1979), soit les facteurs individuels de l'étudiant (ontosystème), les facteurs de son environnement immédiat (microsystème familial et social), les facteurs de son environnement scolaire (microsystème scolaire) et ceux en lien avec les valeurs de la société (macrosystème). Cette grille servira à l'analyse des résultats de la présente étude.

Figure 1 : Facteurs d'influence de la persévérance scolaire
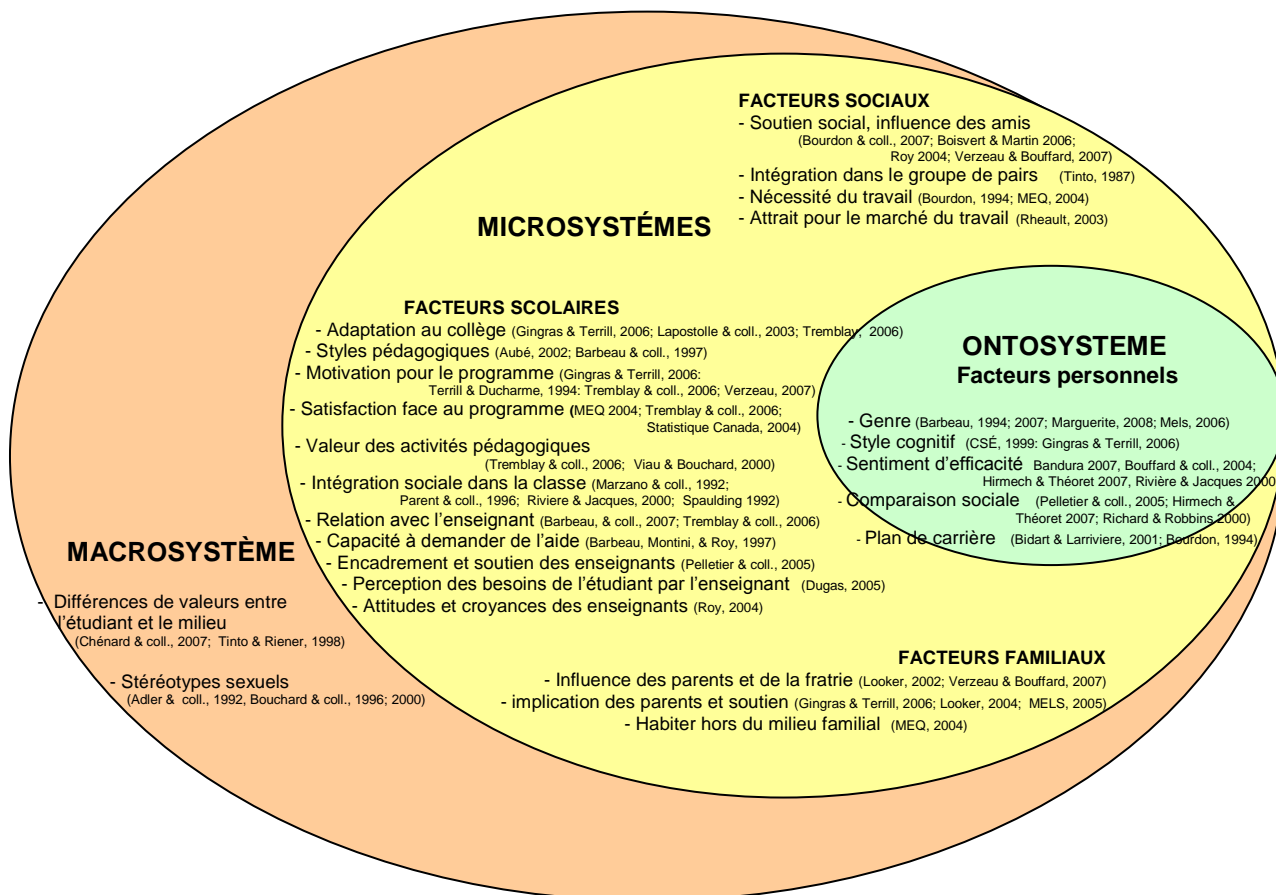
La conceptionde l'étude est transversale. En croisant les points de vue de différents acteurs, soit celui des étudiants inscrits en ÉE et celui de leurs enseignants, l'étude tentera de documenter, à partir des facteurs reconnus dans la littérature, ceux qui pourraient avoir un rôle spécifique auprès de la clientèle que constituent les étudiants masculins en ÉE.

2. Méthodologie

2.1 Collecte de données

Pour atteindre cet objectif, deux collectes de données ont été réalisées. Premièrement, des entrevues semi-dirigées d'une durée de 90 minutes ont été effectuées auprès de 19 étudiants masculins dont 12 poursuivaient des études en ÉE, cinq avaient abandonné le programme au cours de la dernière année et deux avaient complété le programme depuis moins d'un an. Ils étaient âgés entre 18 et 37 ans (moyenne : 24,3) et provenaient de neuf collèges différents. Les thèmes abordés ont porté sur leur choix professionnel, leur environnement personnel, leur vécu scolaire, leurs perceptions du programme et, enfin, leur vision de la profession.

Deuxièmement, 49 enseignants en ÉE ont participé à six groupes de discussion semi-dirigés. D'une durée de 45 minutes, ces groupes ont réuni en moyenne huit participants. De ces enseignants, 12 % étaient des hommes ; 50 % avaient 50 ans et plus ; ils avaient en moyenne 15,2 années d'expérience en enseignement (é-t : 7,2) et ils provenaient de 10 régions du Québec. Les thèmes abordés ont porté sur leurs réactions à la présence de garçon(s) dans leur classe, leur vision du processus d'adaptation de ces étudiants et les ajustements mis en place en fonction de ces derniers.

2.2 Analyses

L'analyse qualitative de type phénoménologique a utilisé les catégories préétablies telles que présentées plus tôt. Les comptes rendus intégraux des enregistrements audio ont été lus et corrigés par les deux chercheuses. En ont émergé 35 catégories, regroupées sous quatre grands thèmes : les facteurs personnels, les facteurs familiaux et sociaux, les facteurs scolaires et les facteurs professionnels et sociétaux.

3. Résultats

Les deux collectes de données ont permis de recueillir de nombreuses données brutes dont il est impossible de rendre compte de façon détaillée ici (à ce sujet, voir Besnard et Diren, 2009). Dans le cadre du présent article , seuls les résultats en lien avec les facteurs qui nous sont apparus les plus significatifs seront présentés.

3.1 Facteurs personnels

Premièrement, les étudiants nous ont beaucoup entretenues de leur sentiment d'efficacité et de leur sentiment d'avoir fait le bon choix de formation. En effet, l'ensemble des étudiants rencontrés soulignent le fait qu'ils ont déjà une expérience auprès des enfants lorsqu'ils font le choix de s'inscrire en ÉE. Ils affirment avoir une aisance en présence des enfants et une certaine compétence pour en assumer la charge. La majorité d'entre eux se considèrent donc à leur place dans la formation. Quelques réserves sont toutefois exprimées, principalement en ce qui a trait à la pratique de cette profession tout le long de la vie.

« Oui, je me vois éducateur pendant un certain moment. J'aimerais beaucoup ça parce que je sais que je ne resterai pas indéfiniment en service de garde, ça, j'en suis convaincu. Je sais que je serais capable pendant un certain moment, mais pas pour en faire une vie complète. » (ét.1)

Ceux qui ont abandonné le programme considèrent également être à leur place auprès des enfants. Les raisons de leur abandon ne relèveraient pas de leur incapacité à établir des rapports positifs avec eux, mais plutôt de leurs difficultés à s'intégrer dans le milieu professionnel.

Les enseignants, de leur côté, observent deux types d'étudiants selon leur parcours scolaire : les plus jeunes qui arrivent directement du secondaire et ceux qui font un retour aux études et qui, généralement, ont des enfants ou travaillent déjà. Ils remarquent également deux types de personnalité. D'une part, ceux qui sont sociables c'est-à-dire qui se démarquent, s'affirment facilement, prennent leur place, sont écoutés et attirent les filles autour d'eux. Ces étudiants assument généralement leur masculinité, sont bien dans leur corps et établissent des relations privilégiées avec des filles. D'autre part, ceux qui ont un profil discret, c'est-à-dire qui sont silencieux, passent plus inaperçus, et s'adaptent au groupe.

3.2 Facteurs familiaux et sociaux

Face à leur choix vocationnel, les étudiants observent des réactions partagées de la part de leur entourage. La plupart des étudiants identifient au moins une personne proche qui les a encouragés à s'inscrire en ÉE. Par ailleurs, la majorité rapporte également des réactions négatives, allant de l'étonnement au dénigrement pur et simple. Toutefois, à travers leurs propos, on peut déduire qu'ils accordent peu d'importance à ces commentaires désobligeants pourvu qu'ils proviennent de personnes moins significatives à leurs yeux.

3.4 Facteurs scolaires

Sur le plan scolaire, plusieurs facteurs ont été abordés par les étudiants et les enseignants, soit la satisfaction à l'égard du programme d'étude, la relation avec l'enseignant, le soutien offert par l'enseignant et, particulièrement, l'adaptation dans le groupe classe.

Les enseignants rapportent des réactions plutôt positives à la venue d'étudiants masculins dans leur classe. Ils les accueillent de manière personnalisée et considèrent leur apport comme étant positif sur le climat de la classe.

Les étudiants participants nous ont pour leur part spécifié leur attrait pour les pédagogies où ils sont actifs et impliqués, ce qu'ils retrouvent en grande partie dans le programme actuel d'ÉE, qu'ils apprécient. Ils nous ont également mentionné se sentir généralement très bien accueillis et appréciés par leurs enseignants.

Par contre, certains étudiants se sentent « observés ». Autrement dit, tout ce qu'ils font ou ne font pas est rapidement remarqué :

« Il y a des filles qui n'écoutent pas les explications et qui vont poser des questions, mais le prof ne se fâchera pas et va leur répondre. Par contre, moi, si je parle (durant une explication), elle ne me répondra pas parce qu'elle va avoir remarqué que je n'écoutais pas ou que je parlais. » (ét.2)

Sur le plan des études, la majorité des étudiants reconnaît ne pas attribuer une valeur importante aux notes obtenues et être à la dernière minute pour la remise des travaux. Ils mentionnent également investir peu d'efforts dans leurs travaux scolaires et se contenter de leur performance (résultat moyen autour de 74 %).

Les enseignants observent effectivement ce peu d'ardeur dans les travaux. Selon eux, les étudiants écrivent moins, développent moins leurs idées et sont moins perfectionnistes que leurs consœurs. Par contre, ils ont plus l'esprit de synthèse et ont un point de vue différent. Ils offrent également des activités différentes aux enfants, par exemple des activités plus physiques, ils sont plus tolérants à l'égard des bousculades et ne voient pas la sécurité et les risques de la même façon que les filles.

Les résultats indiquent le souci qu'ont ces enseignants de développer les mêmes compétences chez les filles et les garçons et de leur offrir un traitement équitable en matière d'évaluation. Outre quelques initiatives comme l'adaptation du vocabulaire ou l'utilisation d'exemples d'éducateurs masculins, les enseignants mentionnent surtout qu'ils offrent un soutien plus assidu auprès de leurs étudiants masculins.

« Moi non plus, je ne change rien à mon enseignement, mais je les encourage beaucoup et je tente de les valoriser […] est-ce que je le fais davantage ? Sûrement, je l'avoue. » (enseignant)

Les étudiants perçoivent cette attention privilégiée qui leur est portée par les enseignants comparativement aux filles.

« On ne se sent pas spécial, mais on sent que l'on a un regard qui est différent. C'est loin d'être un regard qui juge, on prend soin un peu de nous, ils ne veulent pas que l'on s'en aille. » (ét.3)

Pour la majorité des garçons qui commencent leurs études collégiales, la qualité de leur adaptation semble être déterminante pour la poursuite de leurs études (Tremblay et coll., 2006). Les résultats de la présente recherche ont mis en lumière certains défis supplémentaires auxquels doivent faire face les étudiants en ÉE. Ils doivent d'abord affronter la réaction de leur entourage à leur choix non traditionnel. Par la suite, en classe, ils doivent affronter un groupe majoritairement féminin, composer avec ce vécu minoritaire et être confrontés aux préjugés face à leur orientation sexuelle.

« La première question quand on est en éducation à l'enfance, c'est : "es-tu gai ?" » (ét.4)

Les enseignants confirment ces dires des étudiants. Ils observent que les étudiantes du groupe réagissent de façon mitigée à la présence d'étudiants masculins. Certaines sont contentes, cherchent à les séduire ou à les protéger. D'autres, au contraire, peuvent les exclure et expriment des préjugés face à leur présence dans la profession ou à leur potentielle homosexualité.

D'autres défis surgissent en stage : d'une part, celui d'assumer leurs différences dans la façon d'intervenir avec les enfants, conjugué à l'absence de modèles masculins et, d'autre part, celui d'être confronté aux préjugés venant des parents concernant, par exemple, la pédophilie ou la peur d'attouchements sexuels sur leurs enfants.

« J'ai déjà eu des parents qui ont voulu changer leur enfant de groupe, des parents qui ont des préjugés et qui ont peur pour leur enfant. » (ét.5)

Différentes stratégies sont mises en place pour composer avec cette réalité. Certains, par exemple, prennent l'initiative des premiers contacts et établissent des connivences avec les pairs, acceptent à la demande des filles de situer leur orientation sexuelle, sont patients avec les filles, ajustent les sujets de conversation et acceptent d'assumer le rôle de leadership qu'on leur confère. De plus, en stage, ils ajustent certains comportements en présence des enfants, vont au-devant des parents pour les rassurer et cherchent à établir un lien de confiance avec eux. Ces stratégies sont plus fréquemment décrites par les étudiants qui poursuivent leur formation.

D'autres stratégies ont été plus souvent décrites par les étudiants qui ont abandonné la formation, notamment l'observation du groupe classe ou l'attente passive que les filles viennent vers eux, leur isolement dans un très petit sous-groupe d'individus, la tendance à travailler avec un seul étudiant, ou à lse débrouiller seul plutôt que d'aller chercher de l'aide des enseignants. Pour eux, les difficultés d'adaptation semblent s'accumuler au fil de la formation et s'exacerber lors du stage qui devient le déclencheur du départ définitif du programme.

Les enseignants remarquent que l'adaptation des étudiants masculins dans le groupe est plus facile quand ils ont plus de maturité et sont indépendants ou quand ils utilisent l'humour. L'adaptation au groupe semble plus difficile quand ils présentent peu d'habiletés sociales, quand leurs idées sur l'éducation sont trop différentes de celles des filles et quand ils s'investissent peu dans les travaux scolaires.

3.5   Facteurs sociétaux

Les enseignants observent des réactions mitigées de la part des SGE à l'égard des stagiaires masculins : réactions plutôt favorables de la part des éducatrices ; réactions plus partagées de la part des parents, allant du très positif (ex. : des mères monoparentales) au très négatif (ex. : interdire à l'éducateur de changer les couches de leur enfant). Enfin, les enseignants voient plusieurs bénéfices à jumeler les étudiants à un éducateur masculin quand c'est possible.

4. Discussion

En croisant les résultats recueillis auprès de ces deux échantillons, on constate que certains facteurs, parmi ceux reconnus pour jouer un rôle dans la

persévérance des garçons, semblent jouer un rôle particulier dans la situation des étudiants masculins en ÉE. Ces facteurs seront discutés plus en détail dans la section qui suit.

4.1 Ontosystème

En ce qui a trait aux facteurs personnels, nos résultats portent à croire que les étudiants qui persévèrent ont développé un sentiment d'efficacité personnelle par rapport à cette profession (Bandura, 2007) qui leur permet d'envisager la réussite bien qu'ils soient en contexte minoritaire. Les résultats laissent à penser que ce sentiment était déjà présent lors de leur inscription et fut nourri par leur environnement personnel. On peut émettre l'hypothèse que les étudiants qui entreprennent leurs études en ÉE en ayant déjà de l'assurance et un sentiment d'efficacité auprès des jeunes enfants sont mieux outillés pour faire face aux nombreux défis qu'ils rencontrent durant leur parcours scolaire.

Par ailleurs, la littérature signale que généralement les étudiants masculins réussissent moins bien et vivent plus d'échecs scolaires que les filles du même niveau d'enseignement (Tremblay & coll., 2006). Toutefois, les données de la présente étude indiquent que les cinq étudiants qui ont abandonné le programme ne l'ont pas fait parce qu'ils étaient en situation d'échec scolaire, mais plutôt parce qu'ils vivaient certaines difficultés d'adaptation sociale. En conséquence, les connaissances disponibles en lien avec les modes d'apprentissage propres aux garçons ne semblent pas être en jeu dans le présent contexte. Toutefois, plusieurs recherches mettent en évidence les différences entre filles et garçons, en tant qu'apprenants, quant à la façon dont ils considèrent les études (Marguerite, 2008; Statistique Canada, 2004). Les présents résultats contribuent à entretenir les clivages connus dans ce domaine. En effet, tout comme la majorité des garçons, les étudiants en ÉE investissent peu d'efforts dans leurs travaux scolaires. Seulement, ils réussissent malgré tout et ne cherchent pas un niveau de performance plus élevé.

La transition du secondaire au collégial représente une période plus critique pour les garçons que pour les filles, et la première session présenterait notamment des défis importants pour les jeunes hommes (Gingras & Terrill, 2006). Dans la présente recherche, la moyenne d'âge des étudiants en ÉE interviewés est de 24 ans, donc nettement au-dessus de la moyenne des étudiants du collège qui se situe à 19,3 ans (Roy, 2008). Pour ceux qui arrivent directement du secondaire, cette transition présente indéniablement un défi de taille et les résultats démontrent que ce sont les étudiants les plus âgés qui s'adaptent le mieux au programme. Mais indépendamment de l'âge, les résultats mettent en évidence les défis supplémentaires auxquels ces jeunes sont confrontés.

4.2 Microsystème familial et social

L'impact de la qualité du soutien offert par le réseau social sur la persévérance scolaire, que ce soit en provenance de la famille ou du groupe de pairs, a beaucoup été étudié (Bourdon & coll., 2007; CSÉ, 2002). De façon plus

spécifique, l'importance qu'accordent les parents aux aspirations scolaires de leurs enfants jouerait un rôle clé auprès de ces derniers (Looker, 2004). Le fait que nos répondants aient tous eu dans leur entourage une personne significative qui croyait en leur projet de formation semble jouer un rôle de protection contre les remarques désobligeantes qu'ils vont inévitablement entendre durant leur formation.

4.3 Microsystème scolaire

Nos résultats soulignent que l'ensemble des étudiants apprécie le programme d'ÉE. De plus, ils se sentent accueillis, considérés et appréciés, particulièrement de la part de leurs enseignants. Comme l'ont démontré Tremblay et coll. (2006), cette qualité relationnelle avec le personnel enseignant et la valorisation qu'elle confère aux étudiants pourraient jouer un rôle déterminant dans la persévérance de ces derniers. Les résultats suggèrent que la qualité de la relation que ces étudiants vont développer avec leurs enseignants participe effectivement à la fois à l'intégration dans le groupe classe et au sentiment d'efficacité que l'étudiant doit maintenir malgré ses différences. Le soutien individualisé offert par les enseignants, aux dires de nos participants, semble être plus important que le type de pédagogie déployée dans les cours.

4.4 Macrosystème

Sur le plan sociétal, on observe que de nombreux préjugés sont toujours présents à l'endroit des hommes qui désirent travailler en SGE et que ces préjugés sont particulièrement répandus auprès des garçons à la fin du secondaire, moment où justement ils doivent effectuer leur choix de formation collégiale. Des études précédentes ont déjà indiqué que la crainte que des comportements homosexuels entachent leur masculinité serait au plus fort à l'adolescence (Bouchard & St-Amant, 1996). Les résultats que nous avons obtenus vont dans le sens de ces études.

Par ailleurs, le manque de modèles masculins dans les milieux de stage et dans la société en général semble représenter un problème pour la majorité des étudiants. Cette confrontation avec le milieu du travail et les préjugés de certains parents semblent être la pierre d'achoppement qui va discriminer ceux qui vont poursuivre leurs études de ceux qui vont les abandonner.

5. Conclusion

Différentes recommandations émergent des résultats de cette étude. Il appert que si l'on désire augmenter le nombre d'étudiants persévérant en ÉE, les efforts de recrutement devraient cibler des étudiants plus âgés. En effet, ceux qui ont acquis une certaine maturité et une confiance en soi accrue semblent mieux équipés pour faire face aux défis multiples que rencontrent les étudiants en ÉE. Il nous apparaît aussi qu'il faudrait mieux informer les enseignants sur les défis adaptatifs spécifiques qu'affrontent les étudiants en ÉE et sur l'importance de

leur rôle de soutien dans ce processus. Il faudrait également les sensibiliser à l'importance de fournir des modèles d'éducateurs masculins et d'inclure dans leurs cours l'enseignement de stratégies pour se prémunir des fausses accusations en lien avec les attouchements sexuels. Sur le plan sociétal, il nous apparaît également important de poursuivre la promotion du rôle positif de la présence masculine sur le développement des enfants et de continuer de lutter contre l'homophobie, surtout auprès des adolescents.

Les résultats présentés ici doivent être interprétés en tenant compte de certaines limites. Premièrement, cette étude est basée essentiellement sur les perceptions des différents acteurs consultés. Les pistes d'hypothèses qui émanent des résultats devront être vérifiées par des études subséquentes. Deuxièmement, précisons qu'uniquement cinq des participants avaient abandonné le programme. Si on se base sur les statistiques disponibles, l'échantillon aurait dû en contenir trois fois plus pour être représentatif. Ce petit nombre de sujets ayant abandonné ne permet pas de généraliser les résultats à l'ensemble des étudiants qui quittent le programme. Les présents résultats décrivent probablement davantage la réalité des garçons qui persistent en ÉE.

Comme pistes de recherches futures, les prochaines études pourraient expérimenter et évaluer différents modes de soutien auprès de ces étudiants. Enfin, sur le plan du processus interne, il pourrait être intéressant d'étudier les facteurs qui œuvrent dans la construction de l'identité professionnelle chez l'étudiant inscrit à une formation non traditionnelle.

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Décision, calcul formel, préférences : analyse de résolutions d'élèves face à des situations mettant en scène le hasard

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Résumé

Notre objectif est de montrer l'intérêt de la prise en considération des théories de la décision, et de leurs critiques, lors de l'analyse de choix d'élèves dans deux situations expérimentales mettant en scène le hasard. À l'occasion de la première expérimentation, des lycéens ont été amenés à jouer à un jeu de hasard et de stratégie. Cette situation expérimentale permet notamment d'observer l'expression de différents niveaux de flexibilité cognitive. Lors de la seconde expérimentation, des collégiens, des lycéens ainsi que des étudiants ont été invités à indiquer leur préférence entre deux règles d'un autre jeu mettant en scène le hasard. Dans les deux expérimentations, les situations choisies permettent de montrer la capacité de certains élèves à envisager diverses décisions possibles fondées sur des préférences distinctes.

Mots clés : Décision – Préférences – Didactique – Probabilités – Flexibilité.

1. Introduction

Nous présentons ici quelques-uns des résultats de notre recherche (Boulanger-Laforge, 2009) sur les résolutions d'élèves dans des situations particulières mettant en scène le hasard.

Avant de revenir sur la particularité des situations que nous avons proposées dans le cadre de cette recherche, nous préciserons l'hypothèse retenue dans ce travail, à propos des fondements psychologiques des probabilités : celle de la complémentarité des approches objective et subjective, dont Maury (1986) avait déjà souligné l'intérêt.

Les tenants de la 1ère approche incitent les individus à raisonner dans des situations conçues pour favoriser l'activité cognitive alors que les tenants de la 2ème approche cherchent à provoquer des jugements intuitifs. Dans leurs travaux en psychologie et en économie expérimentale, Kahneman et Tversky ont mis en évidence des écarts systématiques entre l'attente mathématique et les jugements probabilistes des individus face à des situations risquées. Ils interprètent ces écarts comme traduisant des intuitions, des convictions, des préférences. De plus, ces auteurs ainsi que d'autres (cf. par exemple Cohen, 1963 ; Kahneman, Slovic et Tversky, 1982 ; Lecoutre, 1984 ; Lecoutre et Durand, 1988) ont montré que des intuitions trompeuses pouvaient persister chez des sujets familiarisés avec la théorie des probabilités.

La synthèse entre les approches objective et subjective est donc particulièrement intéressante, car, comme l'a mis en évidence Maury (1986), elle implique que des intuitions trompeuses et des conceptions correctes des probabilités peuvent cohabiter chez un même individu.

Nous présenterons à présent un aperçu des importantes contributions parues en économie, en neurosciences et en psychologie cognitive, autour de la question : quel(s) critère(s) compte(nt), au moment de la prise de décision ?

2. Éléments théoriques

2.1. Décision en situation risquée

Une situation est dite risquée lorsque la prévision peut se faire à partir des probabilités théoriques. Face à ce type de situations, différents critères de décision peuvent être mobilisés. Citons, par exemple, la maximisation de l'espérance de gain ou la maximisation de l'utilité espérée.

Une situation risquée relève d'un univers des possibles, qui est gouverné par une probabilité, laquelle concerne des événements dont la réalisation peut entraîner une perte ou un gain.

Dans les termes d'une approche fréquentiste, l'espérance de gain dans un jeu de hasard est le gain moyen obtenu en répétant le jeu « un grand nombre de fois ». Le gain est considéré comme une variable aléatoire, qui prend les valeurs x_i, avec les probabilités p_i. Le calcul formel s'obtient grâce à la formule :

$$E(X) = p_1.x_1 + \dots + p_n.x_n = \sum_{i=1}^{n} p_i.x_i$$

où E(X) est l'espérance de gain, avec $0 \leq p_i \leq 1$, et $\sum p_i = 1$.

Si un individu a à choisir entre deux jeux de hasard, son choix peut se faire en fonction de l'espérance de gain la plus élevée. On dit alors que l'individu maximise l'espérance mathématique (ou espérance de gain).

Cependant, un individu peut également faire son choix en fonction d'un autre critère d'évaluation du risque. Il peut en effet faire un choix qui maximise son espérance d'utilité. L'utilité est une mesure de la satisfaction associée à l'obtention d'un bien. La notion d'utilité peut être considérée comme une manière de résumer un ensemble de préférences dont les économistes ne cherchent pas *a priori* à pénétrer le sens (cf. Mucherie, 2008[4]). On obtient l'espérance d'utilité grâce à cette formule :

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[4] Source : http://www.melchior.fr/Homo-Oeconomicus.3956.0.html

$$EU(X) = p_1.u(x_1) + \dots + p_n.u(x_n) = \sum_{i=1}^{n} p_i.u(x_i)$$

En économie, on considère que les motivations de l'homme dans ses décisions sont essentiellement de nature hédoniste et utilitariste. En effet, l'homme est considéré comme étant rationnel : s'il participe à la vie économique, c'est pour maximiser son bien-être et il gère les ressources dont il dispose pour maximiser son utilité globale.

La fonction d'utilité espérée permet d'intégrer les différences d'attitudes face au risque. Elle permet de traduire l'aversion pour le risque exprimée par certains individus et le goût du risque exprimé par d'autres individus. Ce type de différences interindividuelles s'avère important dans le cadre de ce travail. Nous proposerons donc à présent un exemple, pour illustrer le fait que ces deux critères d'évaluation du risque (l'espérance mathématique et l'utilité espérée) peuvent mener à des choix différents.

Admettons qu'un individu soit invité à jouer à l'une ou l'autre des loteries suivantes :

1) la loterie 1 qui associe un gain de 5000 à la probabilité 0,2 et un gain de 0 à la probabilité 0,8 ;
2) la loterie 2 qui associe un gain de 4000 à la probabilité 0,3 et un gain de 0 à la probabilité 0,7.

Les espérances de gain associées à ces loteries sont respectivement de 1000 et de 1200. Quant aux espérances d'utilité associées à ces loteries, elles sont données par les produits : $0,2u(5000)$ et $0,3u(4000)$.

Bien qu'il soit logique de considérer que $u(5000)$ est supérieure à $u(4000)$, certains individus vont raisonner en termes d'espérance de gain et choisr la loterie 2, ce qui maximise l'espérance de gain.

Par contre, d'autres individus, raisonnant en termes d'espérance d'utilité, vont considérer que $u(5000)$ est tellement supérieure à $u(4000)$ qu'ils choisiront la loterie 1.

Á partir des années 70, les psychologues Kahneman et Tversky (1982) ont montré, grâce à de nombreuses expériences, qu'une majorité des sujets interrogés prenaient des décisions non conformes aux axiomes de la théorie de l'utilité espérée. Ils ont même proposé un modèle alternatif du choix en situation risquée, qui prend en compte les résultats qu'ils ont observés. Les économistes continuent toutefois d'utiliser la théorie de l'utilité espérée, même si elle ne représente pas bien les préférences réelles des individus, car les nouvelles théories de la décision, qui sont compatibles avec les observations des psychologues, s'avèrent beaucoup plus complexes à utiliser.

Enfin, dans un ouvrage où il propose une revue de travaux autour du cerveau et de la prise de décision, Berthoz (2003) souligne les limites de l'ensemble de ces théories de la décision.

2.2 Cerveau et décision

Berthoz (2003) rappelle que les décisions sont souvent prises autrement qu'en fonction de l'intérêt personnel. D'autres valeurs importantes peuvent intervenir comme : les idées politiques ou religieuses, le sacrifice pour ses enfants, la compassion, la confiance etc. Ainsi, la décision n'est pas seulement le calcul d'une utilité, un pari sur une probabilité. D'après lui : « *Pour prendre une décision, (…) il faut aussi délibérer, changer de point de vue, modifier mentalement les relations entre les éléments associés, simuler différentes réalités possibles. Il faut donc être capable d'une certaine flexibilité.* » (Berthoz, 2003, p. 257).

En psychologie cognitive, Clément (2009) a étudié l'expression de la flexibilité dans la résolution de problème. Elle rappelle que la flexibilité n'est pas un processus unitaire. Il s'agit plutôt d'un ensemble de composantes diverses telles que : la production d'une variété d'idées, la conception d'un ensemble de réponses alternatives, la modification de plan afin d'atteindre un but en fonction de changements environnementaux etc. Elle jouerait donc un rôle primordial dans les apprentissages et l'adaptation à des situations nouvelles.

Ainsi, les critiques des théories de la décision, émises notamment en neurosciences, nous ont amenée à nous intéresser à la capacité des élèves à simuler différentes possibilités.

3. Problématique

Des travaux en didactique des mathématiques, notamment ceux de Maury, ont montré la difficulté des élèves à envisager la variété des possibles, face à des situations probabilistes. Cependant, ces travaux (cf. Maury, 1987 ; Maury et Caillot, 2003) ont également montré que certains élèves étaient capables d'envisager plusieurs réponses et d'adapter leur réponse aux attentes supposées de l'institution dans laquelle ils se trouvent.

Dans les problèmes de mathématiques usuels, on attend des élèves qu'ils fournissent la réponse à laquelle conduit l'analyse mathématique de la situation. En fait, ce sont à la fois les problèmes proposés et le contrat didactique qui conduisent l'élève à ne rendre public qu'un certain type de réponses.

Nous avons donc voulu tester la pertinence de deux situations conçues pour permettre que des décisions différentes soient prises, selon que l'on mobilise un critère de décision ou un autre (ces critères pouvant être objectifs, ou subjectifs).

La première tâche est dérivée du jeu du 421, un jeu de hasard et de stratégie qui se joue avec trois dés. Dans ce jeu, plusieurs combinaisons rapportent des points, et la combinaison 421 est celle qui rapporte le plus de points. La seconde

tâche est une tâche de préférence entre deux règles d'un autre jeu, pour l'attribution d'argent de poche, dans laquelle le hasard intervient également.

Même si les deux tâches proposées sont très différentes, elles se rejoignent sur les points suivants :
- une analyse mathématique des données peut fonder la décision ;
- d'autres critères (plus subjectifs) sont susceptibles d'intervenir.

4. Travail expérimental

Avec la tâche dérivée du 421, l'objectif est d'étudier l'évolution des choix d'élèves lors de jeux successifs et la manière dont ils justifient les choix effectués, en dehors de la phase de jeu. Dans cette tâche, le critère de maximisation de l'espérance de gain est le seul qui permette de prendre en compte toutes les données « mathématiques » du problème. En revanche, il n'est pas le seul susceptible d'intervenir au moment de la prise de décision.

Avec la seconde tâche, l'objectif est de mettre en évidence l'influence d'un ensemble de variables, parmi lesquelles la valeur de l'espérance de gain, sur les choix et les justifications des élèves.

Plus précisément, l'objectif était de distinguer les réponses d'élèves :

- qui semblent s'appuyer uniquement sur une analyse mathématique de la situation ;
- qui s'appuient seulement sur d'autres critères ;
- qui s'appuient sur une analyse de la situation, et qu'un autre critère, plus subjectif, vient renforcer ;
- qui envisagent plusieurs décisions possibles selon des critères de décision différents.

Ce dernier type de réponses traduirait une certaine flexibilité cognitive. Il est donc particulièrement intéressant dans le cadre de cette recherche.

4.1. 1ère contribution expérimentale

La première tâche a donné lieu à un recueil de données auprès d'élèves de Première et de Terminale (qui n'avaient jamais joué au 421) et à la mise en œuvre d'analyses de protocoles individuels. Une 1ère phase de jeu avait lieu, puis un entretien individuel était organisé. Cet entretien permettait :

- d'obtenir des explications des élèves relativement à leurs choix à l'occasion de la partie écoulée ;
- de les confronter à des situations de jeu hypothétiques, afin d'obtenir des indications relatives à leur prise de décision.

Enfin, une 2ème phase de jeu avait lieu. Notre objectif était alors de voir si les choix des élèves évoluaient entre la 1ère et la 2ème phase de jeu, notamment du fait de la réflexion permise par la phase d'entretien.

C'est ensuite la confrontation des données recueillies à l'occasion de toutes les étapes de l'expérimentation qui nous a permis d'analyser les protocoles individuels, 18 au total.

4.2. 2ème contribution expérimentale

La seconde tâche est une tâche de préférence entre deux règles pour l'attribution d'argent de poche, dans laquelle le hasard intervient également.

Elle a été dispensée à une population expérimentale étendue à des collégiens et des étudiants, en plus des lycéens. Les 600 élèves ont été interrogés par écrit, l'accent étant mis sur l'importance de bien justifier la réponse proposée.

La population expérimentale a été répartie en 6 groupes, chaque groupe ayant testé une des 6 modalités de matériel expérimental. Quelles que soient les modalités, les élèves étaient invités à indiquer leur préférence entre deux règles de jeu permettant d'obtenir de l'argent de poche pour les 100 semaines à venir. En revanche, selon les modalités :

- il y avait, ou non, multiplicité des tirages[5] ;
- la temporalité pouvait jouer[6] ;
- les espérances de gain associées aux deux règles pouvaient être, ou non, équivalentes.

5. Principaux résultats

Pour commencer, ces deux expérimentations permettent effectivement d'observer la capacité de certains élèves à envisager des décisions différentes, fondées sur des critères distincts. Plus précisément, et toujours dans les deux expérimentations, ils envisagent des décisions différentes :

- selon les circonstances entourant la prise de décision[7] ;

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[5] Certaines modalités opposaient le fait d'obtenir un gain global en un tirage à un gain cumulé au cours de 100 tirages.

[6] Les tirages pouvaient être immédiats ou échelonnés sur 100 semaines.

[7] Par exemple, à l'occasion de la 2ème expérimentation, un élève écrit :
« (…) je pense que je choisirai en fonction de mes besoins au moment du choix : la règle 1 si j'ai besoin d'une rentrée conséquente et rapide ; la règle 2 si je n'ai pas de besoin immédiat et que je veux une somme plus sûre avec un bonus plus régulier mais moins important pour faire face aux problèmes futurs. »
De même, à l'occasion de la 1ère expérimentation, deux élèves, durant la phase d'entretien, évoquent le fait qu'ils ne joueraient pas de la même façon, selon l'écart de points avec leur adversaire.

- selon la personnalité de l'individu concerné[8].

Pour ce qui est de l'influence des variables introduites dans la 2ème expérimentation, on observe que, dès que c'est possible, la majorité des élèves fondent leur décision :

- soit sur une analyse partielle de la situation ;
- soit sur des critères subjectifs.

Au niveau de la population expérimentale testée, il semblerait que le niveau d'études ait un effet sur la justification des réponses par une analyse mathématique poussée. Ce type de justification est en effet, dans le cas de trois modalités, surreprésenté pour les niveaux les plus élevés. Toutefois, étant donné qu'il n'y a pas eu d'échantillonnage, il est impossible de procéder à une généralisation.

Pour ce qui est de l'évolution des choix des élèves lors des différentes phases de cette 1ère expérimentation, on relève :

- l'expression d'une certaine flexibilité spontanée chez la majorité des élèves (c'est-à-dire que leurs choix s'avèrent, d'entrée de jeu ou assez rapidement, conformes à des choix dictés par le critère de maximisation de l'espérance de gain) ;
- l'expression d'une flexibilité réactive, chez d'autres élèves, suite à l'entretien.

Ainsi, cette expérimentation a permis de repérer l'expression de différents niveaux de flexibilité cognitive.

6. Conclusion

Notre objectif était d'étudier les choix et les justifications d'élèves dans deux situations expérimentales mettant en scène le hasard. Le but était notamment de voir si ces situations favorisaient l'expression de la capacité des élèves à envisager les différentes décisions possibles. Or, cette capacité a bien été relevée, chez une minorité d'élèves seulement, mais dans les deux expérimentations.

De nouvelles recherches pourraient prolonger ce travail. Des séquences d'enseignement autour de situations du type de celles qui ont été proposées

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[8] Par exemple, dans le cas de la 2ème expérimentation, un élève écrit :
« (…) si je suis joueur, je prends la règle n°1 car c'est la seule qui m'offre le montant le plus élevé. Si je suis prudent, je prends la règle n°2 car je gagnerais plus [que le minimum de la règle 1] de manière quasi sûre. »
De même, dans le cas de la 1ère expérimentation, on a pu relever ce type de réponses lors de la situation d'entretien, lorsque les élèves ont à arbitrer entre un choix rapportant à coup sûr quelques points et un choix pouvant rapporter beaucoup plus, avec probabilité plus faible. On peut noter ici l'importance de prendre en compte l'utilité que l'élève attribue à certaines conséquences.

dans le cadre de cette recherche pourraient, par exemple, être organisées. Après des phases de jeu, ou de résolution de problèmes par écrit, les différents choix et justifications dégagées par les élèves pourraient être mis en commun et discutés. Des critères de décisions distincts pourraient alors être mis au jour, ainsi que leurs influences respectives sur les différentes décisions envisageables.

Ensuite, l'impact de ces séquences sur la capacité des élèves à envisager les différentes décisions possibles, selon les critères retenus, pourrait être étudié lors de la soumission de nouveaux problèmes aux élèves, et éventuellement lors d'entretiens individuels.

Même s'il n'est présenté ici que dans les grandes lignes, un tel travail devrait permettre une meilleure connaissance des rapports que les élèves entretiennent avec les notions de décision, de préférences et de probabilités.

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Access to success

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Abstract

Changes to education in Australia have seen new government legislation increasing educational pathways so students can more easily enter university, the aim being to increase participation. Now many domestic students utilize various pathways to access university. Some have undertaken basic Further Education Diplomas, received subject credits, by passed traditional language requirements and introductory units and moved directly into a second year of university. However given the difference in pedagogy between VET and universities, many of the students taking advantage of the new pathways are in fact significantly disadvantaged and due to their various points of entry into university they are not easily identifiable. They have become the 'hidden disadvantaged'. This paper provides a case study where two Language and Academic skills advisors at LaTrobe University (Melbourne), have developed a model of support which has proved useful in identifying these students and giving them greater access to success.

Keywords: Access and equity – disadvantage – academic support – policy – cross sector linkages

1. Introduction

The encouragement of vertical movement of students from Australia's Vocational and Educational Training (VET) sector to Higher Education (HE) has been steadily gaining momentum over the past decade. Governments are using the new cross-sector linkages and movements to support the case that they are ensuring 'access to success' for all Australians and seen to be achieving its social aims of creating a 'Stronger and fairer country" (Department of Education, Employment and Workplace Relations 2009:5). Certainly such linkages in systems encourage greater participation of students in higher education as students who did not succeed through the traditional Secondary School to university transition could now gain access via the VET system. However it cannot be said that such movement is 'systematic' and/or, 'seamless' or that these students are not disadvantaged. Once accepted these students face a more difficult transition than many others. This must cause concern as Governments cannot defend policy which they cannot fully and effectively measure. Nor is it enough to research systems per se and dismiss the impact such systems have on individuals. Nevertheless encouraging cross-sector linkages continues despite the fact that research into such movements is so limited (Harris 2009:66; Cameron 2004; PhillipsKPA 2006 and Golding et al., 1996).

Having worked in both VET and higher education sectors, the authors have been in able to note the lack of alignment between reality and rhetoric. In fact, students who move from TAFE to Higher Education can be more seriously disadvantaged than any other group. Firstly, compared to other groups who fall into the traditional categories of "disadvantaged" (i.e., indigenous, disabilities, low socio-economic status and/or international students entering in first year) these "TAFE transfers" are extremely difficult to identify. In fact, we believe they are often so difficult to identify that we have classified them as the "hidden disadvantaged".

The aim of this paper is to highlight support issues faced by students moving between these sectors (for the purposes of this paper this refers to students transferring from TAFE to University). It also aims to show how an integrated support model can ensure these students are no longer 'hidden' or 'disadvantaged'. This model is not to be seen as a panacea for all universities nor can it be adapted in all settings. However there is the hope that demonstrates how 'harmonised planning, advice about needs and co-ordination of delivery" (Bradley et al., 2008:181) can actually be adapted to ensure equitable support for 'TAFE transfers'. In so doing, we hope to move one step further to ensuring 'access to success'.

2. Literature Review

To say tertiary institutions in Australia have undergone great change over the last decade has now become quite a cliché. Nevertheless the government continues to move to create an even stronger demand driven system (Golding, Marginson & Pascoe, 1996; James 2007; Stevens, et al., 2006 and PhillipsKPA 2006). The 'Bradley Review' of Australia's Higher Education (Bradley et al., 2008) notes the success of Australia's use of a strong quality assurance framework as a response to international competition. However the review also notes that whilst the approach " has served us well" (2008:115) there is still much that the government needs to do if it is to produce a system in which "The Australian community has confidence" (2008:115) and which creates a "stronger and fairer Australia" (DEEWR 2009:5). Nevertheless recent research reflects a government which is still struggling to balance the economic focus of its current tertiary education policies with the principles of access and equity.

The Centre for the Study of Higher Education (2008:2) commissioned to 'Review the participation in higher education of people from low socio-economic status (SES) backgrounds and Indigenous people' found: "students from low SES backgrounds are about one third as likely as people from high SES backgrounds to participate in higher education". As such, The Bradley Review, (2008) stressed the need for renewed vigor on the part of the government and all sectors of the tertiary education sector to review their efforts to increase participation of disadvantaged students. The government's response, has been to embark on its "Education Revolution" (O'Connor 2008). This 'revolution' sees the government making an "unprecedented investment in our universities and tertiary education system to drive comprehensive reform across post-compulsory education and training sectors" (DEEWR 2009:5).

One significant area in which the Bradley Review (2008) proposed improvements which could assist in the achievement of such vision was in relation to 'cross-sector qualifications linkages'. This is where the universities and VET and/or other educational sectors including schools, private universities and private providers strengthen their connections by developing a strong, systematic framework of qualifications so that there is no ambiguity about the value of each course. This was to be combined with streamlined systems so that student movement between the sectors was 'seamless'.

For many, Australia is seen to be leading the way in the area of cross sector linkages with five dual sector institutes where students can enter as TAFE students and remain in the same institute, undertake university degrees and exit with an undergraduate/post-graduate degree. However, the Bradley Review of Australia's Higher Education System(2008) and PhillipsKPA (2006) show that much work needs to be done if student movement between the two sectors is to be 'seamless'. Given the Organization for Economic Co-operation and Development's description of Australia's VET sector as "bewilderingly variable and complex" (in Bradley et al., 2008:182) and Bradley's own description of how "complex and fragmented" the higher education sector in Australia is, there is no doubt the task will be a challenging one. Moodie states:

we in Australia recognize the distinctions between vocational and higher education, and these distinctions are longstanding, certainly over a century old … and also seem deeply embedded in the economy and society. (Moodie, 2008:2)

It is clear that at present, the higher education/VET relationship is still an unequal one (Bradley et al., 2008 and Abela 2002) with TAFE being seen as the poor cousin. So whilst there are revolutionary moves to change it, the new government policies which strengthened ties between funding and participation rates smack of bullying institutions into acceptance. Government's desperation is seen in the fact that the new funding stream to "ensure universities meet agreed attainment, participation, engagement and quality targets" (DEEWR 2009) occurs as of 2010 for universities and 2013 for the VET sector. The rush for change which this has created within Australian universities seems to directly contradict Bradley et al., (2008) call for 'harmonised planning". These are not new problems, but they do reflect a government struggling to keep up with the juggernaut which is Australia's tertiary system. Unfortunately it seems that whilst research into students taking up these paths continues to be so limited, accurate assessment of the policies remain questionable. Furthermore the limited research is creating significant misconceptions about the effectiveness of cross-sector linkages.

Yes, the policies do allow for 'access to success'. As one student stated: "they (students) would never have made the journey to university without having attempted and succeeded at TAFE" (in Cameron 2004: 8). This neglects the fact that even if the access has occurred, for many, the move may not necessarily have ensured students were treated equally. So whether access then allows for an equitable learning experience is doubtful.

It seems logical to believe that many students must be finding the move extremely difficult as such complex, diverse systems are certainly not easy to negotiate. Success being dependent not on good systems but students' own personal skills. As Harris (2009:84) noted, "the wherewithal of the individual is critical as to whether these opportunities are taken up and effectively utilized". Many of these students will be 'first generation university entrants' i.e. first in the family to attend university (Horwedel 2008). LaTrobe University's 'First Year Experience' showed that of the 900 students who responded to a survey, 39.2% were the 'first in family to attend university' (Bexley 2008:7). Clearly, they may lack the support afforded to other students whose parents have previously negotiated these complex systems.

Even if the new recommendations and Education revolution make entry to university easier and create increased participation, it will take a great commitment to resource the support services needed to identify and assist students as they move between the two sectors. Unfortunately such identification is most difficult for a number of reasons. As the students originate from such a wide range of backgrounds (both socially and academically) they do not present as one, easily identifiable, homogenous group as do many of the other 'disadvantaged' groups. One of the most significant disadvantages of this situation is that their voices are not heard. Furthermore, as so little has been written about them and the difficulties they face, awareness of their issues is extremely limited. Worse still, there is research which states that these TAFE transfers perform as well, if not better, than others who have not articulated, received credit transfers or recognition of prior learning (PhillipsKPA 2006; Lewis in Burns 1994). One must be cautious about such conclusions as many of the studies like those reported on (Lewis in Burns 1994), are not only dated, but also based on students who move into competency based areas of study like Accounting and Commerce where concepts taught at University had clearly been part of their TAFE courses (Dickson 2004). Furthermore, far too many of the measures of success centre around 'retention rates' and/or 'pass rates' which pay scant, if any attention to students' actual learning experience per se. More recent research (Dickson 2004) found a marked difference in the experience of TAFE transfers and others who had taken more traditional pathways into university. Dickson (2004:3) states, "The former TAFE students encountered adjustment issues not in first year units like most beginning students but in difficult second year and in some third year units."

This is intensified by the fact that the cross-sector transfer agreements in relation to these TAFE transfers actually allows for students to by-pass first year, introductory subjects and sometimes even some second year ones (Veljanovski, Murphy and Bak 2009). More difficulties occur due to inherent differences between both sectors:

"Traditionally higher education [which] has concentrated on delivering longer study programs with a strong element of general education and adaptable skills largely for professional occupations, whereas VET has focused on outcomes in trades and paraprofessional occupations" (Bradley et al., 2008:180).

Secondly, most people believe such movement is 'systematic and straightforward'. Credit is given for the TAFE subjects and the student moves straight into their university course. This is a gross misconception. Credit "involves granting students some level of exemption, status or advanced standing in the course they are entering, in recognition of relevant prior studies and/or work experience and/or life experience" (PhillipsKPA 2006a:9). However there are even further, more complexities. For example 'credit' can be 'block', 'specified' or 'unspecified'; given with 'conditions'; for 'articulation', or 'Recognition of Prior Learning': it can be 'structured', 'individual' or 'unstructured' (PhillipsKPA;2006a:7-8). Students can also be part-time or full-time (Burns 1994). They may also be International or domestic. For many institutes, the amount of credit given is individually negotiated (Cameron 2004). Credit can also differ between states and within states (Bradley et al., 2008). Even further, students may have received credits for their original TAFE study and once completing a Diploma etc. apply for more. Clearly such complexity makes it difficult, if not impossible, to clearly categorize these students and administrative systems clearly flounder under the weight of such diversity (Chapman, et al., 2001). So TAFE transfers remain more 'diverse' than almost any other student group. They also, remain 'hidden' and as a result 'disadvantaged'.

3. Background to study

It was in this context that two Language and Academic Skills (LAS) advisors from the School of Management (La Trobe University, Melbourne) found themselves in 2005. Natural concerns were validated as they found increasing numbers of TAFE transfers presenting for support. To anyone who worked within both sectors, it was clear that whilst study at TAFE was not in itself a predictor of failure, it certainly did mean students were placed under greater pressure in negotiating and upon entry to university. It was a questionable policy which believed that movement from TAFE to Higher Education could occur without significant problems.

By 2005 numbers of TAFE transfers receiving Advanced standing in the Bachelor of Business (Sport and Leisure Management), Bachelor of Business (Tourism Management) and Bachelor of Business (Tourism and Hospitality Management), had notably increased. However it was the large numbers of TAFE transfers who were also International students, which began to draw enough attention to mobilize management to allocate a limited amount of increased resources for support staff to deal with the issue. Unfortunately such support was based on a 'deficit model' (i.e. the student not the system is deficient). Despite this, LAS advisors were trying to move management and academics from the centralized (Ramburuth 1999; Stevenson & Kokkin 2007) 'deficit model' where support was seen as "remedial and exclusive to a few … towards inclusive approaches, learning development and a more skills-sensitive curriculum as desirable for all students" (Cottrell, 2001: 40).

The paper uses the case study of the courses outlined above to demonstrate their approach to delivering support. It was quite clear that if anyone is to cope

with such large numbers of TAFE transfers, there is a need for effectively planned, targeted, systematic, systemic support which past research has shown to be effective, efficient, accessible and equitable (Brunken & Delly 2009).

4. Planning

By 2005, the School of Sport, Tourism and Hospitality Management (now School of Management) had approximately 300 students of which an estimated one third of the cohort came from TAFE (Brunken & Delly 2009).

The two LAS advisors formulated a clear proposal encompassing team-based teaching and embedding of Language and Academic Skills (LAS) which saw LAS advisors embedded as subject tutors in a core second year subject (referred to in this paper as TLA). Allan and Clarke (2007 p. 67) suggest that there is a continuum of embedding which ranges from "a reductionist-oriented pole, where study skills are taught in free standing modules, to an embedded-oriented pole where learning is fully integrated, supported and fully permeates a program of study". It was the latter approach that was adopted where the LAS advisors would teach academic skills not as "discrete entities". Instead they would be "developed over time as part of a broader process of personal, academic and professional development" (Cottrell 2001:45). The proposal was presented to the Head of School who then presented it to a School meeting. All of them supported this strategic approach, as did the lecturer/co-ordinator of TLA (Brunken & Delly 2009).

A number of initiatives were also devised to not only identify the TAFE transfers and whether they were in their first semester at university but also to identify those who were also most 'at-risk' due to low levels of generic skills. Various approaches to supporting these students were then developed.

Whilst this may seem a straightforward process, it required many months and much negotiation and liaison so that the final, co-ordinated support model could be developed.

4.1 Needs

A number of needs were identified in this process including those of the major stakeholders which included the University, the School, the academics and the students.

4.1.1 University and the School

In the planning stages, it was decided that the main needs of the University and the School were that student retention levels were either maintained (at worst) or increased. As well as this, student support had to be both 'accessible and equitable'. Furthermore graduate outcomes had to be addressed.

4.1.2 Academics

As with other institutions, many academics at La Trobe were concerned with a perceived decline in the skills of students. Unfortunately many were ill prepared for the sudden changes in their roles (James 2007) and ill informed about the wide diversity of their new student cohort. This was compounded by the fact that many academics lacked formal teacher training (Levander & Repo-Kaarento 2004).

4.1.3 Students

All students, whether domestic or International, must acculturate to a new environment when they enter university (Clarke 2000). Also, many come to university with few networks and/ or little understanding of the demands of the academic world. Even domestic students have limited knowledge of the university culture. This is compounded at La Trobe where a great number of students are first generation university students (Bexley 2008). Nevertheless as with most other universities, there is little time for students to acculturate as they find themselves lumbered with a number of work requirements having to be completed within the first few weeks of commencement (Dickson 2004). So, they are expected to move directly from TAFE into academia with little preparation. Academics make the same assumptions as government and assume the students' TAFE study prepares them for university. Consequently the TAFE transfers are particularly disadvantaged. In fact, as Cottrell (2001:36) notes, "If the university course does not match the way that the feeder courses teach and assess, then students are often in the dark about how to study". They need time and information to facilitate their acculturation and our approach would go some way to supporting that, in particular so they could develop their academic skills (ie. Critical thinking; referencing; essay/report writing; oral presentation skills; etc).

5. Co-ordinated delivery

While the major component of the proposed model was the LAS Advisors teaching the content of a core subject, it was nevertheless part of a much broader, co-ordinated approach which is both "multi-faceted and integrated" (Cottrell, 2001:43).

5.1 Orientation

While there was already a School-based orientation at the start of Semester One, the new model introduced another at the start of Semester Two. Both Orientations were designed to ensure all students had equitable orientations and acculturation opportunities no matter when they entered the School of Management. The mid-year Orientation was particularly important for those TAFE transfers who had been given significant amounts of credits. As a

consequence of receiving credits etc they would be enrolling in second or sometimes third year subjects despite it being their first semester at university, which is when Dickson (2004) suggests they will have difficulties. Entering at mid-year also meant they by-passed introductory subjects which were designed to provide the theoretical framework for future study. The First Year also provided the time to acculturate. As such it makes the transition to university easier. TAFE transfers receiving credit therefore missed this and the valuable opportunities to develop support networks.   The importance of an integrated transition program in retention of students is now a priority in many universities (Tinto, 2006). Furthermore, these students "were never part of an identifiable first-year 'cohort' (Watson, 2006). Milne, Glaisher and Keating (2006) suggest that 'skipping' first year actually exacerbates their difficulties adjusting to academic environment. Thus the mid-year Orientation was a vital part of identifying them as a group and establishing a support program for them. It also allowed the LAS advisors to present information specifically targeted to suit the TAFE student needs that they would not get anywhere else, such as how their university studies would differ from their TAFE studies.

 Also, as the LAS advisors were to teach most of these students in TLA, the Orientation provided the opportunity to identify those who might be at particular 'risk due to low levels of skills'. As a proactive measure, all TAFE transfers were identified through academic records and invited to enrol in tutorials in which LAS Advisors were embedded. These tutorials also had smaller numbers so that students could receive extra support during their transition. Except for those with timetable clashes, all students accepted the invitation (Brunken, et al., 2009). To stay true to the principles of equity, continuing students were also encouraged to join the smaller classes if they needed extra support.

5.2 Team-based teaching in TLA

Team based structures are a proven way of organising businesses today. Working in teams where a range of staff with varying skills come together is commonplace in many larger organizations (Bartol, et al., 2003). This and other concepts which meant working within business frameworks in an education context, with an emphasis on the need for greater accountability, improved effectiveness, efficiencies, organisational restructures, diversity and a focus on quality, public relations and marketing were concepts the "team" had brought with them to the delivery of support (Brunken & Delly 2009).

5.3 Assessment

Assessment tasks were also reviewed and a 'just in time intervention' (Wilson & Lizzio, 2008), in the form of a short written essay (300 words) was introduced and was to be submitted in Week 3. The purpose of this was to identify students who were 'at risk'. The assessment was only worth 10% of their whole grade so that failure in this piece did not mean they would fail the subject. While it did cause a great deal of angst for the students the tutors made it very clear to them that this was a formative piece of assessment that would be used for early

identification of those 'at risk' but it also enabled tutors to establish which academic skills needed to be introduced or revised. It was also useful for the continuing students as 'gaps' in their skills were exposed. Students who were identified as being at particularly high risk (i.e. those who had received four or lower out of a grade of 10) were contacted by their tutors and encouraged to discuss their learning issues with a LAS advisor. Following from this 'early intervention', the tutors were then able to develop a 'just in time scaffolding' (Wilson & Lizzio 2008) of academic skills that were taught concurrently throughout the semester, based on the needs of the students in the various tutorials rather than to a small minority who sought remedial assistance. The TLA tutors were also able to show students how such skills could be transferable to other subjects. Consequently, all of these factors alleviated the pressure on other staff in providing basic academic skills for students in need.

5.4 Communication

An important factor that enabled this model to be so successful was the regular communications between tutors and lecturer/co-ordinator. The three subject tutors met on a weekly basis (and communicated via email in between) and meetings with the lecturer occurred prior to assessments being due, often whilst they were being marked and following the marking process to moderate the papers. This ensured consistency in the expectations of the lecturer and the tutors regarding the assessment task and consistency in the grading process (Brunken et al., 2006). The students were made aware of these meetings and processes all of which meant that no student was disadvantaged by the tutor they had.

Further to this, the weekly tutors' meetings allowed for the discussion of students who might be facing particular difficulties. At times this led to re-locating students to a tutorial that might better meet their needs, meetings with a LAS advisor and/or referral to other departments in the university for further support. The meetings were also an opportunity for tutors to share teaching ideas and to discuss and plan subsequent classes. This was vital because as the move to increase participation levels in universities continues, academics are faced with different kinds of learners "who need different approaches to those that could be survived … in the past" (Cottrell, 2001:38). The TLA team meetings allowed us to share and develop approaches to meet the needs of all students.

6. Conclusion

The result has been improved quality in the delivery of the subject for a number of reasons. Firstly, the team-based teaching approach which taught academic skills incidentally within the subject ensured access and equity of student support. Team meetings of all relevant staff guaranteed a more consistent approach and a greater consistency in the material being presented. The use of an integrated approach that included a mid-year Orientation that facilitated the early identification of TAFE transfers, enabled the teaching team to address their specific needs.

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The Educational and Living Costs of the Portuguese HE Students in the International Context

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Abstract

This article analyze the costs of Higher Education (HE) of the Portuguese students – educational costs and living costs – concerning the several parameters relevant to the characterization of the typology of the student costs: type of education and institution, student situation regarding usual residence and regional location of the HE institution. In order to be analyzed in the international context, the educational and living costs of the Portuguese students will be compared to the Portuguese GDP per capita and the results obtained included in the Global HE Rankings study (the study Global HE Rankings, Affordability in Comparative Perspective; 15 countries). In Portugal, educational costs represent 11% of the GDP per capita, living costs 17% of the GDP per capita and total costs 28% of the GDP per capita.

Key-words: funding - cost-sharing - HE costs - financing support - HE accessibility and affordability

1. Introduction

The research questions we aim to answer to in this paper are: How are the educational and living costs supported by the Portuguese HE students? and "What is the situation of the Portuguese HE students as the affordability is concerned in the international context?

While developing this study, we started from two basic assumptions. The first assumption of this study is that HE costs are shared by four groups of intervenient (cost-sharing) – parents, students, taxpayers or governments and philanthropic institutions and patrons – and that it is possible to find a balance in the sharing of costs among the parties involved. The second assumption is that HE accessibility and affordability (student ability to pay) in Portugal strongly depend on the social support policy defined and the privileged instruments to make that support real (grants, housing and meal subsidies and loan programs).
The study is organized in three parts: the first part encloses a brief description of Portuguese HE evolution; the second part presents an empirical study concerning the costs of Portuguese HE students (we it use some of the results of the survey applied to Portuguese HE students in the academic year 2004/2005[9]). Finally, we compare these Portuguese results in the international context, using the

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[9] A questionnaire applied to a representative sample of 1040 HE students by Cerdeira L. (2008), during the research for the PhD dissertation.

methodology and data from the *Global HE Rankings, Affordability in Comparative Perspective S*urvey[10].

2. Recent Portuguese HE evolution

Portugal experienced a massive expansion in the last decades of the twentieth century regarding HE admission and participation, as it passed from a little more than 24000 students in 1960/1961 to round 377000 students in 2007/2008. This significant growth of HE accompanied the country's economical growth and development.

HE network is a binary system, with universities and polytechnics institutes and during these last decades the private education had a strong development. The increasing importance of private education when compared to public education regarding the number of students enrolled was striking. See Figure 1.

Figure 1 – Evolution of the number of students enrolled by type of institution
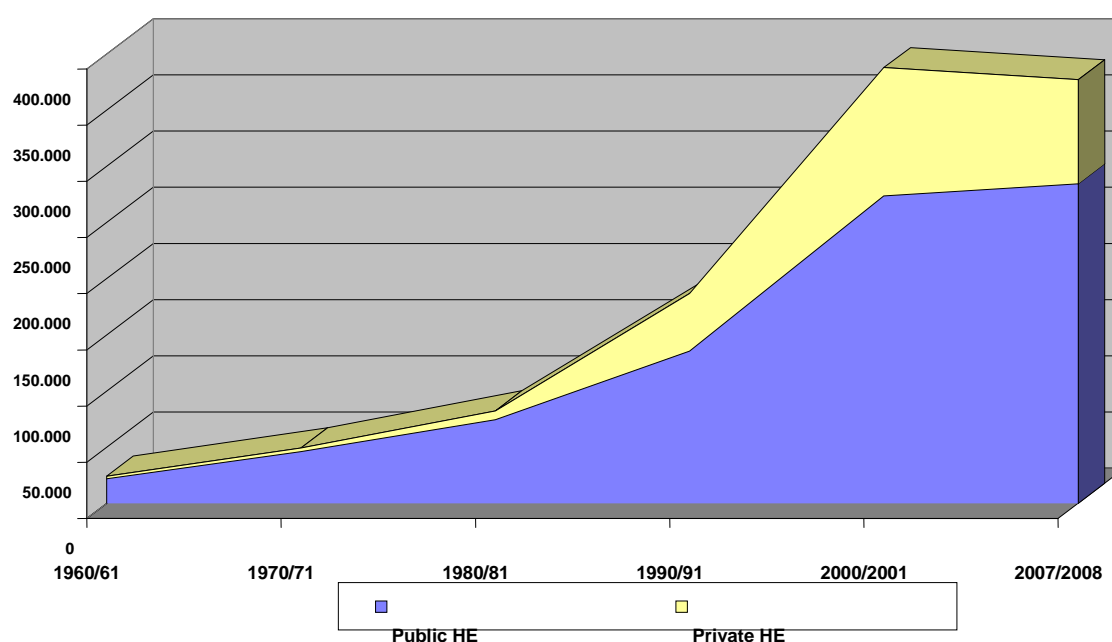
Source: From 1960/61 to 70 /11 in A situação Social em Portugal, 1960-1995, org. António Barreto
In 1980/81, 1990/91 and 2000/2001 – Direcção Geral do Ensino Superior – DSAT; 2006/2007 – GPEARI-OCES/DSEI

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[10] Usher, A. e Cervenan, A. (2005*). Global HE Rankings, Affordability and Accessibility in Comparative Perspectiv*e, Toronto: EPI, Educational Policy Institute.

On the other hand, the meaningful growth of the public education network involved great pressure on the budgetary means made available to this sub sector, with growing demands and with a striking increase of the budget of universities and polytechnics. Mainly due to the vigorous plan of construction and equipment of new facilities in every region of the country and which resulted in an investment effort from 1980 to 2006 at current prices round 1,8 billion Euro's (or of 2,8 billion Euros at constant prices 2007).

Given this pressure and in the scope of cost-sharing, the several governments reflected upon the implementation of a policy of tuition fee application. In fact, Portugal followed the "cost-sharing" policy, usually associated to a policy of tuition application, as it is acknowledged by Johnstone (2004), p.38), when he states that: *"Cost-Sharing is especially thought of as the introduction of, or especially sharp increase in, tuition fees to cover part of the costs of instruction."* The first step of this tuition fee policy was in 1992 (Law 20/92, of August 14th) and later on in 1994 (Law 5/94, of May 14th), 1997 (Law 113/97, of September 16th) and finally in 2003 (Law 37/2003, of August 22nd). In this 2003 context, the amount paid by the students varied from an interval of a minimum and maximum tuition fee (from a minimum value of 1,3 of the minimum national salary and a maximum value which cannot be higher than the value established in 1941, updated by the application of the consumer price index).

On the other hand, the social support system to Portuguese HE students is comprised with a set of direct support forms (grants, lodging subsidy, transportation subsidy, emergency aid) as well as indirect support forms (lodging at social prices in halls of residence and meals at social prices, sports, medical assistance and reprography). It has portrayed a relevant role in the expansion and accessibility of the HE system as it has aimed at decreasing the financial constraints of students from poorer backgrounds.

In global terms and comparing to the eligible academic population for this effect, the coverage rate of the grant holders has always been rising; it was only 15% in 1998/1999 and 21% after eight years. The same tendency was registered in the ratio between grant holders and grant candidates, who changed from an approval rate of 67% to 76%; that is, in 2006/2007 grants were awarded to 76% students who applied for them, as it is shown in Figure 2.

Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

Figure 2 – Number of HE grant holders *versus* number of eligible students and candidates to study grants from 1998/1999 to 2006/2007 – A comparison

	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006
Students	327.643	339.263	350.058	355.285	357.150	347.881	339.332	312.240
Grant Candidates	74.872	77.573	80.948	83.489	79.871	83.533	87.069	87.443
Grant Holders	50.436	56.046	59.296	59.643	57.622	63.031	66.180	66.968
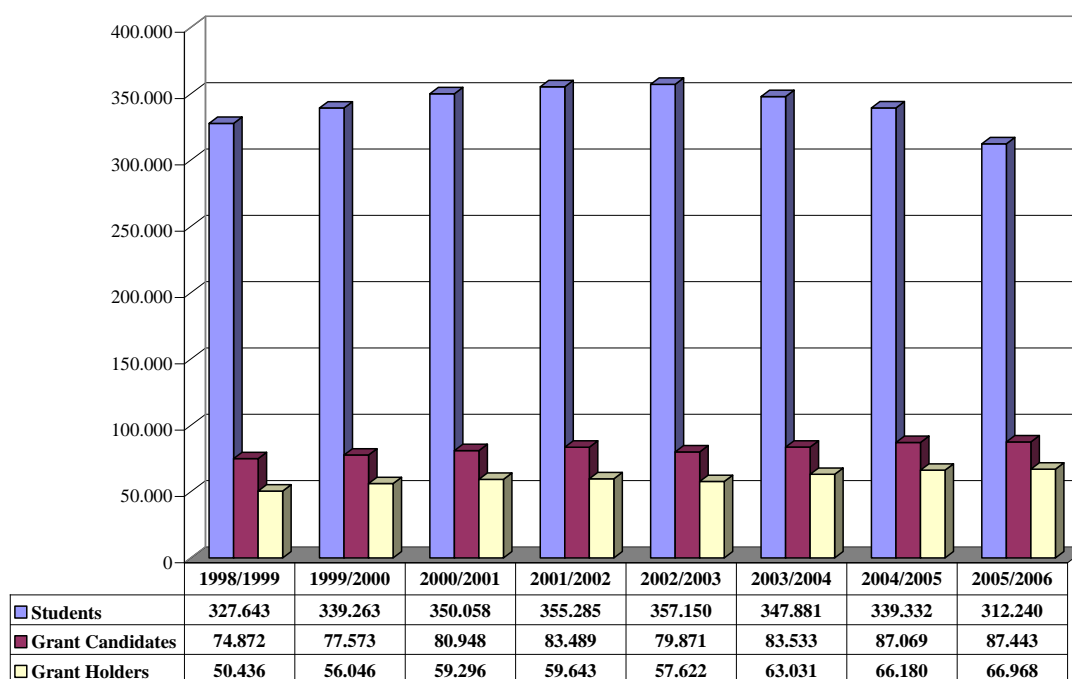
Source: DGESup – Student Support Fund/ Student Support Fund Service Office

In private education, the average value of the annual grant awarded decreased from 2 704€ in 1998/1999 to 1 858€ in 2006/2007, as the tuition fee rose from 1 958€ to 3 023€, which represents a decrease in the coverage of educational costs. Even though there has been a growth of 10% in the average grant value over the last two years. The average value of the grant in private education only covers round 62% of the average tuition value charged by this sector.

In public education, the average value of the grant rose from 1083€ in 1998/1999 to 1531€ in 2006/2007. The growth from 2005/2006 to 2006/2007 is worth enhancing as it appears to have risen 20% in a year only (1280€ in 2005/2006).

Figure 3 shows the comparison in private and public education, as concerned with the average grant value and the average value of the tuition fee.

88

Figure 3 – Average grant value and average tuition in public and private HE compared from 1998/1999 to 2006/2007
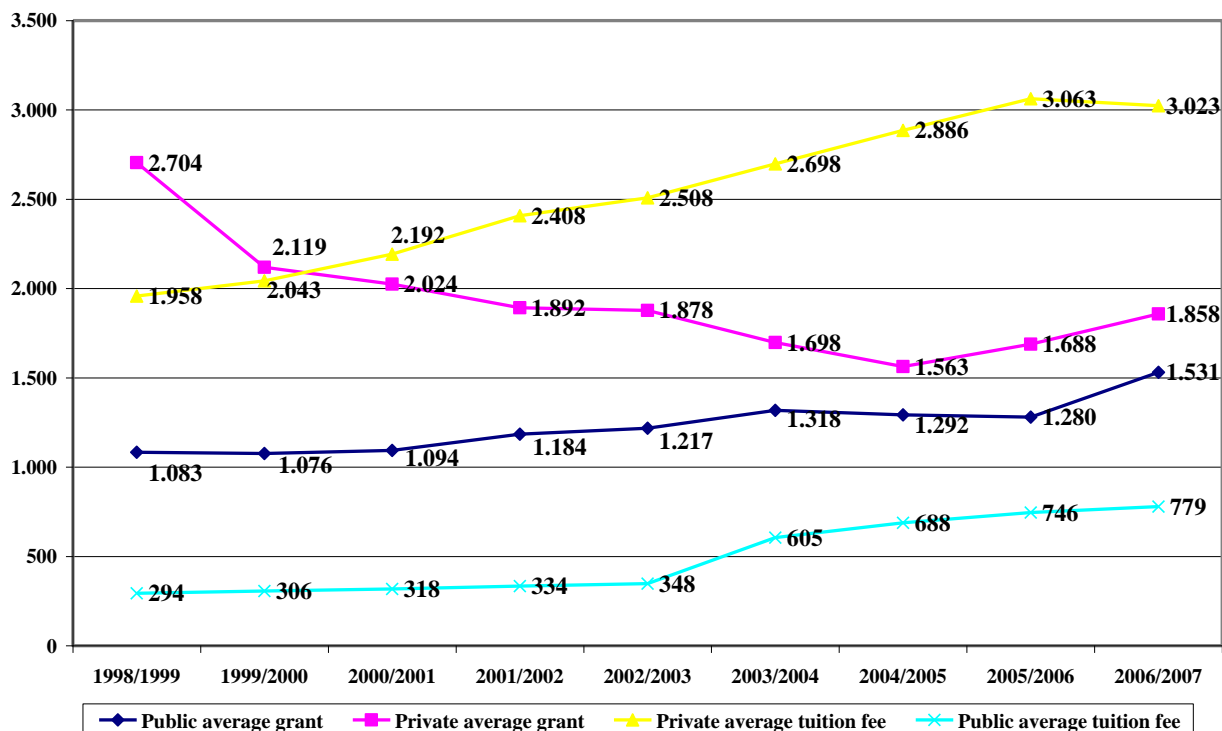
Source: DGESup – Student Support Fund/ Student Support Fund Service Office

3. The education and living costs of the Portuguese HE

The HE Financing, as defended by cost-sharing theory, is share between government and taxpayers, on the one hand, and students and their families on the other hand, and the costs varied according to whether students were enrolled in public or private institutions, universities or polytechnics and still according to the localization of the HE institutions attended.

In order to know the costs of Portuguese HE students, a survey[11] was applied from May 5th to June 23rd 2005 to a significant sample of 1040 students, in which the population strata enclosed represented the structure of Portuguese students per type of education and institution: public university students; public polytechnic students; private university students; and private polytechnic students.

[11] Cerdeira, L. (2008). O Financiamento do Ensino Superior Português. A Partilha de custos, Dissertação de Doutoramento, Universidade de Lisboa, Faculdade de Psicologia e Ciências da Educação.

Thus, and focusing the survey on the costs endured by the Portuguese students and their families, they were asked to identify the expenses they had run into during their final academic year (2004/2005). Expenses were grouped, according to Johnstone's classification (1986), into two main sets:

-Student living or current expenses, which included lodging, telephone and cellular phone, food and medical expenses (including heath insurance, medical appointments and dentist appointments), transportation costs and personal expenses (clothing, hair stylist, hygiene products, cigarettes, spirits, entertainment, etc.);

- Educational expenses, which included tuition fees, enrolment, other expenses (including insurance and examination application), books and other material, equipment (computers, microscopes, etc.) and field trips, and other expenses not included in any other item.

Portuguese HE students spend an annual average of 6 127 Euros – 5 310 in public education and 8 128 Euros in private education. In other words, a student attending private education spends round 53% more than a public education student, which represents a quite different financial effort both for the students as his/ her family. See Table 1.

Table 1 – Total annual expenses of HE students, by type of education (average)
Currency: Euros

	Total Costs (Educational and Living Costs)
Public	5310,1
Private	8127,9
Total	6127,2

Source: Cerdeira (2008)

In the scope of public HE, university students spend an annual total of 5 505 Euros and polytechnic students spend 5 051 Euros. Within private education, the university average is 8 708 Euros and the polytechnic one is 7 770 Euros. The distribution of the overall educational expenses and of the annual current expenses is summarized in Table 2.

Table 2 – Educational expenses, annual current expenses and total annual expenses in Portuguese HE (average)
Currency: Euros

	Education Costs	Living Costs	Total Costs
Public Universities	1207,8	4297,3	5505,1
Public Polytechnics Institutes	1040,2	4011,7	5051,8
Private Universities	3660,2	5048,1	8770,2
Private Polytechnics Institutes	3512,0	4258,2	7770,2
Total	1841,2	4286,0	6127,2

Source: Cerdeira (2008)

From the comparison undergone between the data of this study (2005) and the one in the 1994/1995 Survey (Cabrito, 1995) on the HE costs in Portugal, we can conclude that between both surveys (in other words, from 1994/1995 to 2004/2005) there was a nominal raise of 37% of the costs of public university students and 31% of the costs of private university students, with a significant increase of the tuition fee value in public universities (a 452% increase). See the Figure 5 with the structure of the costs in 1995 and 2005.

Figure 5 – Comparison of the structure between educational costs and living costs in 1995 and 2005
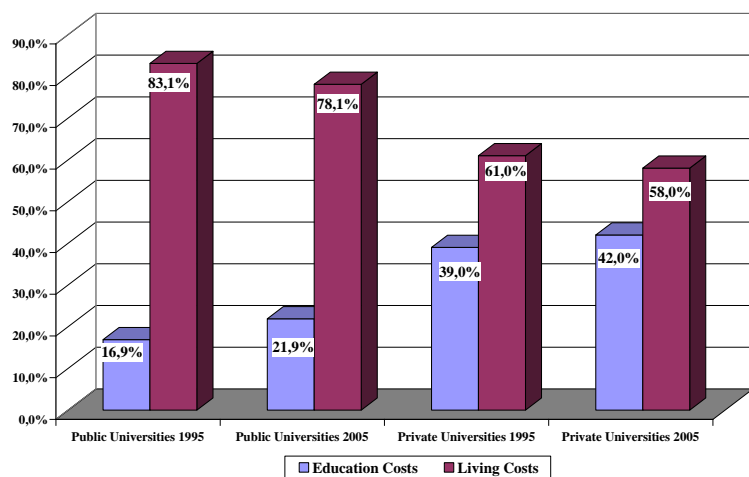
Source: Cabrito (2000); Cerdeira (2008)

The cost value students must endure in order to attend HE undoubtedly depends on their situation according to three fundamental variables: the type of education attended, the regional location of the HE institution and the student situation regarding lodging (that is, if he is living at their family home or in a house of his/ her own, or if he is staying at a hall of residence or rented room/ apartment).

The data related to the overall student groups are also presented, by indicating the disaggregation among educational costs, living costs and total costs in Table 3.

Table 3 – Student group costs, by type of education, region and lodging

Groups		Freq. %	Education Student Costs	Living Student Costs	Total Student Costs
Group 1	Public / Coastal Area / Parental or Family Home	31,6	1.113,48 €	3.647,81 €	4.761,29 €
Group 2	Public / Coastal Area / Halls of Residences	5,0	1.218,22 €	4.119,22 €	5.337,44 €
Group 3	Public / Coastal Area / Rented House or Room	15,8	1.127,19 €	5.193,27 €	6.320,46 €
Group 4	Public / Coastal Area / Own Home	3,3	1.394,87 €	4.567,24 €	5.962,11 €
Group 5	Public / Inland Area / Parental or Family Home	3,3	1.073,69 €	3.844,37 €	4.918,06 €
Group 6	Public / Inland Area / Halls of Residences	2,0	948,66 €	5.110,02 €	6.058,68 €
Group 7	Public / Inland Area / Rented House or Room	7,8	1.168,93 €	5.615,02 €	6.783,95 €
Group 8	Public / Autonomous Regions* / Parental or Family Home	1,0	1.189,85 €	3.274,24 €	4.464,09 €
Group 9	Public / Autonomous Regions */ Halls of Residences	0,5	959,50 €	8.602,50 €	9.562,00 €
Group 10	Private / Coastal Area / Parental or Family Home	20,8	3.561,46 €	3.794,86 €	7.356,32 €
Group 11	Private / Coastal Area / Halls of Residences	0,3	2.581,67 €	2.778,00 €	5.359,67 €
Group 12	Private / Coastal Area / Rented House or Room	3,8	3.517,03 €	2.222,40 €	5.739,43 €
Group 13	Private / Coastal Area / Own Home	2,3	3.412,67 €	4.800,00 €	8.212,67 €
Group 14	Private / Inland Area / Parental or Family Home	1,0	4.685,50 €	5.180,00 €	9.865,50 €
Group 15	Private / Inland Area / Rented House or Room	0,2	3.535,00 €	2.040,00 €	5.575,00 €
	Total		1.835,82 €	4.290,85 €	6.126,67 €

* Autonomous Regions include the islandes of Madeira of Azores.

Source: Cerdeira (2008)

4. Comparison of the Portuguese HE student costs with the results of the Global HE Rankings, Affordability in Comparative Perspective Survey

The accessibility and affordability concepts are central for the definition of the HE funding policies.

Equity (or inequity) in HE access depends on opportunities (the offer side), on aspirations (the demand side) and on the eligibility process or social stratification. The opportunities youngsters may have depend mostly on financial resources from governments to HE. On the other hand, students' aspirations will depend on education costs, the benefits of getting a degree (or at least the perception that students and their families have regarding such benefits) and the risks students may be willing to take in case they fail or do not graduate. A recent report of the Directorate-General for Education and Culture of the **European Commission** (Mora *et al*., 2007, p.40) acknowledged this opportunity limitation of students from poorer sectors and encouraged public policies to support youngsters and their households to attend and be supported at upper-secondary education level:

"Parental and school influences are extremely important determinants of participation at post-compulsory level. In most countries tertiary education requires prior qualification – generally at upper-secondary level – so that attainment in the compulsory phase of education, as much as anything which occurs subsequently, is a key to tertiary participation."

Even though both concepts are linked (accessibility and affordability), it is important not to confuse them because they are different, as stated by Usher and Steele (2006, p.3):

"Though the affordability of education is an important issue, it is important not to confuse affordability with accessibility. The former refers to the ability to pay for education; the latter refers specifically to the ability of people from all backgrounds to obtain the education they desire."

Many of the studies on affordability or ability to pay for HE eventually need to use the measure of Gross Domestic Product (GDP) *per capita* as an income *proxy* as well as a measure of financing accessibility, or measure of ATP (Ability to Pay) because it is difficult to obtain international income comparisons concerning individual or family incomes. This is what happened with the study *HE Rankings, Affordability and Accessibility in Comparative Perspectiv*e, undergone in the scope of the *Educational Policy Institute* (2005),[12] by Usher and Cervenan (2005). These authors gathered information about 15 countries and compared the results obtained according to those indicators.

Moreover, we will compare the current and educational costs of the Portuguese students in 2004/2005 to the Portuguese GDP *per capita*, and compare that result to the values found for the sixteen countries that have been studied in the research project previously mentioned and using the same methodology.

Thus, considering the value of educational costs (1 841 Euros) and the specific current or living costs of Portuguese students in 2005 (2 880 Euros) (only lodging, food and transportation costs were included, because those were the ones considered in Usher and Cervenan's study)[13], we will meet a total cost value of 4 721 Euros.

Taking into account the value inscribed in the Portuguese State Budget in 2005 to socially support students (grants and other supports) of 101 341 636 Euros, considering the total number of students 380 937 in the system in 2004/2005 (not only grant awarded students, but every HE student, whatever the degree or type of institution, regardless of being or not being a grant awarded student) there is a support of 266 Euros per student.

The net cost will then be the total cost value that the student averagely endures, deducted from the value of the support per student that the Government provides that is 4 445 Euros (4 721 Euros – 266 Euros). On the other hand, this value should be even decreased by the tax deductions that the Government allocated to families with children studying (in this case regardless of the education level). Regarding the year under study (2005), the limit value for education deductions was 599, 52 Euros, therefore the net costs after tax deduction for a Portuguese HE student went up to 3 856 Euros.

As it is known, a substantial part of the financing support to HE students in many countries come from the loan system, which is why the average loan value per student is also deducted Usher and Cervenan's study. However, in 2005 the Portuguese loan system was very insignificant and only recently with the new

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[12] The survey was based upon the data at Education at a Glance 2004 OECD.
[13] This cost concept is different from Johnstone' definition, which was used by Cerdeira (2008).

Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

loan initiative with governmental guarantee (2007) can we say that first steps are being taken towards the introduction of a loan system.

Estimating the overall costs and supports awarded to Portuguese students, we come to an "out-of – pocket " cost of 3 856 Euros per student, after tax expenditure and considering the overall support forms provided (grants, loans when they exist), as it is demonstrate in Table 4.

Table 4 – Accessibility of Portuguese students: comparison of the student total costs deducted from supports *versus* GDP *per capita* in 2005

		Value €	% of GDP
GDP *per capita* 2005	(1)	16.891 €	
Education Costs 2005	(2)	1.841 €	11%
Living Costs 2005	(3)	2.880 €	17%
Total Costs 2005	(4)=(2)+(3)	4.721 €	28%
Grants *per Student* 2004/2005	(5)	266 €	
Líquid Cost	(6)=(4)-(5)	4.455 €	26%
Tax Deductions	(7)	600 €	
Líquid Cost after Tax Deductions 2005	(8)=(6)-(7)	3.856 €	23%
Loan *per Student* 2005	(9)	0 €	
"Out-of-Pocket" Costs 2005	(10)=(4)-(5)-(9)	4.455 €	26%
"Out-of-Pocket" Costs after Tax Deductions 2005	(11)=(10)-(7)	3.856 €	23%

Source: Cerdeira (2008)

As we analyze the educational costs of the Portuguese students regarding the Portuguese GDP *per capita*, we will see that the student effort to pay the costs of HE attendance in Portugal (tuition fees, other taxes, books, equipment, field trips, etc.) represents round 11%. This value positions us in an intermediate group of countries – UK 12%, Australia 13%, Canada 14% – near the Anglo-Saxon model and farther from the group of other European countries, such as Austria (5%), Belgium (3%), France (6%), Ireland (4%), Sweden (3%) (See figure 6).

Figure 6 – Comparison between the education costs of HE students and GDP *per capita*. Source: Usher e Cervenan (2005) – Global HE Rankings, (OCDE, 2003 PPP)
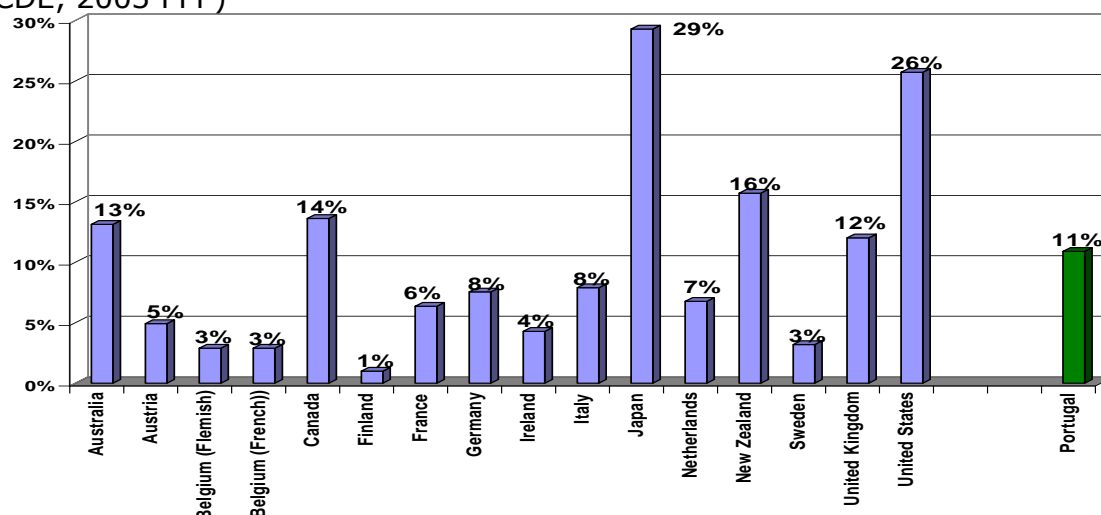
Concerning living costs, Portuguese students face similar values to every country, as these costs represent round 17% of the GDP *per capita*. Moreover, only the United Kingdom (32%) and New Zealand (36%) display far heavier values. The comparison can be seen in Figure 7.

Figure 7 – Comparison between the living costs of HE students and GDP *per capita*
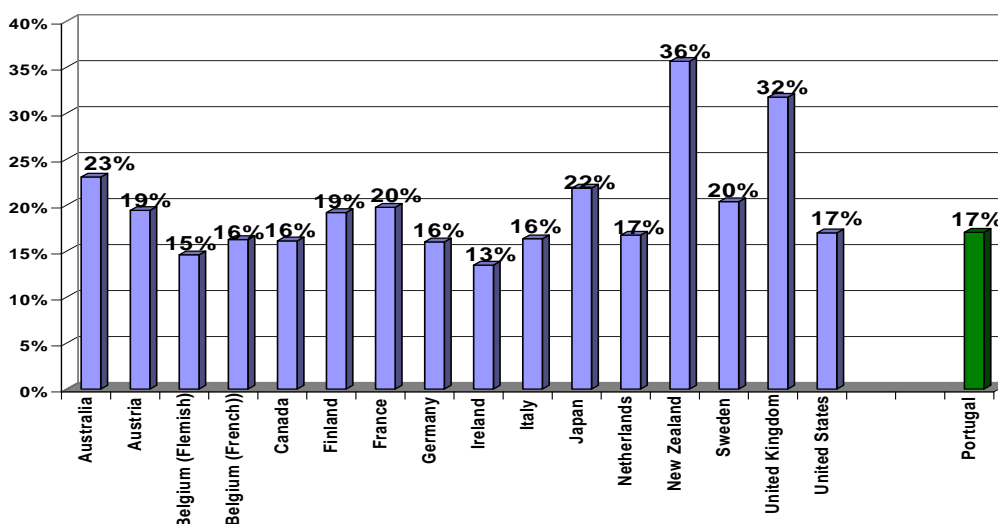
Source: Usher e Cervenan (2005) – Global HE Rankings, (OCDE, 2003 PPP)
          Portugal - Cerdeira L, (2008)

In global terms, the annual total costs of the Portuguese students represented 28%, of the Portuguese GDP *per capita* in 2005. If we look at Figure 8, we will see that Portugal is the European country that presents the highest value, except for the United Kingdom.

Figure 8 – Comparison between the total costs of HE students and GDP *per capita.* Source: Usher e Cervenan (2005) – Global HE Rankings, (OCDE, 2003 PPP) Portuga

Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010
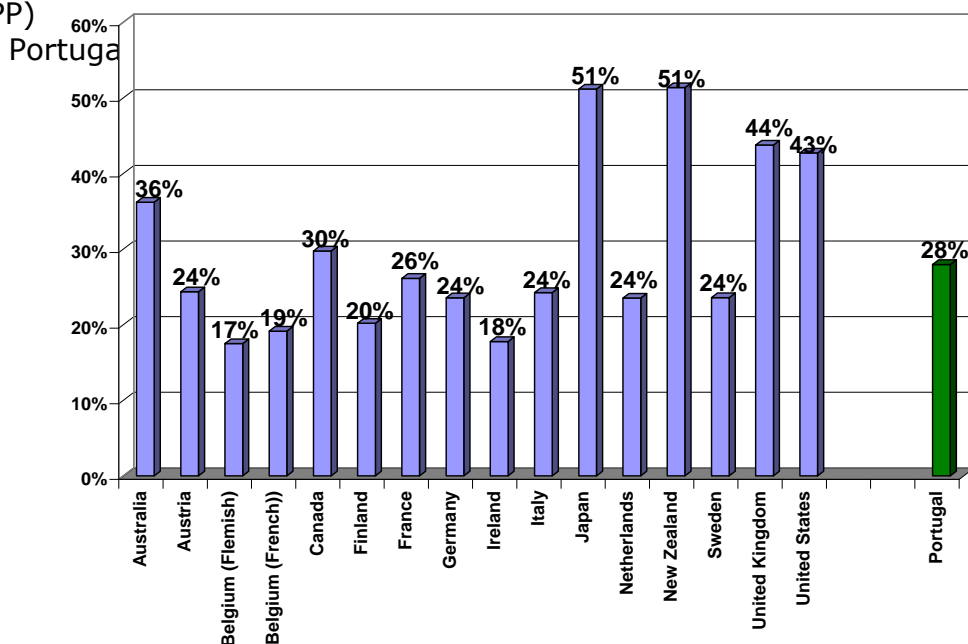
When we take into account the supports provided through grants, loans and tax deductions, as we eventually reach the "out-of-pocket" cost, which will represent the student effort deducted from the supports received, we will see that the Portuguese students needs round 23% of the GDP *per capita* in order to attend HE. This value demonstrates that the affordability of the Portuguese students is not very favourable in the international scope and mainly in the European scope. Figure 9 portrays this reality.

Figure 9 – Comparison between out-of-pocket costs after HE student deductions and GDP *per capita*
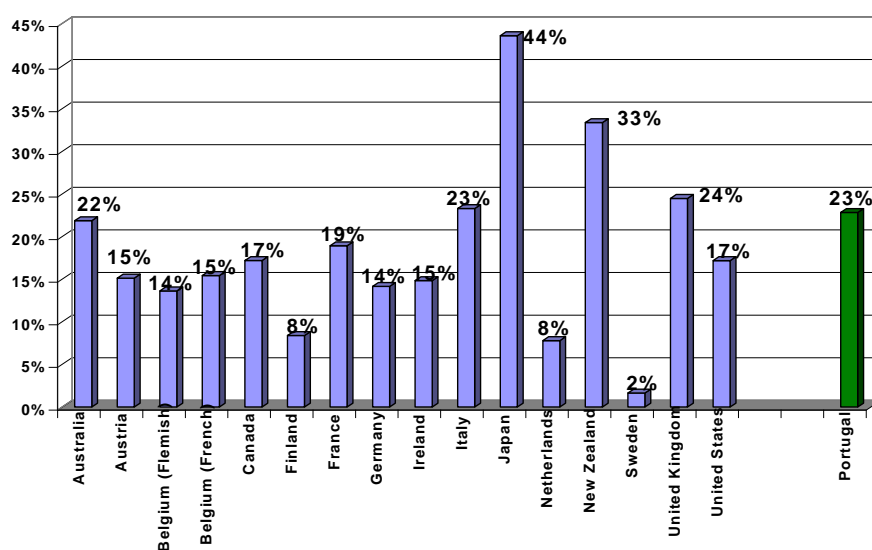
Source: Usher e Cervenan (2005) – Global HE Rankings, (OCDE, 2003 PPP)
          Portugal – Cerdeira L, (2008)

As we can see, there are countries, such as the United States and the United Kingdom which, despite their total costs represent 43% and 44% of the GDP *per capita*, respectively, eventually decrease to 17% and 24%, in terms of net cost after deductions. Similarly, Sweden, whose total costs supported by the students go up to round 24% of the GDP *per capita*, eventually has a minimum net cost of 2%. The reason for that inversion lies upon the fact that the supports through grants and loans in these countries are very significant.

Thus, if we compare the sum of the supports granted versus the total costs of the students, we can have a clear idea of the real effort that a HE student averagely has to endure. In the Portuguese case and in 2005, the supports granted per students averagely supported 18% of the total costs of the students.

In the context of the countries analyzed by Usher and Cervenan, Portugal evidenced a low student support value, which leads us to the fact that the affordability issue is not ensured to Portuguese students. In most European countries, the ratio between the supports and costs is always above the Portuguese value, and the extreme situation is Sweden, where the supports represent round 93% of the costs, as evidenced in Figure 10.

Figure 10 – Comparison between the supports provided and HE student costs
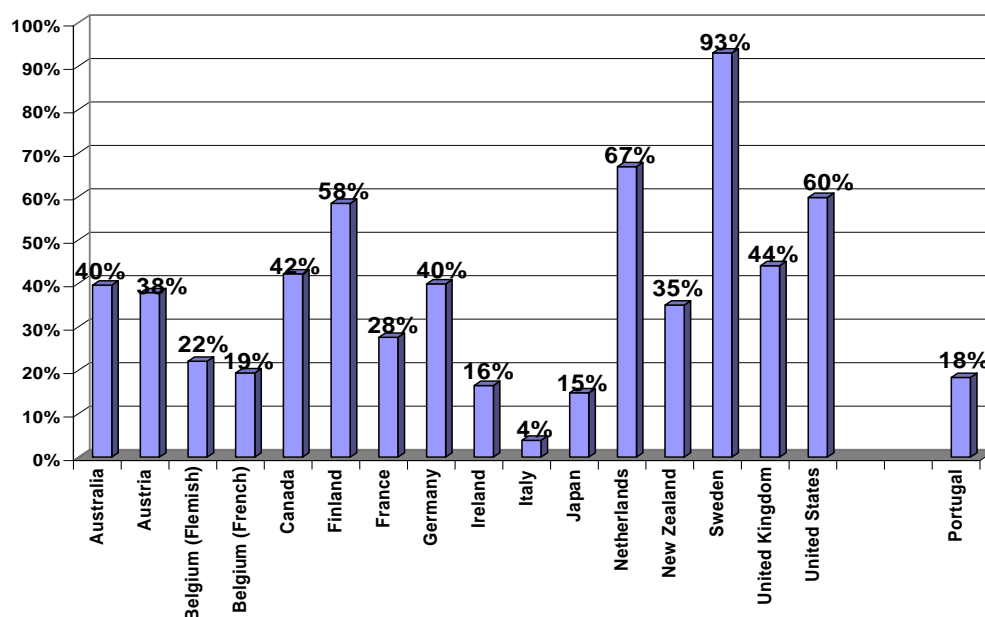
Source: Usher e Cervenan (2005) – Global HE Rankings, (OCDE, 2003 PPP)
        Portugal – Cerdeira L, (2008)

To summarize, the comparison between the costs and supports obtained by the Portuguese students to enable them HE attendance, leads us to conclude that in the international context, at least in the set of the countries analyzed, the Portuguese situation is not very advantageous regarding student affordability, as the supports received are little, when compared to the effort undergone by the students and/ or their families. This limited support to Portuguese HE students has been evidenced in a recent OECD (2008, p.206), which referred:

 "However, it is interesting to observe that low tuition fees do not necessarily imply facilitated access to tertiary education from a financing point of view. Financial constraints seem to be lower in some countries with high level of tuition fees – but good student support systems – such as Australia, New Zealand, The United Kingdom and the United States than in countries with low levels of tuition fees – but incipient student support systems – such as Hungary, Mexico, Portugal and Spain."

5. Conclusion

From the analysis undergone we have concluded that the educational costs (1 841 Euros) and the living costs (2 880 Euros)[14] of the Portuguese students

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[14] This value only includes lodging costs, food and transportation (and not the total current or living costs used in our study), so as to be compared to the aggregation used in Usher and Cervenan's study (2005). The concept of living costs used in the Cerdeira L

totalized 4 721 Euros of total costs in 2004/2005. On the other hand, the total amount of social support granted *versus* the total students enrolled in 2004/2005 point at a student support of 266 Euros and consequently a net cost (total cost except for student total support) 4 445 Euros. If we subtract tax deductions (599, 52 Euros a year) from that value, it will result in an *out-of-pocket* cost of 3856 Euros (the loan value had no expression in 2005).

When the previous costs were compared to the 2005 Portuguese GDP *per capita* (16 892 Euros), we could see that educational costs portrayed 11%, living costs 17%, total costs 28%, and the net cost after tax deductions was 23% of the GDP *per capita*; which evidenced an unfavourable situation in the international context, at least in the scope of the countries analyzed in the *Global HE Ranking* survey *(*2005).

Therefore, if the living costs of the students in our country are not very different from the one of the countries analyzed, regarding educational costs, Portugal is the European country with the highest value (**11%**), except for the United Kingdom, which goes up to 12% of the GDP *per capita*.

In addition, we have also demonstrated that the country has suffered from a striking frailty regarding the social support provided to students, as the set of supports provided by the Government only represented 18% of the total costs.
So, paying attention to the figures presented, we really might conclude that the affordability condition of the Portuguese HE students is worst comparing with their condition some years ago and   in addition that their affordability condition is a lot worst than the situation of most of European HE students. These facts show the urgent need of a change in Portuguese HE policies.

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How to Promote The Accessibility and Affordability to The Student Mobility Programs in the European HE Area?

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Abstract

One of the main goals of the Bologna Declaration (1999) was the mobility aiming at European co-operation and quality assurance in the framework of the building of a European HE Area. It is necessary for all involved parties to recognize that Europe is not homogeneous when it comes to HE (Higher Education) admission policies. A survey on the social conditions in Europe (Eurostudent, 2005) concluded there was a large difference among several European countries. Such diversity ought to be accounted for when aiming at a larger homogeneity. This paper aims at analysing the process of internationalization and mobility in Europe taking in consideration the different social supports to the students and aims at comparing the level of the students abroad, trying to identify some of the obstacles for the mobility in Europe. The paper also analyzes and discusses the actual trends of Erasmus Program as the most successful mobility program.

Key-words: internalization – mobility - social support – accessibility – funding

1. Introduction

The main research questions studied in this paper are:

Which are the most successful European Countries related with students' mobility?

Which funding policies are more appropriated to promote equity in the framework of the internationalization and the mobility inside Europe?

In a certain way, we can measure the success of the Bologna agenda looking at the mobility achievements. This focus was recently again underlined by the Communiqué of the Conference of European Ministers Responsible for HE (2009), that took place in Leuven, in 28-29 April:

Therefore, mobility shall be the hallmark of the European HE Area. We call upon each country to increase mobility, to ensure its high quality and to diversify its types and scope. In 2020, at least 20% of those graduating in the European HE Area should have had a study or training period abroad.

This paper is built in two parts:

- the first part encloses a presentation of HE accessibility in Europe (participation rates) and a brief description of social support policies in European HE and the results concerning the accessibility;

- the second part presents a comparison between the European HE enrollments and the number of students involved in the ERASMUS Program.

In the conclusion there is an identification of some policy problems to which internalization and mobility are concerned.

2. The European HE policies concerning accessibility, social support, internationalization and mobility

In HE accessibility equity is a central issue when defining funding policies, as the need to promote equity in HE access and to overcome financial barriers is generally acknowledged. The most immediate way to define accessibility is to know the number of people whom to give the opportunity to access HE, as broadened systems tend to be more accessible than the smaller ones. HE accessibility will then be the ability of most people, regardless of their social and economical background, to have equal access to HE.

Equity (or inequity) in HE access depends on opportunities (the offer side), on aspirations (the demand side) and on the eligibility process or social stratification. The opportunities youngsters may have depend mostly on financial resources from governments to HE. On the other hand, students' aspirations will depend on education costs, the benefits of getting a degree (or at least the perception that students and their families have regarding such benefits) and the risks students may be willing to take in case they fail or do not graduate.

Eligibility, that is, educational stratification mechanisms, is set upon a complex process of class structure (ability, aspirations, and financial status) and upon the HE admission process. Some studies and analysis undergone on the issue show that inequity persists; regardless of the growth of aspirations and opportunities there is still social economical stratification among HE students, where wealthier strata predominate, despite diverse factors in international terms.

The accessibility concept is ambiguous, as acknowledged by Rounce (2004, pp.1-2):

"The term access, narrowly defined, is used to refer to participation in any type of post-secondary education. … More recent research has begun to acknowledge and explore gradation in access, including differentiating between college and university attendance, university undergraduate, professional, and graduate degrees, institutional choices, and affordability."

Although these definitions may seem simple, obtaining an accessibility measure is quite difficult to achieve. According to Usher and Cervenan (2005) one can think of four indicators of HE accessibility measure: participation rate, education level rate, equity educational rate and gender parity index. Nevertheless, the

comparability of the different indicators is hard to accomplish because there are few available data in international levels.

According to Cerdeira (2008) country's participation rate is usually expressed as the fraction of students of a certain age enrolled in HE within the set of the total population of the same age.

Participation rates are unsatisfactory measures for two different reasons. The participation rate in HE alone is not a synonym of graduation and, in addition, there can be some confusion between the number of students who are admitted in HE and the dimension and duration of the courses. In fact, a country with many students and short-term courses can have the same participation rate of a country where there are few students, but in longer term courses (Cerdeira, 2008).

Nevertheless, we use the last available data on the "Population and Social Conditions" by Mejer and Gere (Eurostat, 2008) to analyze the level of the majority of the European and other countries concerning the participation rate in the "Tertiary Education".

Considering the participation rate related to the cohort 20-24 years old, we found a group of eighteen countries with high level of participation (up the European average, EU27 = 28,2%). The group with the highest rate of participation (up 35%) is composed by Slovenia (44,5%), Finland (39,9%), Poland (39,3%) and Lithuania (39,0%) and Greece (38,4%). A second group still up to European average includes Latvia (32,9%), Norway (32,3%), Belgium (31,2%), Estonia and The Netherlands (30,8%), Sweden (30,5%), Hungary (30,35), Italy (30,0%), France (29,0%), Spain (28,8%) and Czech Republic (28,5%) and Denmark (28,4%). Below the European average there is a group of countries not far from it with a rate of participation up to 25%: Iceland (27,2%), Bulgaria (27,0%); Romania (26%), Portugal (25,4%) and Slovakia Republic (25,1%). In the group with the lowest rates (below 25%) it's surprising to see the rates of participation of Germany (22, 7%) and United Kingdom (20, 5%). Figure 1 show this reality and shows also the rate of all the students enrolled in HE.

Proceedings 2nd Paris International Conference on Education, Economy and Society – 2010

Figure 1 – Participation rate in "Tertiary Education" in 2006 (cohort 20-24 years old and all students enrolled in HE)
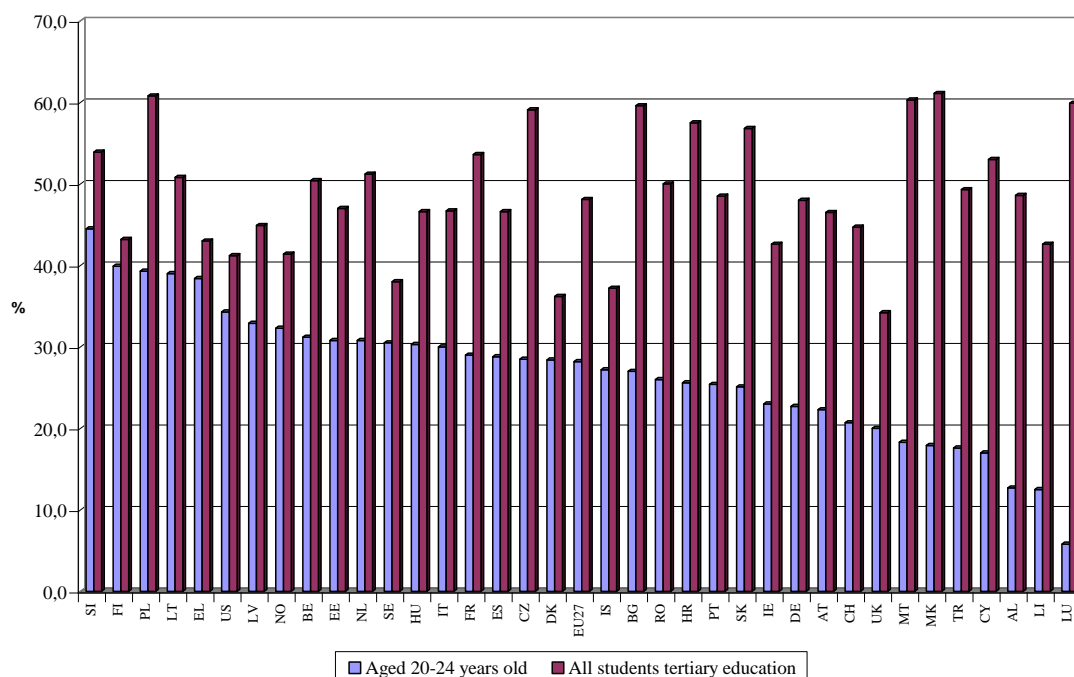
Source: EUROSTAT (2008), Education Statistics, UOE Data collection.

We can underline that the countries with the highest rates of participation are both countries from a strong traditional education culture (old soviet influence countries) or countries with a funding system without tuition fees or with a strong social support (grants and loans). Nevertheless, it is important to underline the European HE Area is not homogeneous and in what concerns accessibility, there is a significant diversity of situations.

A recent report of the Directorate-General for Education and Culture of the European Commission (Mora et al., 2007, p.40) acknowledged this accessibility limitation of students from poorer sectors and encouraged public policies to support youngsters and their households to attend and be supported at upper-secondary education level:

Parental and school influences are extremely important determinants of participation at post-compulsory level. In most countries tertiary education requires prior qualification – generally at upper-secondary level – so that attainment in the compulsory phase of education, as much as anything which occurs subsequently, is a key to tertiary participation.

The accessibility and affordability (ability to pay) depends not only on the funding policy, but also on the social supports and incentives. On the other hand, the social supports policy depends highly on country's social and cultural perspectives regarding parental obligations.

Although the figures have to be analysed in light of each country's cultural and social traditions, there is a significant difference in Europe in terms of student

support. In Scandinavian countries, most students are independent from their parents and regarded as young adults with a high level of independence. On the contrary, in southern European countries, tradition keeps students dependent on parental income and living with their family. Such diversity ought to be accounted for when aiming at a larger homogeneity within HE systems in Europe. On the matter of financing support systems to HE students, Finnie, Usher e Vossensteyn (2004) group them into four major models, which result from the diverse combination of policies of support and tuition fee application in the different countries: a) the student- centred model; b) the parent- centred model; c) the independent student model and d) the compromise model. From the description of these authors, a summary table has been created (see table 1), which displays the main characteristics of each model.

Table 1 – Main social support models for European HE students

Model	Features	Countries
Student-centred Model	Students are regarded as having primary responsibility for the costs of their studies. As such, they often face relatively high tuition fees. This implies that public funds to HE institutions should not fully cover education costs and that financial support is focused on students, not their families (although family contributions are taken into account). Grants, subsidies and loans are awarded to students on a means-tested basis, thus targeting support at students from low-income families and those who are otherwise needy.	United Kingdom.
The Parent-centred Model	Parents are morally, and in some cases legally, responsible for maintaining their children during their post-secondary studies. As a result, student grants and loans are available to relatively few students (generally from 15 to 35%) and the amounts awarded tend to be small. In contrast, parents are substantially subsidized in meeting their maintenance obligations to their children, generally receiving family allowances and/ or tax benefits to help them do so. Tax benefits typically in the form of tax deductions generally provide more benefits for parents with higher incomes and savings ability than to parents with lower incomes. Support is mainly based on family income.	Austria, Belgium, France, Germany, Italy, Spain and Portugal.
The Independent Students Model	Systems in which students are regarded as fully independent from their families are typically found in countries with a social and political welfare system. Students do not have to make tuition payments, meaning that governments pay all instruction costs. At the same time, these countries have relatively flat wage systems in which HE graduates do not earn much more than secondary-education graduates. In addition, public support for students fully covers their living expenses, regardless of whether they live with their parents or	Denmark, Finland, Iceland, Norway and Sweden.

	away from home. From 40 to 60 percent of the total support received by the students is provided through student loans; the rest comes in the form of grants.	
The Compromise Model	A final approach is where tuition and student support policies reflect a compromise between making students financially independent and having parents share costs. All full-time students are eligible for basic study grants, which vary in generosity according to whether they live with their parents or away from home. In addition, about 30 percent of all students are eligible for supplementary grants based on a parental income test. The parents of students who do not get a (full) supplementary grant of this type are expected to make up the difference. Nevertheless, amounts are often not enough, and as a result students are eventually involved in part-time work.	The Netherlands

Source: Cerdeira (2008), based Finnie, Usher e Vossensteyn (2004)

The social dimension of the Bologna process is not left unattended by the Europeans decision makers during these last years, at least in rhetorical terms. The Communiqué of the Conference of European Ministers Responsible for HE (Bergen, 2005, p.4) stated:

"We therefore renew our commitment to making quality HE equally accessible to all, and stress the need for appropriate conditions for students so that they can complete their studies without obstacles related to their social and economic background."

In addition, the type and level of support given to students, such as grants or subsidies, is rather diverse in the European context (% of students getting financial support from the State: UK 85%, Finland 71%, Netherlands 62%, France 53%, Austria, Germany, Spain and Portugal 25% and Italy 10%).

The Survey of the socio-economic background of ERASMUS students (2006, p.15), highlights that:

"many students can not participate in the program due to financial reasons. Over half of the ERASMUS students that participate in the program in 2004/2005 knew other students who had been deterred from participating in the program mainly due to financial reasons. A significant proportion of them knew many other students who had not participated in the program for those reasons."

In Figure 2 are represented the answers from the students who have responded to it. It becomes clear there is an important group of countries where 60% or more of the students declared they knew other students that quit of participating in ERAMUS for financial reasons (Hungary, Greece, Bulgaria, Slovenia, Poland, Turkey, Romania, Spain and Portugal). On the other hand, countries like Norway, Sweden, Denmark, Finland and surprisingly Latvia presented percentages lower than 30%.

Figure 2 – Proportion of students with none, some or many friends who have not participated in ERASMUS Program for financial reasons by home country (2004/2005)
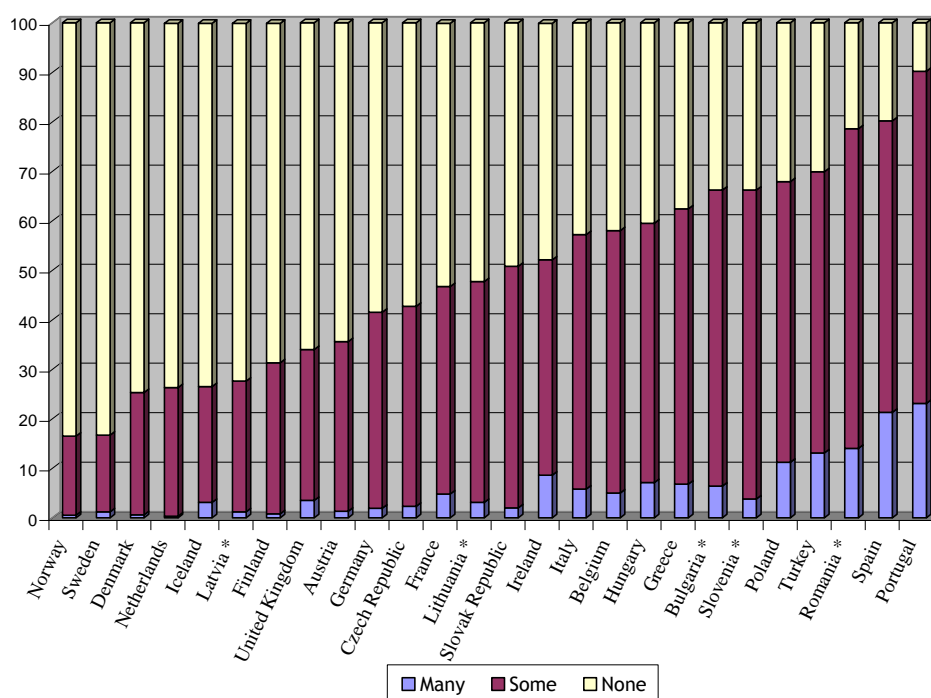
Source: Elaborated from data in Survey of the socio-economic background of ERASMUS students, by Manuel Souto Otero and Andrew McCoshin, DG EAC 01/05, 2006, Technical Annexes of the Final Report, p.77.

3. Internationalization and the Erasmus program

The goal defined in the Communiqué of the Conference of European Ministers Responsible for HE (2009), in Leuven, of achieving "in 2020, at least 20% of those graduating in the European HE Area should have had a study or training period abroad" is a difficult objective requiring strong proactive measures in terms of mobility promotion. That must concern the financial and organizing areas of the ERASMUS Programme, as the most important project of mobility in Europe.

In fact, The ERASMUS students received, in 2004/2005, a grant of 140€ per month (Otero e McCoshin, 2006, p. iii, Survey of the socio-economic background of ERASMUS students), but

"the additional expense of ERASMUS students during their ERASMUS period varies strongly depending on whether the students lived with his/her parents/family or not in their home country. The additional expense per month for an ERASMUS student who had lived at home the previous year of study would be 282 € (or around 2538 € for an academic year of 9 months). If we discount the average value of an ERASMUS grant (140 € per month) for an academic year of the same duration (1260 €) the net expense of the student 1278 €, which

Proceedings 2nd Paris International Conference on Education, Economy and Society – 2010

would need to be covered by alternative means (mainly family, work, loans or additional financial support for the ERASMUS period from institutions other than the Commission)."

Under this information we can conclude that the grant covers only about 50% of the expenses of a student during his/her ERASMUS period.

As it can be seen in Figure 3, according to the Eurydice Key Data on HE in Europe (2007), in 2003/2004 less than 3% of the students from the great majority of the countries were studying abroad and this percentage changed little between 1998 and 2004. But, more important are the significant differences between the countries.

Figure 3 – Percentage of students in "Tertiary Education" studying in another Member State, Candidate Country or EFTA/EEA Member Country in 2003/2004
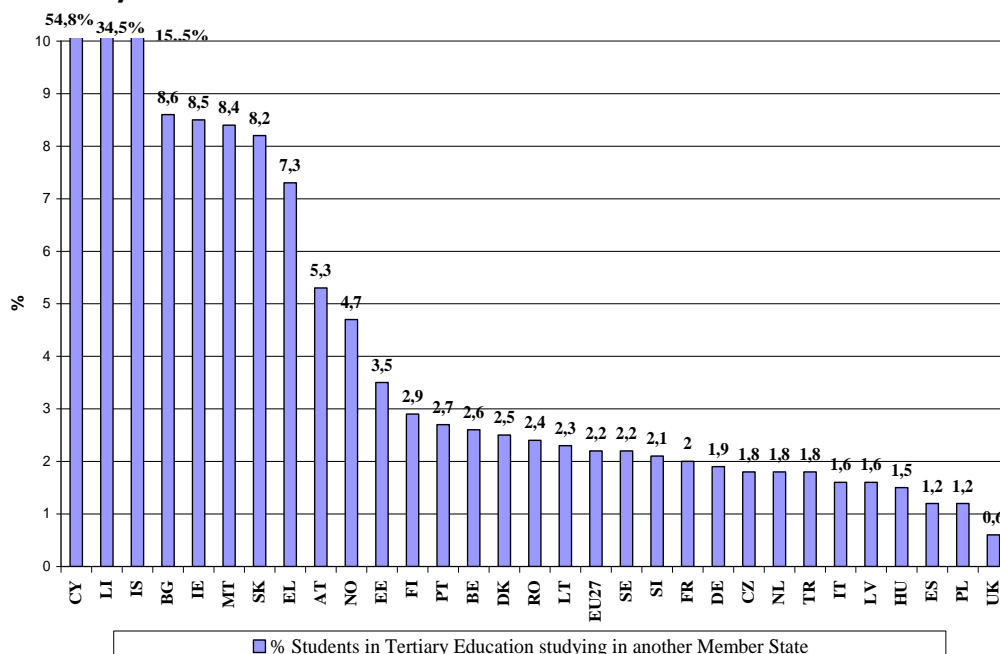
Source: Eurostat, UOE in Key Data on HE in Europe 2007 Edition, p.130.

Considering the international students the Key Data on HE in Europe (2007, p.132) concluded:

"Certain countries host proportionally more European students than others. In 2004, Belgium (7, 1%), Germany (5, 7%), Austria (12, 5%) and the United Kingdom (5, 1%) were the countries that hosted the biggest proportion of foreign students in tertiary education (ISCED 5 and 6). On the other hand, Lithuania, Poland, Romania and Turkey took in less than 0,5% of European students (ISCED 5 and 6)."

According a more recent document of Eurydice (2009), in eighteen countries less then 3% of the students is enrolled abroad, with Russia, Ukraine and the United Kingdom with lowest rates, less than 1% enrolment abroad. In the opposite

Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

extreme were ten countries (Albania, Andorra, Cyprus, Macedonia, Iceland, Ireland, Liechtenstein, Luxemburg, Malta and Slovakia) where near 10% of the students is enrolled abroad.

Besides the ERASMUS Program is one of the most successful achievements of Bologna Process, the number of students' enrolled compare with the number of students of HE per country is still very modest. For a group of 30 countries with around 21 430 834 students enrolled in HE only 159 276 were outgoing students in 2006/2007. This represents only a rate of 0,7% of the total students enrolled. Table 2 describes this situation and shows the situation of each country.

Table 2 – Relation between the number of students enrolled in HE by country and the number of students enrolled in ERASMUS Program in 2006/2007

	Number Students enrolled in Higher Education	Country of home institution	Host Country	Country of home institution/ HE Students	Host Country / HE Students	Outgoing Students - Incoming Students
	(1)	(2)	(3)	(4)=(2)/(1)	(5)=(3)/(1)	(6)=(2)-(3)
Luxembourg	2692	170	24	6,3%	0,9%	146
Austria	253139	4032	3776	1,6%	1,5%	256
Czech Republic	337405	5079	3059	1,5%	0,9%	2020
Belgium	394427	5119	5308	1,3%	1,3%	-189
Malta *	10000	125	331	1,3%	3,3%	-206
Spain	1789254	22322	27464	1,2%	1,5%	-5142
Finland	308966	3773	5998	1,2%	1,9%	-2225
Portugal	367312	4424	4787	1,2%	1,3%	-363
Iceland	15721	189	327	1,2%	2,1%	-138
France	2201201	22981	20673	1,0%	0,9%	2308
Germany	2289465	23884	17878	1,0%	0,8%	6006
Lithuania *	209000	2082	808	1,0%	0,4%	1274
Italy	2029023	17195	14779	0,8%	0,7%	2416
Slovenia *	117000	972	792	0,8%	0,7%	180
Ireland	186045	1524	4012	0,8%	2,2%	-2488
Netherlands	579622	4502	6914	0,8%	1,2%	-2412
Estonia	78000	572	489	0,7%	0,6%	83
Denmark	228893	1587	4545	0,7%	2,0%	-2958
Hungary	438702	3028	1708	0,7%	0,4%	1320
Slovak Republic	197943	1346	655	0,7%	0,3%	691
Cyprus *	20000	129	211	0,6%	1,1%	-82
Sweden	422614	2532	7359	0,6%	1,7%	-4827
Latvia *	135000	807	373	0,6%	0,3%	434
Norway	214711	1257	2575	0,6%	1,2%	-1318
Poland	2145687	11219	3730	0,5%	0,2%	7489
Romania *	879000	3350	792	0,4%	0,1%	2558
Bulgaria *	248000	938	296	0,4%	0,1%	642
Greece	653003	2465	1841	0,4%	0,3%	624
United Kingdom	2336111	7235	16508	0,3%	0,7%	-9273
Turkey	2342898	4438	1321	0,2%	0,1%	3117
Total	21430834	159276	159333	0,7%	0,7%	-57

Source: OECD Education at Glance 2008 (column 1 - students enrolled in 2006); * EUROSTAT, Education statistics, UOE data collection.

108

In the opinion of European Students' Union, the results are quite modest (ESU, 2009, p.8):

"Mobility is another aspect of Bologna with something of a gulf between perception and reality, and where the pace of real change is considerably less than ministers, politicians and HEI leaders would have us believe. Despite the regular appearance of commitments to the contrary, the goal of making mobility the rule rather than the exception seems almost as elusive as ever."

Concerning the level of students who went abroad in the ERASMUS Program, the great majority of the countries had a modest rate and only a group of 12 presented a rate above 1% or plus of the enrolments of HE In the extreme we found a group of 6 countries who didn't achieve 0,5% of the HE enrolments. See Figure 4.

Figure 4 – Relation between the number of outgoing students and the number of the students enrolled in HE per country, 2006/2007

Source: OECD Education at Glance 2008 (students enrolled in 2006); * EUROSTAT, Education statistics, UOE data collection.

In what respects the relation between the number of students incoming and the number of students enrolled in HE we can identify a group of thirteen countries with a ratio up 1% and a group of seventeen countries with a ratio smaller than 1% (the countries with a lower rate are Turkey, Romania, Bulgaria, Poland, Latvia, Greece and Slovakia Republic) as it can be seen in Figure 5.

Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

Figure 5 – Relation between the number of incoming students and the number of the students enrolled in HE per country, 2006/2007
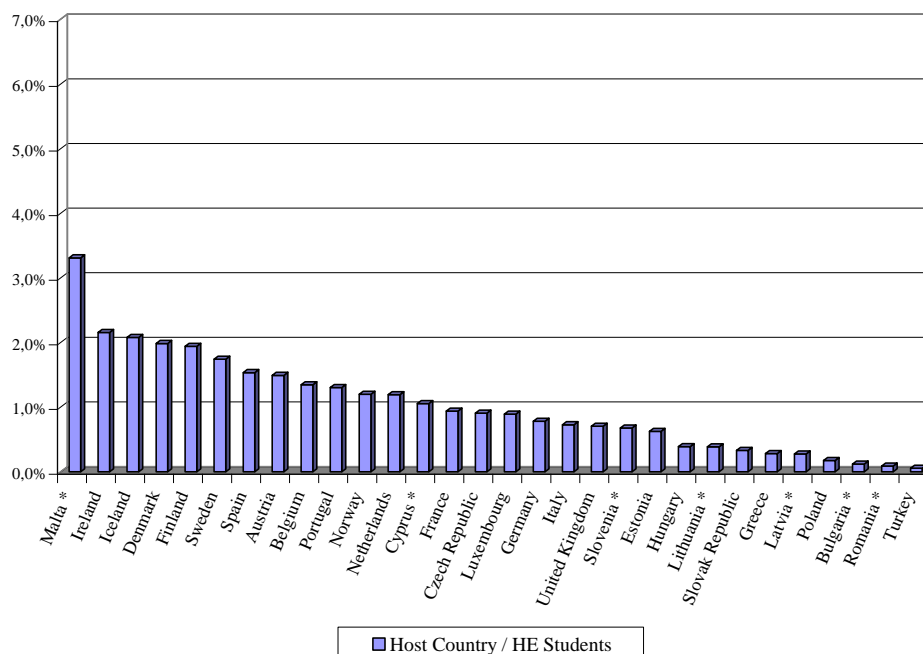
Source: OECD Education at Glance 2008 (students enrolled in 2006); * EUROSTAT, Education statistics, UOE data collection.

It is also interesting to compare, in each country, the difference between the number of the outgoing students and the number of the incoming students (see column 6 of Table 2). This balance shows a group of seventeen countries that send abroad more students than they received (positive in Figure 6) and another group receiving more students than "exporting" (negative in Figure 6). In this last group of countries we found United Kingdom, Ireland, Netherlands, the Scandinavian countries and the Iberia countries. There must be several reasons to explain this fact. Nevertheless, an important explanation could be the attractiveness of the HE Systems, as well as the English language and culture.

Proceedings 2nd Paris International Conference on Education, Economy and Society – 2010

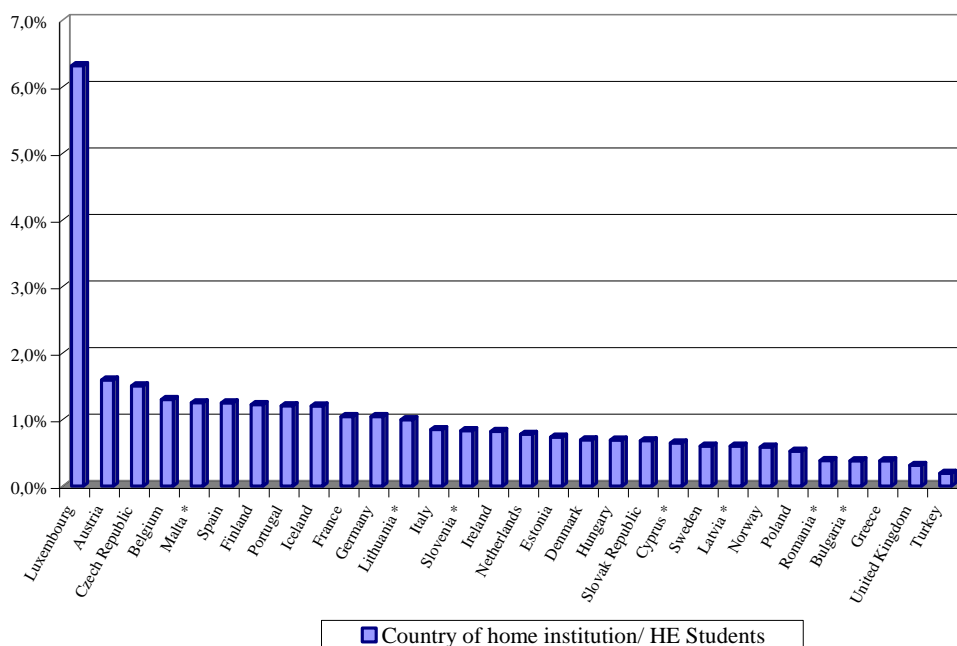**Figure 6 – Balance between the outgoing and incoming students within the ERASMUS Program**
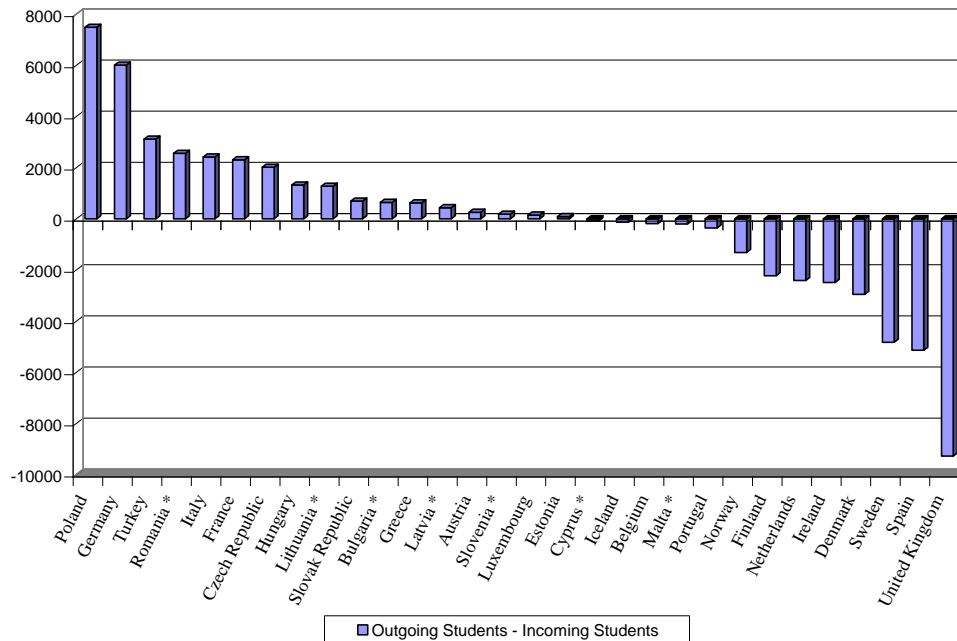
Source: OECD Education at Glance 2008 (students enrolled in 2006); * EUROSTAT, Education statistics, UOE data collection.

4. Conclusion

The Erasmus Program is a well known and successful program having a high degree of satisfaction among teachers and students in every European country. Considering the conclusions of the survey of the Socio-economic Background of Erasmus students, DG EAC 01/05, 2006, a big majority of the participants (71%) gave a positive or a very positive assessment to the program. Only 2% have considered their ERASMUS experiences as poor or very poor.

Nevertheless, the program is still a restricted. In order to implement more the ERASMUS Program it seems important that the offers within the Program can be even more diversified (courses, academic or enterprises training placements, focused learning visits, etc.). But the program is also restricted and elitist, taking in consideration that most of the students participating in the program belong to families with high socio-economic and cultural background. Near 58% of the Erasmus students had at least one parent who had experienced HE. The big majority of the students belong to families in which the parents are executives or have technical occupations. This trend as not changed since the last survey.

Reality is different from rhetoric. The differences in the heart of Europe are currently quite significant. The exclusion and inclusion issues form a dichotomy between Western and Eastern Europe and also between Northern and Southern European countries, and there is a great distance between both. This will have a

consequence in the implementation of this important goal of the Bologna Process – to increase student mobility among the several education systems in Europe.

In conclusion, equity is a central issue for the HE accessibility, even in the mobility programs. It is essential to adopt and define funding policies to promote equity in HE access to overcome financial barriers. So, apart from the rhetoric, in view to provide the same opportunity to all students, it will be needed pragmatic and proactive social policies to support those who present a low socio-economic condition and want to get involved in these mobility programs. Those policies have to be delivered both by the national governments and education institutions and especially by the EU central institutions.

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Mapping and matching Singapore's society to the globalised economy

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Abstract

One of the fundamental goals of education is to transform people so they become the relevant and productive workforce needed by their society. A country's education system plays a pivotal role in its economic growth as schooling prepares its people for the world by equipping them with appropriate knowledge and skills. The world economy therefore has a significant impact on education, meaning that a change in the economy requires a change in the education system. This paper offers a snapshot of how the Singapore government through its national day rally speeches and news reports have fostered the need for the country to redesign and align its education system to the globalised economy. It discusses how education policies are translated from the government to the Ministry of Education and to the schools and hence to the country's future workers.

Keywords: Globalisation - education system - government policies

1. Introduction

One of the fundamental goals of the education system in any country is to produce a skilled workforce that will meet the economic needs of that country in response to its position in the globalised economy. As "the most fundamental needs of a society are its survival and development" (Chang, 2002, p. 131), education has become a critical tool to develop skills for work and to improve the productivity of the workers, and schools provide the education needed to facilitate economic growth (Benson, 1978). Schools are expected to invest in human capital that supports the country (Chang, 1995). Human capital is defined as an investment in education and training to increase the skills of the workers and their productivity level (Bertrand, 1994). Thus, education is more than just obtaining a set of knowledge and skills needed for the economy; it is about obtaining the skills needed by the country. Inevitably, as the world and the economy become more globalised, there will be an increasing emphasis on research and development (R&D). What this means for Singapore is that it needs to produce a workforce that is able, adaptable and re-trainable to undertake new R&D directions (Graddol, 1997).

In this globalising world, new kinds of knowledge and skilled intelligence have become the building blocks for the economy, and Singapore, unlike many other countries, has limited natural resources, and therefore it depends largely on its labour force for its economic development (Chua, 2006). Since gaining independence in 1965, the Singaporean education system constantly has

reinvented itself to create and expand the population of professionals, technicians, executives and managers needed in the society (Chang, 1995), through initiatives such as the Thinking Schools, Learning Nation (TSLN), Teach Less, Learn More (TLLM) and Innovation and Enterprise (I&E) (Chua, 2006). The government believes this will "increase Singapore's chances of survival and development" and "develop the productive potential of the individual" (Chang, 2002, p. 140). To complement these changes, Singaporean schools have had to re-define teaching pedagogies to prepare its future students. For example, the present curriculum in Singapore is centred on continuous learning where schools have been conducting more Information and Communication Technology (ICT) infused classroom activities and project work (Chua, 2006). Consistent with this perspective, the Singaporean government has given its full support to education by investing about S$4.4 billion for basic education and another S$3.5 billion for higher education in 2009 ("Singapore budget," 2009). This perspective demonstrates that the economic needs of a country are powerful as they determine what goes on in other sectors of the society, particularly the school (Apple, 1982).

2. The Singapore straits times and its influences

Newspapers play an important role in disseminating, reinforcing and reviewing government policies. Hall, Critcher, Jefferson, Clarke and Roberts (1978) argue that media "do not simply 'create' the news; nor do they simply transmit the ideology" (p. 59) since newspapers are not politically or ideologically impartial. "[Th]e problem of bias in the press is not a matter of who, or what system, is supported" (Reah, 1998, p. 10), as bias is perpetuated by the system (set by the government) and the context (laid by the government) that ensures its continuity. Thus, newspapers are more than just purveyors of the news of the day, and they cannot include everything as they cater for a diverse group of readers with diverse needs. Therefore, decisions need to be taken to decide what information is to be included or excluded depending on the type of readers and the intended impact. Newspapers can present facts in ways that can influence the readers' view of them, as news "is always reported from some particular angle" (Reah, 1998, p. 10).

In the Singaporean context, the problem of bias in the press is exacerbated by government determined conditions under which the press operates as the press must be subordinated to the needs of Singapore. For the government, "media accountability is not a question of free market economics in Singapore, but of Government control" (Birch, 1993, p. 20), as it argues that Singapore can only experience stability and ethnic harmony when the media supports and does not undermine governmental policies (Mauzy & Milne, 2002). It is stated clearly that media criticism has "to be constructive so that the media maintain respect for the parent (the government) and the good name and harmony of the family (the country)" (Wong, 2001, p. 6). Thus, the government has substantial, if indirect, control over publications like The Straits Times through the Media Development Authority of Singapore which supervises how the media operate, or through the Undesirable Publications Act that prohibits the dissemination and sales of any publications that the authority deems to be against the public interest ("Ministry

of Information," 2005). With that in mind, reports published in The Straits Times normally provide a publically published document, which can be regarded by the readers as statements of government, as evidenced by the tacit editorial support provided by the newspaper's editor. In this paper, extracts from The Straits Times are used because they provide authoritative statements of government policy, in a manner similar to The People's Daily in The People's Republic of China.

3. The Singapore straits times and education reforms

This paper looks at two national day rally speeches taken from the years 2005 and 2009, and a 2009 interview report of Professor Linda Darling-Hammond who had visited the Nanyang Technological University (NTU) in the same year. The 2005 national day rally speech, which continued the theme of the first speech in 2004, is selected because PM Lee Hsien Loong was only beginning his second year as Singapore's third prime minister and the rally was an opportunity for him to evaluate what had been accomplished and to put forward his new agenda. In 2004 he had argued that,

the most important gift we can give our young, and to prepare for their future is education. It's not just preparing them for a job but learning to live a life, to deal with the world, to be a full person (From the Rally, 2004)

The full report of PM Lee's 2005 speech occupied two full broadsheet newspaper pages and was accompanied by a coloured photograph. It contained two smaller pictures of PM Lee that acted as an attention getting frame to highlight the key topics of his speech which were: Retirement, the needy, education, service and graciousness, remaking Singapore and spirit of Singaporeans ("Remaking Singapore," 2005). The 2009 speech was chosen because the general cycle for change is often between four to five years. Therefore the 2009 rally speech could be expected to reflect the government's next phase of its developmental plan for Singapore, for example, as evidenced in the implementation of the third phase of the ICT Masterplan which had begun in 2009 and will end in 2014 ("MOE: MOE launches," 2008).

An interesting feature of these news reports is the use of a large number headlines and sub-headlines. As in print news, framing is largely accomplished in the headline and lead paragraph of the story. Therefore, headlines are carefully constructed to provide a systematic overview of the actual content. The basic function of headlines "is to draw the attention of the reader to the topic of each news story" (Bignell, 1997, p. 96), in this case, drawing attention to the key themes of the message. The main headline of the 2005 speech read – "Remaking Singapore as a vibrant global city". The word "remarking" give an impression that Singapore would be undergoing a transformation process to become a "global city" under the new PM Lee's leadership. This is supported by the introduction of the report and its following paragraph,

Introduction:

In his National Day Rally speech on Sunday, Prime Minister Lee Hsien Loong mapped out his vision to remake Singapore and called on everyone to play a part.

Extract of the sections following the introduction:

"…What will Singapore be like 40 years from now? I can't tell you. Nobody can. But I can tell you it must be a totally different Singapore because if it is the same Singapore as it is today, we are dead. Therefore, we have to remake Singapore. Our economy, our education system, our mindsets, our city."

PM Lee's approach to this revamp was to restructure the Singapore's economy, followed by its education system, the people's attitude to change, and lastly the whole society itself. It was predicted that in 2005 there would be an impending slow down on the global economy, and the government's plan was to create more diversification, such as expansion in the bio-medical sector in order to reduce Singapore's vulnerability (Bhaskaran, 2005). In order to implement this change to the country's economy, the government indicated that the transformation needed to include the education system. According to Wong (2005), globalisation has resulted in the need for countries to invest in education, skills and technology capabilities in order to keep pace with the changing labour market, and therefore according to PM Lee, in order "to remake the economy, Singaporeans have to be equipped with the right skills and the right attitudes". The importance of acquiring these skills and knowledge was reinforced in the Ministry of Education's (MOE) subsequent responses, such as the opening of the NUS High School of Mathematics and Science in 2005, a specialised independent school that is affiliated to the local National University of Singapore ("NUS High", 2009). This was an attempt to create a more vibrant education landscape to cater to a knowledge-based and innovative-driven economy, and more importantly, to nurture a future group of students who have the skills for research, innovation and enterprise ("Agency for," 2009). In addition, the educational landscape was expanded to provide more opportunities for other students who may not be academically inclined. As stated by PM Lee:

Key topic (education)

"We want to develop every talent, not just those who are academically inclined, and we want to prevent the problem of low skills and low incomes from going on into the next generation."

Extract of the sections on education (polytechnics and ITEs)

"…we want many different models of success, many paths to success and many opportunities to cross over…"

Wong (2005) explained that the globalisation of capitalism and labour had resulted in the widening of income gap and the most effective way to manage this inequality is to provide different kinds of education for different groups of

people. She argued that while the government has been providing education, skills-training and upgrading courses, more needed to be done to ensure the workers from low-skilled and low-wage jobs have the capacity to increase their earning potential. Thus, aside from diversifying the economy, it had to be accompanied by a diversification the educational system, which in this case meant expanding places in the polytechnics and the Institutes of Technical Education (ITE). Prior to the 2005 rally pronouncement, changes were already made in the post-secondary landscape including the introduction of the ITE Advantage 2005-2009 initiative in January 2005. The objectives of this initiative were to ensure that ITE education equipped Singaporean graduates with the skills necessary for the globalised economy (Nathan, 2005). These brief examples show that the Singapore government, the MOE and schools are expected to work together to produce the type of workforce that is relevant to the economy.

On the other hand, the 2009 national day rally speech contained no specific mention of the Singaporean education system. It occupied ten broadsheet pages (four in the Prime section and six in the Home section) and was accompanied by numerous pictures. The striking difference between the coverage for the two years is that it gave greater focus to topics on the economy, health care and Singapore's past successes with a prominent focus on religious issues. In 2009, the central themes were more specific, probably a result of the global financial crisis, the issue of an increasing unemployment rate, and the H1N1 outbreak. The report gave predominance to the danger of the "religious fault lines" (found in the main headline) because the issues of race and religion are considered sensitive and are perceived to be a serious threat to Singapore's harmony and cohesiveness by the government (Oon, 2009). This emphasis could be the result of the saga caused by the Association of Women Action and Research (AWARE), a non-governmental group that was almost taken over by a group of Christians who felt that it was becoming too gay oriented. The event resulted in a series of discussions on the topics of multi-racialism and multi-religious tolerance (Ramesh, 2009), which included reports of the churches and other religious leaders' responses in the local media ("The Straits Times," 2009). Nonetheless, the importance of education was embedded in the section where PM Lee shared snapshots of the Singapore's past challenges, successes (which included heavy investments in education at all levels), and his future expectations and commitments, i.e. his continual interest and investment in the education system.

Although education plays an important role in the development of the Singapore's economy, this key topic was not highlighted in the 2009 national day speech, but it was reinforced about a week later in an interview with Professor Linda Darling-Hammond. Professor Darling-Hammond is a Charles E. Ducommun Professor of Education at Stanford University, where she has launched the Stanford Educational Leadership Institute and the School Redesign Network. She was also named to be one of the United States' ten most influential people who has a great influence over the country's education system in the last decade (Davis, 2009). This report is important (placed under prime news) as it talked about the need for a country to have well paid teachers who are trained in teaching. This belief is in line with the Singaporean government's stand on teacher quality as reflected in the MOE's recruitment exercise in which all its

selected teaching candidates are sent to the National Institute of Education Singapore (NIE) for training before they head to schools ("MOE: Teacher training", 2010). The question-and-answer section of the interview (See Table 1) discussed the importance of modifying the education system to meet future needs with Professor Darling-Hammond making specific references to the Singaporean education system.

Table 1. Education-related Questions and Answers (Davis, 2009)

	Questions	Extracts of the answers
Q1	What should we change in education to prepare youngsters for the future?	We have to move away from the factory model of education. … the nature of work and society is changing at breakneck speed, pushed along by the growth of new knowledge and technology. Thus, the new mission of schools must be to prepare students to work at jobs that do not yet exist, creating ideas and solutions for products and problems that have not yet identified, using technologies that have not yet been invented.
Q2	What new skills will be needed in this new economy?	It includes the ability to design, evaluate, and manage one's own work so that it continually improves. Workers would also need to frame, investigate, and solve problems using a wide range of tools and resources. They must also be able to find, analyse and use information for many purposes and collaborate strategically with others and communicate effectively in many forms.
Q3	As one of the international advisers to the National Institute of Education, how would you rate our school system?	Singapore had already ploughed headlong into the new model of education to prepare students for the future. It has made strong, amazing educational progress. In many respects, Singapore's work is a model for the world.
Q4	Some parents complain of what they see as constant tweaks to the education system here. What do you think of that?	Creating a dynamic learning environment that is always adapting and responding to new challenges has become a national quest in Singapore…
Q5	How crucial is a sound education system for the progress of a country?	It is substantial, strategic investments in education that are essential to our long-term prosperity. Education is no longer a pathway to success; it is a prerequisite.

This question and answer section reaffirmed the critical role of the education in the overall development of the Singapore economy, and at the same time it set the stage for Singapore's plans in the subsequent years. As stated by Dr Ng Eng Hen, Minister of Education and second Minister for Defence, the MOE will be

providing teachers more opportunities for teacher professional development. He added that the standard of Mathematics and Science in Singapore will remain high so as to ensure that the students will be able to do well in this technology-driven society ("MOE: Speeches," 2009). In these aspects, the interview report is important as it reaffirmed the government policy, such as infusing ICT activities and incorporating thinking skills in the classroom activities. For example, the first question stressed the expectations of the future education, which was to prepare students for jobs that have yet to exist. This was followed by listing the specific skills needed by the economy in the second question, including the abilities to "design, evaluate, investigate, analyse and to solve problems" independently and collaboratively (Davis, 2009). Questions 3 and 4 applauded the Singapore education system stating that it is moving in the correct direction with schools focusing on instilling the skills needed in the future economy. Professor Darling-Hammond argues that "education is no longer a pathway to success; it is a prerequisite" (Davis, 2009). This move into the future education was highlighted by Ms Ho Peng, the Director-General of Education, who stated that as of 2010, Singapore would be moving into the "next lap" of its education journey ("MOE: The Teachers' Digest," 2009). Corresponding to this call, the MOE would open the School of Science and Technology in 2010 that focuses on innovation and enterprise, and applied learning whereby students learn by doing ("School of," 2008-09). In addition, ITE education is also to undergo another phase of change known as ITE innovate 2010-2014. This new phase, unlike the previous ITE Advantage phase, has as its focus is to produce "a globally-competent, innovative and relevant workforce" by equipping its students with industry-relevant skills so that they would be able to take on the challenges of the global marketplace (ITE Innovate, 2010, p. 2).

4. Conclusion

According to Ong (2009), Singapore will need to explore new ways, methods, and tools to help the country to further improve and to rise to greater heights, and in order for Singapore to maintain its competitive edge in world markets, life-long learning is considered an indispensable investment to maintain its success in the information age ("A nation," 1983). As shown in the previous discussion, although the basic intent of education remains unchanged, that is, to provide the knowledge needed for the economy, the specific kinds of knowledge provided by the schools must shift in accordance with the demands of the economy. With this perspective, the 2005 and 2009 national day rally speeches and Professor Darling-Hammond's interview report, have reaffirmed the Singapore government's involvement in the redesigning and realigning of its educational system to meet the economic and social needs. The Singapore government's commitment to the country's education system is evident, as seen in the 2010 national budget in which they have committed S\$1.5 billion in the National Research Fund which is one of its strategies to raise the country research and development standard in the future (Chua, 2010).

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Research in the creative disciplines: From self-expression to new knowledge.

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Abstract

Recent paradigms of creative research within English speaking universities have not fully resolved the contradiction between the role of creative expression as the expression of the self, and institutional demands for such research to be able to contribute to the transfer of information within the social realm. This paper reports on the authors' research into the applicability of reflexivity and narrative research methods to creative research. A model of 'social exchange' based on Bourriard's idea of relational aesthetics and reinforced through discussion of Habermas' idea of the communicative act was used to develop a reflexive narrative approach in postgraduate research projects in a School of Communications and Arts at an Australian university. The value of this approach was then analysed for its potential to facilitate creative researchers' investigations into the inter-subjective circumstances of the creative act and connect their creative activity to the social realm.

Keywords: creative research - reflexivity - communicative action

Recent paradigms of creative research within English speaking universities have not fully resolved the contradiction between the role of creative expression as the expression of the self, and institutional demands for such research to be able to contribute to the transfer of information within the social realm. This paper reports on the authors' research into the applicability of reflexivity and narrative research methods to creative research. A model of 'social exchange' based on Bourriard's idea of relational aesthetics and reinforced through discussion of Habermas' idea of the communicative act was used to develop a reflexive narrative approach in postgraduate research projects in a School of Communications and Arts at an Australian university. The value of this approach was then analysed for its potential to facilitate creative researchers' investigations into the inter-subjective circumstances of the creative act and connect their creative activity to the social realm.

The gradual incorporation of the creative disciplines (music and the visual and performing arts) from specialist colleges and schools into mainstream university structures in Australia over the last decades has led to recent pressures on those creative disciplines to justify themselves in terms of their research output and their relationship to traditional academic practices. This is not a phenomenon exclusive to Australia. In the UK concerns about the way in which the creative

disciplines are finding their place within traditional academic life has caused similar anxieties. In her paper, A proper anxiety? Practice based PhDs and academic unease, Fiona Candin observes that "the anxiety concerning practice-based PhDs should not be lightly dismissed because it is a product of the institutional relations practice-based doctorates put into place" (Candin, 2000, p.1). This paper addresses how student researchers in the creative disciplines might navigate these tensions productively.

In Australia there was an initial institutional ambivalence towards the creative disciplines' outputs and how they might be valued as research. Whilst the contemporary government agenda of identifying purposeful research in the universities has led to an intellectual and administrative environment where creative research is acknowledged as having value, what that value is and how it might be articulated is still open to broader discussion. In 2009 the Australian Federal Government, in its Excellence in Research Australia project (ERA), identified research as "the creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies and understandings [that could] include synthesis and analysis of previous research to the extent that it is new and creative" (ERA, 2009, p.10). Such research exists within the creative disciplines that can be defined as "practice based" or "practice led" research.(1)

This definition has thus institutionally legitimated the idea of practice led and practice based research in the creative disciplines, and The Council for Humanities, Arts and Social Sciences (CHASS) for example referred to the document as bringing "everyone - including Research Administrators and DVCs Research - onto the same page on this important issue and, in so doing, increase[s] understanding of and recognition for the work of academic artists in the national research and development endeavour" (Seares, n.d.). This definition however doesn't help answer a central contentious question in this area of research practice, which is how to resolve the contradiction between the traditional role of creative expression as the expression of the self and the increasing need for such research to contribute to the transfer of information within the social realm. Recent research into the institutional status of creative academics' research within the Australian university system suggests that creative research is still seen as outside the usual practice of academic rigour and that creative research is "a kind of knowledge that generates feelings rather than knowledge in the broadest sense of the word" (Bennet et al., 2009, p.17).

Given the dilemma of how to frame creative research, how may post graduate research in the creative arts – both practice led and practice based research - satisfy the subjective demands of the individual researcher and in addition acknowledge the increasing demands from the institution for such personal knowledge to be constituted as 'new knowledge' in the social realm? This paper draws on observations on a PhD programme in Visual Arts at an Australian university with the intention of using these insights in two ways. First, to propose a set of mixed methodologies that incorporate the rhetorical tropes of practice-led and practice based research and then to find ways in which to situate the broader creative practitioner/researcher so that s/he may, by using models of social exchange as a way of finding meaning in creative work, contribute to the

collaborative formation of its meaning and value by using models of social exchange as a way of finding meaning in creative work. The following discussion is intended to address a somewhat entrenched attitude that creative practice is already research and needs no justification, and which easily matches the traditional academic institution's assertion that it is not and does!

During the course of this discussion the terms 'aesthetic' and 'creative' will both be used to describe forms of communication and at times there may appear to be an elision of their separate meanings. There is no intention to conflate them, but a structural problem should be noted. Throughout Habermas' writing on the communicative act he refers to the aesthetic act of communication, and within Australian academia the creative disciplines are those disciplines that have an aesthetic outcome. Acknowledging that the study of aesthetics is a separate discipline that stands alone, when quoting from Habermas we will stay with his use of the term 'aesthetic' and will take the liberty of transferring his observations about aesthetic communication to the circumstances of what we will refer to as creative communication, the creative disciplines and creative research.

The following discussion draws partly on the supervisor's observations collected during interaction with student researchers and partly on interpretation of the texts of the researchers' narratives. Here the supervisor's dual role as a supervisor/researcher mirrors the role of the participant/observer traditional in ethnographic research and incorporates the examination of a particular social phenomenon through interaction with a specific group of people.

When the student researchers begin their investigations into the circumstances and contexts of creative production, they are encouraged to subject the circumstances that surround the creative act they are investigating (whether their own or others) to a critically reflexive scrutiny that is based on Bourriard's (2002) adaption of Habermas' notion of the communicative act (1986). This is to start the process of relating the creative experience to wider social discourses with the intention of locating subjective experience in the social realm.(2) As part of their work on their PhD proposal, research students are encouraged to write a lifeworld narrative in which they begin to analyse their value systems and institutional relationships in an attempt to reveal the ways in which they have arrived at their current communicative circumstances. In a narrative of around five thousand words students are asked to evaluate their creative work in terms of its chronological evolution and identify key moments in which concepts central to their practice were established. The intention is that the students begin to link their moments of creative insight to material and social circumstances. In this way the students are encouraged to think reflexively about their practice, drawing on directly from the writings of Giddens and Bourdieu on reflexivity, in order to assist their articulation of their creative concerns. There exists an express purpose of avoiding an un-reflexive celebration of the self.

In encouraging the students to try and remove themselves from their own creative circumstances the focus becomes how to dispassionately reflect and communicate their actions. The creative researcher needs to understand that only by standing outside their research can they fully appreciate the inter-

subjective nature of what they are doing. This is a challenging task, and potentially quite confronting. By scaffolding the structure and purpose of the writing, and by working closely with the student in mapping out the relationship of their 'inspiration' to the circumstances in which it occurred, there is a transparent, mutually agreed strategy between researcher and supervisor in which the intention of the narrative is distanced from any therapeutic and expressive functions.

In introducing the idea of the reflexive narrative, the concept of reflexivity as a methodological process is framed sociologically but introduced through cultural debate rather than sociological theory, as the move into sociological theory can sometimes prove too daunting or too alienating for those new to it. The debates that have surrounded relational aesthetics and Nicholas Bourriaud's high profile, applied articulation of these debates are a productive entry point into the principles of creative research for the student, and allow the researcher to engage immediately with the problematic idea of the autonomous creative act from within their own field. Bourriaud's proposition that "one is not in front of an object anymore but included in the process of its construction" (Simpson, 2001, p.47) has a venerable lineage, builds on other social theorists and has a very literal (and specific) application in some contemporary practices. Nevertheless it has a broader relevance within an art education system as the concept can be made applicable both to the analysis of the creative act and to its construction and consumption. Relational aesthetics' entry into the educational mainstream also gives an identifiable (and non-confrontational) contemporary voice to the idea that there are limits to the idea of 'absolute' creative autonomy. This grounding of creativity within material and social relations is not the only way in which to approach research into creativity. However its readily understandable debates does make it a very productive strategy for the student researcher especially if "the question we might raise today" as Bourriaud has said, "is connecting people, creating interactive, communicative experiences". It follows that the next question has to be what the purpose of connecting people is for. Bourriard suggests that "if you forget the 'what for?' I'm afraid you're left with simple Nokia art - producing interpersonal relations for their own sake and never addressing their political aspects."

It is this "what for?" question (that is sometimes left out of the practice- based and practice-led rhetoric) that allows the move from subjective realm and into the social. In his 'co-existence criterion' Bourriaud (2002) builds on Habermas' work on the communicative act and locates it within the world of visual communication. In so doing he suggests that all works of art produce a model of sociability which transposes reality in some way. It is this condition that then entitles us when looking at a work of art to ask whether we have been given the potential to enter into some kind of dialogue with it. We argue that this principle can be turned around and re-presented to the student creator of a work as an act of research and then developed theoretically in Habermas' terms as inter-subjective validity claims (which will be examined in more detail shortly). The questions that are then raised for the student are: How have you created a space for the audience? What are the social relations you are replicating? How does this impact upon what it is you wish to say? (3)

The idea of reflexivity is an overarching element in the methodological mix these students are exposed to. At its core lies the proposition that the self is institutionally constructed but that the individual also has the potential to make the self a negotiated, rather than a dictated narrative. Berger and Luckmann observe that institutions control human conduct by directing what that conduct might be given the possibilities of conduct that are theoretically available (Berger & Luckman, 2002, p.42). In taking up a reflexive position students are encouraged to identify the institutional structures that have moulded their creative attitudes and practices and to enter into negotiation with them. This practice is informed directly by Giddens' observation:

'What to do? How to act? Who to be? These are focal questions for everyone living in circumstances of late modernity - and ones which, on some level or another, all of us answer, either discursively or through day-to-day social behaviour.' (Giddens, 1991, p.70)

Whilst this can be a profoundly transforming and empowering process, if not carefully monitored the reflexive examination of the self also has the potential to degenerate into narcissism. Giddens points out that narcissism is one of the mechanisms that the "connections between identity, shame and the reflexive project of the self bring into being" (Giddens, 1991, p.9). This is a particularly important consideration when attempting to legitimate creative research. The accusation of narcissism is one often levelled at practitioners in the creative arts and has been since the beginning of the investigations into the notion of individuality characteristic of Modernity's beginnings. Lowenfeld's observations about the links between narcissistic rage, psychological trauma and artistic creativity (Lowenfeld, 1941) established a colloquial trope about artistic production in the USA's ideological sphere immediately after WWII that continues to persist, manifesting itself institutionally as "a debate about the legitimacy of creative research [that] is driven by a perceived lack of systematic theoretical reflection" (Bennett et al, 2009, p.8).

This dilemma of using reflexive methodologies to determine the self socially has been addressed by Karl Maton. His concern is that reflexivity as a methodology encourages individualistic and narcissistic observations. This perspective is in clear opposition to the way in which Bourdieu proposes that epistemic reflexivity should be, that is both objective and collective. Maton's concern is for what he calls 'enacted reflexivity': the prevalence of "autobiographical reflection" and the celebration of the "conspicuous display of acute self awareness" (Maton, 2003, p.56). This is clearly different from Bourdieu's conception of reflexivity as a methodological approach to analysing the structural effects of social fields on the ideology and practice of their members.

Based on Bourdieu's conception, students are encouraged to see the reflexive narrative as a way of understanding what purpose their creative practice serves, what it communicates and how it communicates, and how that relates to their institutional circumstances. This approach is now clearly established within the postgraduate research community at the university in question and has become a fundamental part of intergroup discussion about practice and positioning in relation to the subjects of research. The success of this approach amongst the

students is in no small way due to the central role of Habermas' concept of the communicative act in framing the way in which the students are requested to think of the work and the ideas they wish to propose and research. This is reinforced through student discussion in a weekly forum on methodology.

Habermas constructs the role of aesthetic communication in opening the eyes of the participants of the maker and viewer of the act in order to "lead them to an authenticating shared aesthetic experience". However, as Habermas points out "the type of validity claim attached to cultural values does not transcend local boundaries in the same way as truth and rightness claims" (Habermas, 1986, p. 42). It is this notion of understanding the local boundaries, what Bourdieu would call the field, that is so important in relation to conceptualising the reflexive methodology for the student researcher. The local discipline based boundaries of creative research have to be identified by the researcher before they can communicate their worth to those on the other side of the border. Habermas makes the point that difficult social propositions (validity claims) are usually submitted to both theoretical and practical discourses where such validity claims are 'tested'. The purpose of raising this with students is that the localised world and practices of the creative arts and its aesthetic validity claims have to be tested as worthwhile acts of communication outside the arena in which they are usually tested (such as an art gallery or art school) in order for them to justify the broader validity that is so often claimed for them. For example, one student in this study saw the discourse of the previous art school in which they had studied and been validated as a sufficient reason to justify the present validity of their work. Another student saw the acceptance of their work for exhibition as justification of their practice. Both were resistant to the idea of engaging with other academic forms of 'testing' their practices' 'claims', claiming an unarticulated specialist position.

If research students can accept their positioning within a specialist field and can reflexively analyse that position and its relationship to other institutional paradigms, and if students can identify the way in which the communicative act is not just an utterance but is part of an act of negotiated dialogue, then it is incumbent upon them to realise that such processes rely on a culture of participants being aware of those circumstances. Habermas suggests such participants are 'rational':

"We call a person rational who interprets the nature of his desires and feelings in the light of culturally established standards of value, but especially if he can adopt a reflective attitude to the very value standards through which desires and feelings are interpreted." (Habermas, 1986, p.20)

In this model, the rational participant in cultural dialogue needs to be free from illusions and self-deception. This necessity for the creative student researcher to frame themselves within their sphere of practice and also within the sphere of institutional validity claims has the potential to give them confidence to address the validity of what they are doing. One student clearly articulated the way in which his position as a creative individual had been enriched by entering into a dialogue with institutional values, and concluded that far from being disempowered by an engagement with traditional academic values which had at

first appeared to be hostile to his aspirations, that engagement had allowed him to take his creative work into that territory and lay claim to it as his own through the adoption and adaption of critical and institutional values.

Aesthetic and creative discourse happens as critical and institutional arguments frame ways in which work should be viewed. The processes and outcome of this discourse ultimately determine a value for that work. Habermas remarks that "a work validated through aesthetic experience can then in turn take the place of an argument and promote the acceptance of precisely those standards according to which it counts as an authentic work" (Habermas, 1986, p 20). If the agency of aesthetic and creative communicative acts depends on the consensus achieved through the testing of their claims, then it follows logically that research into those claims must also adopt similar principles. This process of putting subjective validity claims into both the social realm and into the institution for 'testing' is difficult for the creative researcher with a background of traditional concerns. I have already mentioned examples of two students within the group who were resistant to this idea. Their attitude towards a reflexive methodology was one in which reflexivity was used to justify their practice (I do this because I am this), rather than using reflexivity as a way of understanding the complex dialogue between individual and institutional practices. In justifying their stance they frequently regrouped to a position often adopted; to rationalise the creative act is to destroy it.

The claims of aesthetic discourse are usually less conclusive than those of practical or theoretical discourse, and because of this it has been important that students do not lose confidence in their ability to create and to address their research. Any researcher is fragile intellectually and emotionally. Because of the intensely personal nature of research into the creative process and because of institutional bewilderment in the face of creative research, a way of framing the process of articulating validity claims made through the creative and aesthetic realms needs to be clearly expressed for the student. With this group of students the notion of communicative rationality has been useful. The concept that this form of communication is "oriented to achieving, sustaining and reviewing consensus - and indeed a consensus that rests on the inter-subjective recognition of criticisable validity claims" (Habermas, 1986, p.17) facilitates the move to the social and exposes to the student the mechanisms by which institutional value judgements are made and imposed. By understanding the workings not only of the research process but the way in which the research process is validated institutionally, the students in this study have gained a self confidence in the way in which they manage their research.

A final strategy by which the student body is encouraged to make the shift from 'autonomous' creator to researcher into the social contexts of creation is a familiar one and it involved the presentation of papers at symposia and conferences. The more students are engaged with writing and articulating their position the more they gain the confidence to engage with what were supposedly hostile structures.

In brief conclusion our research demonstrates the potential of reflexivity as a research methodology in moving students away from romantic notions of the

individual self and locating the creative researcher in a broader field thereby turning self-expression into new knowledge

Footnotes

1.Practice-based Research is a form of research that aims to advance knowledge through the means of practice. The type of research usually takes the form of an original investigation in the production of objects, images and performances which lead to new or substantially improved insights embodied in an artefact. Practice-led research presumes the development and testing of knowledge which has an outcome in the production of objects, images, performances and professional practices. The research is grounded in the historical and theoretical disciplinary context in which it is located.

2.This point is developed further in Crouch, C. (2007) Praxis and the reflexive creative practitioner. Journal of Visual Art Practice 6 (2): 105-114.

3. This is also a performative act which is discussed in more detail in Crouch, C. (2008) Narrative, negotiation and narcissism, where the above points were first raised. http://www.acuads.com.au/conf2008/papers/crouch.pdf

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Developing Expertise in Project-Based Instruction

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Abstract

This longitudinal mixed methods study examines the development of expertise in project-based instruction (PBI) implementation among practicing second and third year teachers who participated in a course on PBI as part of their preservice program. Historical data sources from the larger longitudinal study include survey data from program graduates, three years of interviews and observations of four novice teachers implementing PBI at a rural PBI high school, and two years of interviews of seventeen high school students engaged in PBI. This article focuses on the PBI-trained teachers in their third year of service. Findings indicate that (a) the preservice PBI course was instrumental in early adoption of PBI, (b) teachers shift their foci from the mechanics of PBI toward factors affecting student successes between their second and third year of inservice teaching, and (c) management of student groups remains a key concern among teachers and students.

Keywords: Project-based instruction — Science — Secondary — Teacher expertise— Longitudinal study

1. Project-Based Instruction (PBI)

Project-based instruction centers learning around an open-ended question or problem that students collaboratively answer over a period of weeks or months. PBI has shown promise as a means for addressing inquiry in secondary education (Marx, et al., 2004) and increasing student achievement (Baumgartner & Zabin, 2008; Geier, et al., 2008, Schneider, et al., 2006), however it is difficult to implement and so is not widely adopted (Frank & Barzilai, 2004). Toolin (2004) finds that teachers with strong content and pedagogy backgrounds are more likely to implement projects in their classes than those who lack formal training in education. According to Berliner (2001), teachers develop competence in their third year and expertise in their fifth year.

2. Research Questions

Our research questions are:

What features of a preservice course on project-based instruction are most useful to teachers implementing PBI?

What is the progression of expertise in PBI instruction among novice teachers?

3. Methodology

3.1. Setting and Participants

This study takes place within the context of a larger nine-year study covering two educational settings: a preservice teacher preparation program at a large research university and a project-based high school in a rural district.

The preservice teacher preparation program primarily serves undergraduates but has an accelerated track for post-baccalaureate students. The program advocates inquiry strategies in all of its courses and culminates with a project-based instruction course prior to student teaching. The project-based instruction course included four key elements: readings about PBI, PBI unit design, observations of established PBI classrooms, and team-teaching a short PBI unit (Dickinson, Summers, & Jackson, 2010). The program graduates about seventy math and science secondary teachers per year.

The southwestern US school district that is the field site for inservice teacher observations is ethnically diverse with the following student population: 69.5% economically disadvantaged, 56% Hispanic, 28% African American, and 14% White. The district has two high schools: one utilizing a PBI curriculum and the other utilizing a traditional curriculum. The project-based high school featured in this study opened three years ago with 156 freshmen and sophomores selected on the basis of interest. In 2008 and 2009 the school admitted an additional 100 freshmen per year. We chose preservice teachers who took teaching positions in a campus where the greatest percentage of time was spent implementing PBI because this setting uniquely allowed us to examine the development of teacher expertise and student outcomes.

Inservice teacher participants (n= 30) were graduates of the teacher preparation program. A subset of the inservice teacher participants were selected for the ethnographic portion of this study (n=4). The case study teachers purposefully chose an educational environment where PBI was supported. This study tracks them from preservice training through their third year of teaching. We assigned pseudonyms to all participants. Three of the teachers completed the program as post-baccalaureates whereas one completed the program as an undergraduate. Samantha completed the program as a non-degree seeking post-baccalaureate with a BA in biology. Sage was earning her masters degree in biology while completing the program; Jackie was a Ph.D. candidate in physics; and Pam was an undergraduate biology major.

3.2. Data sources

To ascertain the transition from preservice training to inservice practice, we mailed program evaluation surveys to a sample (n = 30) representing graduates from ten years of the program. Two-thirds of the respondents (n = 20)

completed the program as undergraduates. The remaining respondents (n = 10) completed the program as post-baccalaureates. The respondents had been teaching an average of 2.45 years (sd = 1.35).

Further, we observed case study teachers (n=4) over a period of three years and interviewed them at the end of their second and third years of teaching. We also surveyed and interviewed high school students (n=17) at the end of the school's second and third years to determine their perceptions of the project-based environment.

3.3 Analyses

Interview data were transcribed and coded. We analyzed interview and observation data identifying five themes that describe teacher expertise in PBI: (a) transfer of skills learned in preservice PBI course to inservice practice, (b) perceived value of PBI course components and suggestions for improvement, (c) public schooling contexts and barriers to embracing change, (d) changes in teacher focus between the second and third years of inservice teaching, and (e) student perceptions of teacher practice and efficacy. Surveys were descriptively analyzed because of the small sample. Observations were recorded as thick descriptions and coded. We used SPSS (version 15.0) for statistical analyses.

4. Results

4.1 Perceived Value of Preservice PBI Course

Both surveyed and interviewed teachers indicated that they would never have known about PBI without the course. One first-year surveyed teacher indicated "I try to make PBI as much part of my teaching as possible, and I would not have known how to do that without the PBI course." All case study teachers indicated that their preservice PBI course opened their eyes to the possibilities of PBI. Jackie surmized,

"I would say from a big picture point of view I was always in a traditional classroom growing up so the fact that I got exposed to something different and got to see it work is a big deal. Cause, had that intermediate experience not happened, I never would have made the leap to PBI even though now it makes perfect sense."

According to the inservice teachers whom we interviewed and/or surveyed, the most useful aspects of the preservice PBI course were development of a PBI unit, production of an anchor video (Dickinson & Summers, 2010), and use of the Classroom Assessment Techniques (Angelo & Cross, 1993) text. The inservice teachers we observed kept copies of Classroom Assessment Techniques in their classrooms for ready reference and mentioned using it often.

Interestingly, teachers indicated that observing PBI courses was not effective because they were unable to piece together a holistic picture of PBI from sporadic observations. C'est en forgeant qu'on devient forgeron—it took both time and practice to acquire PBI expertise. Sage indicated that the preservice teachers who are observing her classes now need more direction to make use of the observations. She stated that the preservice teachers "need to talk to the students, talk to me"–not just sit there passively. Teachers also felt that observing PBI classes required for graduation would make a better case for implementing PBI than observing elective PBI classes. Sage suggested, "I think the opportunity to, at least in video or something, have some examples of content. Yes, you can teach science, you can teach math, you can teach English. This really does actually work." Pam suggested having preservice teachers observe project presentations as a means to develop the big picture. She noted that preservice teachers who obrserve her class on presentation days have deeper questions than those who come out while the project is in progress. However, Samantha noted that preservice teachers need to recognize that students are learning throughout the project and the final product is a culmination of ongoing learning as opposed to a report tacked on to the end of a unit.

4.2 Transfer of Skills Learned in PBI course

Although 22 of the 30 program graduates surveyed by mail indicated they used PBI in their teaching, many indicated problems with implementing PBI. Most identified potential classroom management issues and lack of planning time as their primary concerns. These concerns were echoed by the four case study teachers. During her second-year interview Sage said, "I mean especially with projects, you need long periods of uninterrupted [planning] time and it ends up being at home. I knew that but I didn't know that. I mean I knew it but I wasn't prepared for exactly how much time it was going to be and how long the hours are." Sage's sentiments were echoed by the other three teachers.

4.3 Public Schooling Contexts

Another concern was perceived pressure to conform to cultural norms of a traditional school. One survey respondent stated, "There is not very much room for individuality where I work. Everyone is required to teach the same thing as the other teachers each day. Time is also an issue." Another stated, "My colleagues have discouraged me from implementing activities that take time, however there is a lot to be covered in the biology curriculum so this factor must be considered." Jackie observed that whole school commitment to PBI contributes to both teacher and student success, "Cause everyone's forced to do it, I don't have to play that game of 'why are we doing this here as opposed to the other classes?' If I were to try to implement PBI at a school where not everyone was doing it, I'd get a lot of resistance."

All four case study teachers are serving as mentors for other teachers implementing PBI at the elementary and middle schools in their district.

Samantha and Sage noted that the district selected the most promising teachers to receive training and mentoring but that those teachers were isolated at their schools. Since all four case study teachers identified collaboration as key to their success in implementing PBI, isolation was a major concern for them. Samantha lamented her mentees' lack of progress stating, "If I was all alone at a school and there was not another teacher, PBI would not work."

4.4 Third-year transitions

As teachers transitioned into their third year of teaching, they shifted from focusing on producing units and struggling with PBI as a method to strategically targeting skills they felt would have the most impact on student success.

Samantha and Pam felt that their focus during their first two years of teaching was on being true to the method. Pam stated, "Last year I was still worried about 'what does PBL mean?' and sticking to it." Both Samantha and Pam felt comfortable enough with PBI in their third year to begin integrating other methods within their projects. Samantha indicated she was better able to seamlessly integrate labs during her third year and she no longer feels guilty if she needs to direct teach concepts.

Jackie and Sage identified rubrics as key to student success in PBI. Jackie focused on aligning her rubrics with state content standards:

"And I get really anal about it to the point that per rubric on the left "column, I'll say what the [state standard] is and I really think deeply about proficient and advanced. Is it really demonstrating the skill that is described in that [state standard]? And if that rubric is solid, then I can almost be guaranteed that all of the support materials I'll prepare to get them to satisfy the rubric will be aligned as well. "

Sage added,

"I think one of the things I tweak a lot now is the unsatisfactory column. Instead of putting, "did not do this, did not do that," I find myself putting mistakes I expect them to make there like "confuses genotype and phenotype." Those are things you can check against. I tell them to make sure they don't do the things in the unsatisfactory column."

Samantha also noted that she was also getting better at assessing students. She stated that she was implementing "more frequent assessments that help me actually adjust what I'm doing. I'm doing better at recognizing what they need."

Pam indicated that attaining rigor in her projects was difficult. "Coming from my own high school background and student teaching where it was just worksheets made it really difficult [to achieve rigor]. At the beginning I was just scratching the surface and now I feel like I'm digging deep." Interestingly, both Pam and Samantha indicated that it was difficult initially to come up with long projects saying they "compartmentalized things too much." Neither majored in chemistry

so lack of content knowledge may hinder their seeing the big picture. Rich (1993) found that subject matter proficiency was key for expert behavior in novel situations. They both expressed pride at finally implementing several big projects as opposed to lots of little ones.

Managing student groups was a struggle for all case study teachers even in their third year. Pam surmised, "I still feel frazzled with the group dynamics – managing the appropriate use of time." Samantha admitted, "One thing I need to get better at is using their group contracts to make them accountable." Group contracts are written agreements devised by students using a template. The goal of the contracts is to give students guidance about their behavior in the group and to empower students to hold each other accountable. Groups can "fire" unproductive members who then must find another group or work alone. Sage concurred, "I lose track of time. We get to the end of the project and haven't had a collaboration evaluation." Even in her third year, Pam admitted, "I can't picture it in my head. I see groups who use it well and those that don't and I can't figure for the life of me how to tell those who don't [use group contracts well] how to do it."

Teachers also struggled with the level of structure needed for students. Many of the teachers indicated feeling guilty if they provided too much structure for students. Samantha noted, "One of the misconceptions in PBI is that you just give the students an entry document and they will work independently. Teachers think they're doing something wrong if that doesn't happen. Really, they're just kids and they need guidance." Pam reflected this attitude when she described her perfect project as one in which the students "could do whatever the task was without asking me and know that they were right." Teachers were beginning to realize that they needed to differentiate the level of support for younger students. Samantha added,

"It's almost like there's too much freedom for them at first. It seems like the younger you have them, the more you need to micromanage the process for them or scaffold. You almost have in your mind that you present this project to them and let them go and with the younger kids, it doesn't work. I have in my mind that if I micromanage, I'm doing something wrong. I'm finding with the sophomores that there's more micromanaging that I should be doing. "

She suggested aligning project-related skills to increase student success in the PBI environment. "What I would like to do is look at a vertical alignment. By the end of freshman year we want them to be at this point with using the group contract and by the end of sophomore use it."

4.5 Student perceptions of Teacher Practice

Even though this article focuses on the third year PBI teachers, it is important to take their students' understandings of PBI into account. We found four main themes among the student interviewees: (1) Students like the PBI environment, (2) Students recognize the importance of rubrics for their success, (3) Students recognize the importance of group contracts but also see varying success with

implementation of the group contracts, and (4) Many students, particularly freshmen, have difficulty consistently connecting curricular content to real-world practice.

All the interviewed students indicated they liked PBI and many said it was their favourite part of class. Shelby said, "For me science is fun and the projects actually make sense." Emma said, "Even though it's in the morning and we're tired and everything, we have this upbeat class. It's so fun to be in. It gets you ready for your day."

During second year interviews few students mentioned rubrics, however in the third year, many students mentioned rubrics as playing a significant role in their success. Payton appreciated the structure provided by rubrics, "we could check everything off that we need to do and everything that we have done." Shelby also felt the rubrics made things clear for her. Students also appreciated the increased structure provided by other project assessments in Samantha's classes. During focus groups, Samantha's students indicated they appreciated the increased quizzes and they wrote "I like all the quizzes" on project reflections. Samantha theorized, "Sometimes they think they understand but realize they don't when they take the quiz." Jasmine indicated that structure helps project groups succeed.

Nearly all students liked working in groups but they viewed group dynamics as a challenge. Most students felt that accountability within the group was difficult to achieve. Jasmine identified her biggest challenge as "entrusting my grade to other students." Emma identified the group contract as key to her success, however, Payton noted that firing her peers was difficult and she had never done so. Shelby also felt the interpersonal aspects of group work were difficult. She felt clear rubrics facilitated development of effective group contracts. "Once we get our rubric, if I understand that, then I know what to put in the group contract…to make the group work together."

Although most upper-class students had no difficulty in identifying real work applications of science, freshmen did. Although all students provided detailed descriptions of recent class projects, many freshmen could not describe how those projects or the subject area in general related to their every day lives. Shelby identified "how the global and community fits into it" as the most difficult aspect of PBI. When asked how science relates to the real-world, Payton could not identify any real-world applications of biology even though she aspires to be a paediatrician and gave detailed descriptions of her biology projects.

5. Conclusions and Implications for Practice

Introducing preservice teachers to PBI in preservice teaching is important because it exposes them to inquiry methods advocated in educational research. Consequently, some preservice teachers adopt these methods even though they had not previously considered them. Teachers valued aspects of the class that had immediacy in their teaching practice: unit development, anchor video production and resources for assessment. Observations of PBI classrooms need

to be guided so that preservice teachers can make sense of the environment. This study concentrated on cohorts of teachers in a PBI context. We know from the historical study that the vast majority (73%) of PBI-trained teachers acquired proficient PBI teaching skills; although future research must examine if PBI-trained teachers who are in isolation of similarly trained colleagues fair as well with PBI transmission and the maintenance of PBI skills. PBI instruction remains relevant to teachers and students' successful acquisition of professional thinking and authentic problem solving skills within classroom contexts. Thus, if we want students and teachers to think like scientists, historians, and other professionals within classroom settings, PBI offers us this though its proven preservice and in-practice results.

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Online Pedagogical Effectiveness-Towards a Framework in Adult Learning Contexts: Collaborative Metacognitive Support

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Abstract

This paper focuses on Collaborative Metacognitive Support, one of the dimensions which emerged as a key issue in a study which examined online learning in an Australian University between 2004 and 2009. Adult learners engaged in the Training and Development Program in the School of Education, were tracked over a period of five years. Data were collected regarding a range of factors that were deemed to have an influence on the students' progress in an online learning environment. The aim of the original research was to develop a framework to describe the dimensions of effective pedagogical practice in online learning contexts. The Online Pedagogical Effectiveness Framework (OPEF) which resulted, challenged the roles that teachers, students, peers, instructional designers have traditionally played in online learning settings. The central role of the teacher in particular appears to have diminished in importance over time while working in online contexts. As the research progressed, the spotlight turned to the importance of facilitating collaborative metacognitive support as crucial to perceptions of effective teaching and learning online. This study describes an intervention which facilitates metacognitive support and underlines its importance to an effective adult framework in online learning.

Keywords
Adult Learning-Collaborative Metacognitive Support- Online Pedagogical Effectiveness.

1. Introduction

Acting on Reeves' (1997) criticism that there was a dearth of systematic evaluation of online learning, Curtin University undertook a five year investigation of the web-based Training and Development program. As part of an overall evaluative approach towards the delivery and content of the program the researchers focused upon elements of pedagogical effectiveness using, the Effective Dimensions of Interactive Learning on the Web model (Reeves and Reeves, 1997) as its conceptual framework. A survey was administered to students (originally 42) which mapped the dimensions of philosophy, learning theory, goal orientation, task orientation, motivation, teacher role, metacognitive support, collaboration, cultural sensitivity and flexibility, against fifteen principles of pedagogical effectiveness expressed by Brennan (2003) including the need for a learner-centred environment, constructivist approaches to teaching and learning, high quality materials design, teaching and learning strategies that develop cognitive skills, high levels of interactivity between all participants, guaranteed and reliable forms of access to the technology, engagement with online materials and learning experiences that encourage synthesis and analysis.

It also incorporated the need to present opportunities for deep learning, consistent levels of feedback, and thoughtful matches between materials, learning styles and learning contexts. Furthermore, it incorporated a model of delivery that included thorough planning, monitoring, reviewing and evaluating course materials and student progress and a range of navigational choices for students. Finally, it extolled the necessity for teachers who are imaginative, flexible, technologically sound, committed, responsible and expert communicators.

The resulting OPEF (See Table 1) which emerged from analysis of data collected during the current study in 2004, 2005 and 2007, helped to map changes in attitude towards the materials provided and the approach and patterns of interaction by students. Findings tended to contradict the perceived value of various online pedagogical characteristics that are accepted in the literature as being important to learning, such as the need for teacher skill and high levels of interactivity. As learners become more sophisticated in their use of online environments their dependence on others such as teachers and peers diminished in favour of direct and timely access to high quality learning systems and instructional materials. More importantly, (and the focus of this paper) the need for the sophisticated development of interchangeable collaborations between teachers, learners, peers, designers and colleagues in the learning environment became apparent (Dixon and Dixon, 2010). Similarly the necessity for the provision of timely collaborative metacognitive support, with a consistent feedback cycle between teachers, learners, peers, designers and colleagues became a key area of focus and investigation. This led to the underpinning research question, "can a collaborative metacognitive intervention be shown to demonstrate improved outcomes for teaching and learning online?"

Metacognition, or the capacity to think about ones' thinking and to process information (Flavell, 1979) has been contemporaneously applied more recently to how a person learns and the strategies they engage in to appropriate knowledge. The resultant experience, constructed through planning, evaluating, monitoring and problem solving, especially in the online environment, provides synergies with what Knowles (1968) described as andragogy, or adult learning. Adult learners according to Knowles (1980) are intrinsically motivated, self directing, experiential learners who are problem centred rather than subject orientated. They need to actively and collaboratively participate in the learning process to organise and synthesise their thinking and to be able to transfer this thinking to alternative problems. Similarly, Kolb's (1984) elucidation on adult learning provides for the facilitation of metacognitive processes through experience, reflection, abstraction and assimilation of learning.

Consistently low levels of student interactivity in the program as perceived and reported by the cohort (who were typically enrolled as part time students and who could take up to 8 years to complete their studies) in 2004-2007 appeared to be diminishing their experience over time as reported in the 2008 survey. At first the limited frequency of interaction was reported positively and interpreted as an indication that independent learning was taking place. But as the cohort moved through the program, they began to seek more collaborative activities and in some cases more direct instruction which could provide them with the

problem solving experiences they felt they needed in order to consolidate their learning and to connect with other students to share and reflect on course outcomes.

Dimension	Concept	Effectiveness Indicator
Philosophy	Instructivist versus Constructivist	• Learner centred environment • Constructivist approaches to Teaching & Learning
Learning Theory	Behavioural versus Cognitive	• Teaching and Learning Strategies • Thoughtful matches between materials, learning styles & learning contexts
Goal Orientation	Sharply Focussed versus General	Model of delivery • Planning • Monitoring • Reviewing • Evaluating
Task Orientation	Academic versus Authentic	• Learning experiences that encourage synthesis and analysis • Opportunities for deep learning
Source Motivation	Extrinsic versus Intrinsic	• Engagement in online materials
Interchangeable Collaborations	Fixed versus Flexible	Between: • Teachers • Learners • Peers • Designers • Colleagues
Collaborative Metacognitive Support	Unsupported versus Integrated	Consistent feedback between • Teachers • Learners • Peers • Designers • Colleagues
Cultural Sensitivity	Insensitive versus Respectful	Thoughtful matches between; • Materials • Learning styles • Learning contexts
Structural Flexibility	Fixed versus Open	• High quality materials design • Range of navigational choices • Reliable, easy access

Table 1. The Online Pedagogical Effectiveness Framework (OPEF).

2. The Study

To meet this perceived need for a metacognitive intervention strategy, two program facilitators, a student representative, a colleague and a web designer were gathered together to discuss the implementation of an activity designed to provide metacognitive collaborative support. The result was the development of a portfolio assessment exercise which was attached to an Adult Learning unit specifically aimed at motivating adults. Students were provided with a series of relevant readings within the program and then instructed to explain the notion of adult variability, to identify the main physiological and psychosocial variables in adult learners and to identify the major factors which influenced adult motivation. They were then asked how they could apply this knowledge in terms of providing culturally responsive teaching programs and appropriate strategies which took into account adult learner needs. The process was designed to integrate instruction into the specific subject domain (Lin, 2001), to ensure students understand the applicability of the intervention to their needs as

trainers (Winne and Perry 2000) and to provide enough time to become familiar and comfortable with the information (Bannert, 2005). Each of these requirements was to be written by students into a mediated Blog. They were encouraged to discuss, illustrate, critique and provide examples of how these concepts were manifest in their own teaching experiences. As they worked their way through the exercise, students were specifically prompted to think about their learning as they progressed. Finally, they were required to put this knowledge into a portfolio and to reflect critically upon it. Therefore,(in keeping with Flavell's, 1979 metacognition schema), students were required to plan, evaluate, monitor, reflect and respond to problem solving in a collaborative manner; this was moderated and scaffolded by the tutor and observed by the designer and two colleagues. Although the exercise was designed to create a product for assessment, more importantly, it was hoped to engender deep rich learning.

The research is interpretive and focuses on a specific social setting or phenomena, which in this case is the Training and Development Program and the reaction of students in the sample towards the provision of metacognitive collaborative support. As noted by Erickson (1986) and by Patton (1990) and Denzin and Lincoln, (2000), within the interpretive approach, there are many methods, however they all share the same philosophical assumption, which is that reality is constructed by individuals interacting with their social worlds (Merriam, 1998).

A total of 21 students over two study periods made up the sample of participants. The intervention took place over four weeks. Qualitative data were collected from an open ended question survey instrument interrogating student perceptions of the intervention. A content analysis, using SPSS Text Analysis for Surveys was applied to the Blog conversations. Blog conversations and reflections by participants in their portfolios were measured against Mezirow's (1981) hierarchical levels of reflection: Reflectivity, Affective reflectivity Discriminant reflectivity Judgemental reflectivity, Conceptual reflectivity, Psychic reflectivity and Theoretical reflectivity. According to Mezirow (1981), the first four of these levels or the "consciousness" level demonstrate an awareness and means for understanding. The final three higher order levels, he refers to as "critical unconsciousness"–the level at which deep learning happens and the transformation of adult perspective occurs.

3. Results and Discussion

The mediated exercise of negotiating the Blog was stimulated using a model of facilitating quality online discussion, based on Wright and Shoop (2003). This included creating the right climate through appropriate activities, providing a planning schedule for discussion directly related to the assignment specifications and then activating and motivating discussion. The resultant flurry of activity provided a rich source of data which was analysed; the results are summarised in Table 1.

	Week1	Week2	Week3	Week4
Metacognitive Focus	Plan	Evaluate	Monitor	Reflect
Level of Discussion	Number of incidences of discussion			
1. Direct provision of information	84 (84%)	32 (56%)	13 (14%)	12 (20%)
2. Incorporates readings with experience	7 (7%)	15 (26%)	48 (54%)	14 (24%)
3. Synthesises theory and practice	1 (1%)	5 (8%)	21 (43%)	31 (53%)
4. Irrelevant	7 (7%)	5 (8%)	6 (6%)	1 (2%)
Total Conversations	99 (100%)	57 (100%)	88 (100%)	58 (100%)

Table 2 Summary of frequency and level of Blog conversations

The trend towards a rise through the levels of discussion from direct provision of information by students, to the incorporation of readings and experience to the synthesis of theory and practice becomes obvious from Table 1. Over the four week duration of the intervention the lower level 1 discussions diminished from 84% to 20%. Level 2 discussions rose from 7% to 48% in week three, but dropped back to 24% at the expense of level 3 discussion in the final week. Level 3 discussions increased from 1% to a dominant 53% in the fourth week. It appeared that the intervention strategy of using metacognitive prompts (planning, evaluating, monitoring and reflecting) had the effect of stimulating thinking not only in the higher order and quality of that thinking, but also in the volume of expression.

These findings also coincide with Mezirow's (1981) hierarchical schema for mapping adult learning which begins with reflectivity, an awareness of specific perceptions, meaning and behaviour; affective reflectivity, or the capacity for awareness of personal feelings as information is assimilated; discriminant reflectivity which is assessment of the efficacy of perceptions thoughts and behaviours; and judgemental reflectivity, or awareness of value judgements made on perceptions, thoughts and behaviours. These are what Mezirow called consciousness levels of awareness which provide means for understanding. This part of the hierarchy is demonstrated as level 1 and level 2 conversations in Table 1. At the higher level, Mezirow posits conceptual reflectivity-assessing the adequacy of concepts used to make judgement; psychic reflectivity-recognition of making precipitant judgements on limited information; and theoretical reflectivity-an awareness that one set of perspectives, such as a taken for granted practice or culture may explain personal experience less satisfactorily than another perspective (Newton, 2004). These three advanced levels Mezirow

describes as the "critical unconsciousness" level, where a transformation of perspective occurs and deep learning taking place. This is demonstrated as level three conversations in table 1. Perspective transformation is critical self awareness of habits of perceptions, of thoughts and of actions. It is also determined by critical awareness of the culturally determined conventions which influence the way we feel, see, think and act. To reach the apotheosis of "theoretical reflectivity" and therefore perspective transformation is to become aware that cultural and psychological influences which pervade modern western philosophy do not always explain the way things are perceived and that new ways of understanding are necessary to make sense of the world and therefore transform thinking.

At the consciousness level, (see Figure 1.) respondents discussed teaching/learning processes, strategies for motivating adults, instruction and training approaches, instructional materials, curriculum, assessment and the imperative for meeting educational goals. They argued the merits of self paced activities, work related activities, experiential learning, trial and error, and evaluation processes. There was an emphasis on planning, creating learning agenda, motivational factors and motivational strategies. Much space was given to the learning environment, creating teams of learners, maintaining a participatory environment, skills development and knowledge acquisition. As students were prompted with metacognitive cues during these exchanges, they moved between personal judgements as to the efficacy of these strategies for motivating adult learners through personal awareness of their own knowledge and understanding and the way the made value judgements; ("…I didn't realise until we discussed the cultural thing, that I was even aware of making such judgements about them and how they might think what I was saying might be insensitive or maybe even offensive…").

Category	Bar	Selection %	Respondents
adults		17.9	99
education		16.6	92
learning		15.0	83
instructors		8.0	44
better		5.2	29
skill		4.2	23
students		4.2	23
experience		3.8	21
knowledge		3.6	20
new		3.6	20
learners		3.3	18
information		3.3	18
excellent		3.3	18
activities		3.3	18
participants		3.1	17
need		2.7	15
responsibility		2.4	13
trainers		2.2	12
plan		1.8	10
characteristics		1.8	10
goals		1.8	10
practice		1.6	9
person		1.6	9
value		1.6	9
change		1.4	8
motivation		1.4	8

Figure 1. Content analysis of conversations regarding adult Education

At the critical unconscious level, respondents demonstrated few forays into the higher levels of reflection during their Blog conversations. Concerns there reflected theory and praxis and a desire to complete the assignment quickly and efficiently rather than engaging metacognitive contemplation. However the portfolio assignments which followed two weeks later revealed transformative

144

thinking. Participants reflected on the nature of adult learning, generally recognising its complexity according to the contextual elements surrounding its application. The critique which naturally followed demonstrated conceptual reflexiveness-("I am beginning to understand that there is not so much a right way or a wrong way to motivate adult learners, because everyone is so different and they bring so many different perspectives…you really need to get to know them and to understand where they are coming from before you can tap into their needs...I need to rethink how I do this in my own class").

Similarly, the portfolio assignment revealed psychic reflexiveness especially with regards to different cultural perspectives of adult learners ("I thought when I started teaching the program, that everyone knew what was expected of them and they knew how they were supposed to behave…I thought, I am the teacher and they need to respect that…but after a while I realised they had different expectations of me and other class members because they became easily confused about what to do or how to do it-even about a simple task such as taking notes").

The move into theoretical reflectivity, whilst less frequent than other levels, was nevertheless present in the suggestions for the changes they would make to their own teaching behaviours and strategies, which was influenced by an enhanced understanding of themselves as educators. ("I can see how I need to design my teaching plans to suit the needs of the students, understand how to make the learning practical and to help them become independent learners. It's important to help them construct meaning so I will try to integrate problem based learning into my program to make learning transferable to different situations").

Feedback from the survey instrument administered after the intervention tended to be positive about the style of approach by the tutor to the activity which informed the assignment. They considered the prompts provided and the scaffolding of the tutor to be thought provoking as well as providing excellent material on which to base their portfolio assignments. There was a sense of cooperation and collaboration between students which was considered to have an impact on their thinking, their writing and ultimately what they considered to be the quality of their work. There was also a notably high level of general satisfaction with the program, the learning and the usefulness of the course to their needs.

4. Conclusion

There is little doubt that an online program which provides clearly delineated metacognitive support through a collaborative activity which meets the needs of learners has the capacity to be another part of the jigsaw which facilitates perspective transformation in adult learners. As Mezirow (1981) put it, adult educators must provide an organised and sustained approach to providing for their students to "enhance their capability to function as self directed learners" (p21). This means reducing dependency on the teacher and engaging in collaborative learning in reciprocal relationships. It means understanding the

psychological and cultural needs of students and providing for the opportunity for them to make their own decisions about learning. It necessitates a guided journey through the objects of reflectivity (perceiving, thinking acting), the consciousness of reflectivity on to critical consciousness and then into deep perspective transformation. But it must take place within an appropriate framework of metacognitive support which prompts and scaffolds. It has to occur within an environment which encourages regular feedback from teacher, learner, designer, peers and colleagues at all levels of production. Any attempt at creating an online pedagogical effectiveness framework which ignores the importance of metacognitive collaborative support as a key ingredient, risks diminishing the learning experience and therefore providing a less than optimum outcome for the adult learner.

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Sustainable learning through reciprocal mentoring in an ICT-rich environment

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Abstract

This research focuses on a reciprocal mentoring model which was implemented in 2009 between a Western Australian university and a local primary school. The four phases of the research included: *Initial Engagement*; *Crossing Boundaries*; *University Readiness* and *Situated Learning*. The research has resulted in the creation of a *Collective Community* learning platform which enabled all stakeholders to work together on ICT-rich learning activities. Reciprocal mentoring is dynamic in that it occurs from outside and within an organisation. This paper reports on phase three of the study: *University Readiness* which involved primary school students working with teacher education students, academic staff and teachers on ICT activities over a day-long workshop at the university. The findings include both quantitative and qualitative data which reveal that reciprocal mentoring is beneficial in building ongoing partnerships between higher education and the local school community.

Keywords: Reciprocal mentoring – ICT – Sustainable Learning Communities

1. Introduction

Universities across Australia are not unreasonably expected to contribute to their neighbouring communities. Relationships between the higher education sector and school communities need to be truly collaborative and of equal benefit to all partners (Anyon & Fernandez, 2007) in order to create sustainable and transformative learning and practice. Using an Information and Communication Technology (ICT) rich environment the overarching aim of this study is to encourage dialogue (Freire, 1998) across the traditional boundaries between schools and higher education through reciprocal mentoring (Leh, 2005). This will involve the following key participants: primary school students, school leaders, teachers, pre-service teacher education students and university academic staff. Distributed leadership through mentoring and mutual dialogue is a key recommendation of the recent Twomey (2008) Report, *Education Workforce Initiatives* and seeks to transform current education practices by calling upon all stakeholders to lead, to learn, to listen, and to develop 'community conversations'. The Horizon Report (2009) identifies the significant trends in the changing landscape of ICT. The report highlights the growing reliance upon web based environments in education across all sectors and how this is crucial to learning and teaching, social networking and collective intelligence. Clearly, ICT has changed the way we collaborate, communicate, learn and teach. The boundaries between schools and universities must become more fluid in order to navigate our way into this new environment.

2. Conceptual Frame: Reciprocal Mentoring

Traditional and reverse mentoring models have long been accepted as approaches to the process whereby one person nurtures, teaches and transforms another. Traditional mentors are typically defined as experienced and knowledgeable individuals who are committed to supporting a protégé to become competent. This form of mentoring is seen as a relationship between an older and a younger person, with the older person assuming the mentoring role. Reverse mentoring on the other hand occurs when a younger person or a member of an organisation at a lower rank takes on the responsibility to train, teach or instruct a higher ranking or older individual within the group. This type of mentoring also occurs informally when children or adolescents assist adults with various problem solving scenarios. There have been many studies into the the various aspects of mentoring, for instance, mentoring strategies (Packard, 2004-2005); those who receive mentoring (Ragins & Cotton, 1999); benefits (Lankau & Scandura, 2002; Payne & Huff, 2005); conditions required for mentoring relationships to succeed (Eisenberger, Armeli, Rexwinkel, Lynch & Rhoades, 2001).

One of the most pertinent insights to this study is the work of Higgins and Kram (2001) who investigated the concept of developmental networks. This arose from the realisation that individuals typically had more than one mentor and that these mentors may come from other contexts. These 'social networks' were comprised of senior colleagues, peers, friends, family and community members who supported the development of the individual (Higgins & Kram, 2001). Harvey, McIntyre, Thomson Heames and Moeller (2009, p. 1347) suggest that "Networks with strong, diverse relationships appear to provide the most support for the protégé". With this in mind the current research aims to investigate the relationships and networks developed between the primary school students, the teacher education students, school teachers and academic staff at the university.

The concept of reverse mentoring has been in use for over a decade but is featured more prominently due to the rapid development of technological change and innovation (Greengard, 2002). Reverse mentoring, simply inverts the typical mentoring role in which the more experienced individual (regardless of age or position) takes on the mentor role, while the less experienced individual becomes the protégé. Some of the benefits for mentors and protégés of such an approach involve engaged learners, improved morale, cost efficiency, diverse application, information access, personal satisfaction (Carr, 2002; Cotugna & Vickery, 1998). While Gonzales and Thompson (1998) acknowledge the benefits of both traditional and reverse mentoring, they introduce the new concept of 'reciprocal mentoring' whereby they believe that the exchange of knowledge is more dynamic between the mentor and protégé. At various stages this relationship between the mentor and protégé may potentially have mutual benefits and the participants can be seen as 'co-learners' (Chandler & Kram, 2005). This study aims to investigate the potential for mentoring networks to develop within and between the research participants and by doing so help to move beyond the traditional boundaries set by higher education/school relationships to more fluid exchanges of knowledge and learning.

3. Research Aims

The aim of the larger research project is to develop and evaluate a reciprocal mentoring model which includes students and teachers from a local government primary school, University pre-service teachers and university academic staff. The ICT environment, known as the *Collective Community*, developed specifically for this project will create and support this community of learners. Ultimately, the aim is to embed this mentoring model into the pre-service teacher education program in order to guarantee sustainable long term partnerships. This proposed study is framed then by the following research questions:

- How does reciprocal mentoring enhance school students, teachers, pre-service teachers and university academics' practice in ICT skills?
- How does reciprocal mentoring contribute to the development of a sustainable learning community?
- How does the implementation of a reciprocal mentoring model build enduring relationships between higher education and school communities?
- How can a reciprocal mentoring model promote university readiness in school students?
- How is Freire's (1998) concept of dialogue (mutuality, horizontal partnerships, self identified needs, hope, critical thinking) embodied in the collaborative process?

4. Methodology

This research has adopted an interpretive methodology (Cohen, Manion & Morrison, 2000), based upon case studies (Creswell, 2006). Various research instruments were administered including semi-structured interviews, observations, and questionnaires. Participants involved Year 6/7 students (n=55), school teachers (n=5), pre-service teachers in the Bachelor of Education Primary program (n=29) and university staff (n=3). To ensure the voices of all participants are heard and to provide high quality descriptions of the mentoring and learning experiences that develop through the ICT community - the emphasis has been on collecting qualitative information although it will also be supported by quantitative data. The research project has been divided into four distinct phases and it is important to note that phase three is the focus of this paper.

4.1. Phase One: Initial Engagement

Initially - a meeting with academic staff and school leaders was held at the local primary school. The major aim of this phase was to determine current ICT practice (staff and students) and by doing so identify the perceived elements essential to the development of a mutually significant relationship with the University.

4.2. Phase Two: Crossing Boundaries

This phase involved the school teachers spending one of their professional development days at the School of Education. The aim was to develop relationships and work closely with academic staff and pre-service education students. The learning experiences included a key session familiarising participants with the purposefully built learning environment - the *Collective Community*. Qualitative data were obtained through the administration of a questionnaire containing open-ended items regarding the usefulness of reciprocal mentoring on the development and consolidation of ICT skills.

4.3. Phase Three: University Readiness

Similar to phase two, phase three involved the primary school students from Years 6/7 working with pre-service teacher education students under the guidance of academic staff. One of the aims of this phase was to broaden the university experience for these primary school students. The school students actively participated in a number of learning experiences similar to those experienced by their teachers throughout the day. The *Collective Community* learning environment was once again a dominant feature of their learning experience. Questionnaires were designed for the children and the pre-service teachers which contained likert-scale and open ended items regarding their attitudes toward the experience at University. As identified earlier, this paper will report on this phase of the study only with the focus being the reactions of the school students to the experience.

4.4. Phase Four: Situated learning

The final phase of this project will involve pre-service education students (n = 20) working with school children and their teachers at the primary school on a technology project that is mutually agreed upon by the participants. The *Collective Community* environment will enable all involved to share their projects. At the end of this process semi-structured interviews will be conducted with a sample of the primary school staff (n=5), including the principal, academic staff (n=3) and a sub-sample of the pre-service education students (n=10).

5. Research Results

As stated earlier, 55 primary school students and 29 School of Education pre-service teachers were involved in phase 3. Two questionnaires, one for the primary school students and one for the pre-service teachers were designed and administered at the end of the University Readiness day. The following section will present the results from the primary school student questionnaire.

Primary School Student Questionnaire

One of the first questions in the student questionnaire asked them to identify '*how you felt about coming to the University for the Learning Community Program?'.* Table 1 provides a summary of the responses.

Table 1: How school students felt about coming to the University

	No of comments	Examples of School Student Comments
Happy and excited	**55**	*I felt very excited about coming to the University today and I kept thinking on the way that we would have a chance to do some interesting work on our ePortfolios.*
Nervous when we first arrived and when we went into the computer lab	**12**	*I felt a bit nervous when we arrived and we all went into the big meeting room and also when we went into the lab at first but the teachers were nice and I thought this would help me in the future.*
Look forward to learning something new	**10**	*I was looking forward to learning something new about computers because they are important for me in the future and I was looking forward to doing some work on my ePortfolio so I could show my teacher.*

Question two in the questionnaire asked the students, '*how did you feel about working in your group with students from the University'.* Fifty-five comments indicated that the sample had a positive experience working with the pre-service teachers. They were positive about working on their ePortfolios and felt as though they had learned a significant amount related to the components and processes involved in creating an ePortfolio. The sample also commented on the impact that positive responses from the pre-service teachers had on them.

One of the questions asked the students whether the computer related activities were difficult. A total of 28 comments indicated that the students had experienced some difficulties as a result of working with new technology that they did not have access to in their school. Regardless of these difficulties the students felt as though they could ask for help and suggested that the pre-service teachers were easy to understand.

Sixteen comments suggested that the students did not experience any difficulties as the student teachers explained the processes involved clearly and were eager to help. Eleven comments indicated that as a result of having ready access to computer technology at home the students did not experience any difficulty with the activities.

One of the key questions which clearly linked to the notion of reciprocal mentoring, was: "Have you learned anything new today that you think you could help your classroom teacher with when you get back to school? "

Table 2 presents their responses.

Table 2: New information with which the school students can help their classroom teachers

Summary of Comments	No of Comments
We could start showing younger students how to begin portfolios	12
I could help my teacher with changing backgrounds and patterns	12
I could help my teacher with power point	10
I could help my teacher with photo story	10
I could help my teacher to make hyperlinks	8
I could show my teacher how to make a portfolio	3
I could help my teacher with little things to make learning better	2
I have learnt a lot about slide shows, I could help my teacher	1

The majority of the comments focussed on showing their classroom teacher the mechanical and technical aspects of creating an ePortfolio. Interestingly, twelve comments suggested that they could share their knowledge with younger students. A further question asked the students to identify how they felt about helping their teachers at school with computers. Table 3 reveals their responses.

Table 3: How school students feel about helping their teachers

Summary of Comments	No of Comments
I feel good about doing it, I think I could help them	35
I feel strange / uncomfortable about doing that	7
I feel OK about doing that but I wouldn't want to make any mistakes	7
I would feel important as not everyday do you get to help your teacher	6
I'm not that good at computers but I've learnt some things today that I could teach them	4
I wouldn't want to do this as we have lots of other things to do	2
It would be good to teach our teachers for a change	2
I wouldn't want to it's bad enough having to teach my mum	1

The sample were almost evenly divided between positive and negative responses when they were asked, Do you think your teachers at school would like you to help them with their computer problems? Twenty-nine students answered positively and twenty-six students answered in the negative. Positive comments included that the students felt that by helping their teacher with computer problems they would have the opportunity to interact with them more and they thought this would be enjoyable. They also felt that as they are younger than

their teachers they would be able to successfully help them with computer applications. Other comments suggested that the students would enjoy feeling like a teacher themselves through the process of helping adults.

Negative comments indicated that it would not be a good idea to try to 'outsmart' the teacher as this would cause problems in the classroom. The remainder of the comments suggested that the students felt as though their teachers wouldn't be interested in being told what to do by primary students. Several comments indicated that the students believed that their teachers would simply not be interested as they are not really keen on using computers in the first place.

When the school students were asked '*after today how could you help other students to use computers?,*' the majority of the comments identified that they could teach them how to make a portfolio (16 comments). In addition, they could also show them how to make hyperlinks (14 comments), how to use PowerPoint properly (12 comments), and make their work more colourful and less boring (7 comments). Some students also noted that they could help other students with photo story (6 comments).

6. Discussion of the findings

These initial findings will present a summary of the primary school student questionnaire and then focus on addressing two of the key research questions for this phase of the study:

• How does reciprocal mentoring enhance school students' ICT skills?
• How can a reciprocal mentoring model promote university readiness in school students?

Summary school student questionnaire

Even though some of the school students felt nervous about spending the day at the University, the majority clearly indicated that they were excited and looking forward to the experience. The questionnaire revealed the experience had been positive for two reasons. Firstly, they enjoyed working on their ePortfolios as the process enabled them to learn a variety of new skills and knowledge using the computer and secondly, the positive reactions they received from the pre-service teachers. Their favourite part of the day involved the opportunity to work on their ePortfolio. There were a number of comments which indicated that the students encountered some difficulties as they were unfamiliar with the software being used. The software at the University was more up-to-date. However, regardless of this unfamiliarity the students felt very comfortable asking for help from the pre-service teachers who appeared helpful and easy to understand. Interestingly, there were 16 comments from students indicating that they didn't experience any difficulties as their pre-service mentors provided them with clear instructions and help.

The students were able to reflect on what they found the most interesting to learn. The majority of the comments focussed on the technical skills, such as how to make a hyperlinks, photo stories and ePortfolios. The school students also focussed on the technical skills associated with creating ePortfolios when they were asked about what they could help their teachers with. It is only natural that the students would focus on their newly acquired technical skills. It was interesting to see that the majority of the students reacted positively to the idea of helping their teachers. Surprisingly though, the reaction was equally divided between positive and negative responses to the question, *do you think your teachers at school would like you to help them with their computer problems*? Those students who responded positively appeared to have the following mindset: helping the teacher would be enjoyable; younger students know more about computers; students like to feel useful; and students would enjoy feeling like a teacher. While the negative responses, were based on the fact that their teachers didn't need, want or welcome any computer help.

Finally, the school students also identified a number of ways they can help other students as well as their teachers with computers. For instance, creating an ePortfolio, making hyperlinks, using PowerPoint effectively, adding colour and interest in their work, utilising photo story and being more creative. This range clearly indicates their level of comfort and competence with the technology.

Other studies (Carr, 2002; Cotugna & Vickery, 1998; Leh, 2005) have also found that the reciprocal mentoring has proven to be beneficial to contributing parties. Some of the school students were anxious initially but were soon made to feel at home by their mentoring pre-service teacher. The data revealed that, even within the short time frame there was a sense of mutual respect for each other that surfaced through their appreciation of each others' skills, knowledge, approach, and manner. As with other reciprocal mentoring studies (Leh, 2005; Morgan & Streb, 2001) increased self esteem was also evident. The reciprocal mentoring model appears to promote university readiness in school students, exposing them to new ideas, and providing them with resources that allow them to engage with these ideas.

7. Conclusion

The project has been timely given the importance of the ongoing implementation of ICT in the education landscape as outlined in the Horizon Report (2009). ICT creates and supports sustainable learning communities particularly between organisations such as schools and higher education. The recently released Education Workforce Initiatives Report (Twomey, 2008) calls upon all participants in education at all levels to work together to develop relationships and conversations that cross traditional boundaries and by doing so enhance the learning opportunities for all. Through the development of a reciprocal-mentoring model this project has the potential to create sustainable partnerships and relationships between the University academic staff, pre-service teachers and teachers and students from one of the local primary schools.

The aim of Phase 3 of the larger study was to develop relationships by having the school students work closely with the pre-service teachers to complete ICT based learning experiences and provide them with the opportunity to broaden their university experience. It also aimed to provide pre-service teachers with the opportunity to gain authentic learning experiences by working with school students in a technology rich environment.

The reciprocal mentoring process has enabled the school students to become 'co-learners' with the pre-service teachers. Both have gained valuable skills and knowledge through the exchange. The results of the pre-service teacher questionnaire are discussed in a further paper as part of the larger research project.

The school students have built learning partnerships with the University pre-service teachers, academic staff and their own teachers through the reciprocal mentoring model. This study has shown that engaging with on-campus learning opportunities has increased their understanding of university life and has enhanced their university readiness. This project will nourish industry and regional relationships and will help to develop a shared definition of what it means to be 'ready' for university. The project represents significant opportunities for research as a reciprocal mentoring model as applied across education sectors has not been previously developed.

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On the doorstep. Class teachers preparing to teach physics and chemistry

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Abstract

Physics and chemistry are taught as separate subjects in grades five and six of comprehensive school since the beginning of 2006. Some class teachers participated in workshops organized by subject teachers during the school year 2003-2004 in order to prepare for the curricular change. Teaching units prepared by the subject teachers formed the base of the workshops. The interest of this study was: How and by which means can class teachers be supported in their task to give instruction in physics and chemistry. The recorded discussions give useful hints about the support they need and want. Class teachers did not feel confident about their subject knowledge. Beliefs, values and goals that describe teachers' orientation are sometimes at odds with those supporting investigative learning.

Keywords: Narratives - Class teachers - Subject knowledge - Science instruction - Investigative learning.

1. Introduction

A new national curriculum came into use in Finland in the year 2006. According to this curriculum physics and chemistry is taught as separate subjects in grades five and six in comprehensive school. Earlier these subjects had been included in the environmental and natural studies.

2. Method

The research question in this study is: How and by which means can class teachers be supported in their task to give instruction in physics and chemistry?

The director of Swedish education in Espoo suggested that class teachers would participate in workshops organized by subject teachers during the school year 2003-2004 in order to prepare for the curricular change. Teaching units prepared by the subject teachers formed the base of the workshops. During the workshops class teachers felt themselves at ease and expressed their opinions quite freely. Therefore their recorded discussions may give useful hints about the support they need and want.

The class teachers were divided into groups of 2–3 teachers each. Discussions during workshops were audio taped. The recorded text, one for each group, as

giving an account of events was treated as a narrative. According to Labov's definition (Labov 1997) a narrative has an abstract, orientation (time, place), action (sequence of events), evaluation, resolution (what finally happened), and coda (return to the present). We posit an event as a connected sequence of utterances. In the present study the text starts by presenting the background or prior knowledge of the teachers, and then turns to the performance of an experiment, thereupon reflection on the results, and finally discussion about how to use the experiment/similar experiments in instruction. In a broad sense the text can thus be considered a narrative. Below four such narratives will be presented and analyzed parallel to each other.

The narrative method brings out features of the learners' thinking and learning needs that may have been neglected through other methods. Formal rules of causality can be applied to a sequence of events. Thus the thick description of the interpretive mode combines with the rigor of causal generalization produced by an explanatory mode of inquiry. Some events may be critical turning points in the process. An event is called critical when it demonstrates a significant or contrasting change from previous understanding, a conceptual leap from earlier understanding, or a cognitive obstacle (Webster and Mertova 2007, 77). A critical event is a designation that depends on the subject of the researcher's inquiry. Critical events that are significant and meaningful can be gathered. The lack of an event can be just as important as an event happening. In our study critical events that promote learning were looked for at each stage of the narratives. Such events could be unique, illustrative or confirmatory. Critical events are identified through close analysis of what learners say and do. The structure of a critical event could show conceptualization, preparation and planning, innovation and creativity, convergence and consolidation. (Webster and Mertova 2007, 84) In the processes in the working groups the pattern of a critical event should be reflected by utterances where a participant announces a doubt, a question, or a curiosity, which we see as a first step of a change process.

The audio recording took place in a noisy classroom. Thus it was not always possible to catch every word of an utterance. However, in the sense that four different groups went through the same experiment, the same procedure, the different stories can be used as confirmation of each other. Like events disclose the common background against which the critical events protrude (Webster and Mertova 2007, 84)

3. The change process

The participants, altogether 14 teachers, filled in a questionnaire before and after their first workshop (Dumbrajs 2005). The participants in general were interested in physics and chemistry. This conclusion could be made from the fact that almost all had studied more than the obligatory amount of these subjects in upper secondary school (Dumbrajs 2005). However, they had on average only little experience of teaching physics and chemistry.

All class teachers were of the opinion that their students would react to laboratory tasks in a positive way. They would be curious and interested and they would have lots of questions. Some teachers would have liked to get the "right answers" to the experiments. A problem seemed to be at which age it would be possible to give the students responsibility for their own work. Certainly the teacher should test the experiments beforehand and the parents should be informed that their children start doing laboratory tasks.

3.1 Science of heat. Change of volume of water and air.

Experiments were always supervised by a subject teacher. The following instruction for one experiment on science of heat that the class teachers performed was given:

Material: An empty water bottle of thin plastic with cork, cold and warm water from the tap.

Instruction: Fill the bottle with hot water so that it becomes quite warm. Pour out the water. Close the bottle properly. Put the empty bottle under the cold water tap. What happens? Then try to warm it under the hot water tap.

3.1.1 Prior knowledge

In order to find the shared knowledge base in the group the subject teacher allowed the class teachers to study the instructions and then asked if these could imagine what would happen.

Group I:

Teacher 2: So it (the bottle) can make a bang, then?

Group II:

Teacher 4: I read and read … I considered …

Group III:

Teacher 8: Yes. That … that is … is expansion, yes …
……………….
Teacher 8: Well, something I thought was said about that this … it is needed … later when that air becomes cold … then the bottle shrinks …

Group IV:

Teacher 10: There will be a bang … there will be a bang …

Clearly the subject matter is new to most participating teachers. Only teacher 8 uses the scientific concept "expansion". She also understands that air is of

interest in this experiment, not the plastic bottle. This is a critical event. From here on group III as being enabled to share the thoughts of teacher 8 accelerate their learning. But also this teacher explains the phenomenon with the help of every-day-knowledge: "… when the air becomes cold … then the bottle shrinks…" The other teachers plainly admit their ignorance or even disinterest. Some suggest that there will be a bang.

3.1.2 Performance of the experiment

Group I does not show a deep interest for the present experiment. They think that having come to the conclusion that there will be a "bang" this is all there is about it. They are quite happy with their surface knowledge (Marton and Booth 1997, 175) about the phenomenon. Now they are interested in other funny effects, like the possibility to get a boiled, peeled egg into a bottle with smaller diameter, or to put a balloon on the bottle instead of corking up and see what happens to the balloon. – Teacher 3 thinks that the "bang" should take place when the bottle pulls together.

Group II:

Teacher 6: Is this enough (hot water in the bottle)? Ok.
Teacher 5: Then you need to have the cork ready and then you pour out the water.
Teacher 6: What? - Shall I pour away this?
Teacher 5: … pour out …
Teacher 6: Precisely, when …
Teacher 5: Pour away the water and cork up the bottle.
Teacher 6: Yes. The cork.
Teacher 5: … and then ,,,
Teacher 5: Put the empty bottle under cold running water.
Teacher 6: Ok.
Teacher 4: … the empty …
Teacher 5: Yes, it would be this, then
………… (water running) ………….
Teacher 4: It becomes triangular now …
Teacher 6: Yes.
Teacher 5: Then try what happens … happens when it is put under hot (running) water …
…………. (water running) …………….
Teacher 6: Here still is … it looks quite white …
………….. (bang; crying) ….
Teacher 4: Now it plopped out!
The teachers work collaboratively and take care to follow the instructions. Their results are reliable and they feel pleased with their achievements.

Group III:

Teacher 8: Then you must empty it (the warm water bottle) … because …
…………………….

Subject teacher: Very well. Under cold water.
………… (water running) ……….
Teacher 9: … (inaudible) … hops! It begins … yes … yes … Look!
Teacher 7: … it like … shrinks here …
Teacher 8: Shall I now put it back under hot water? Wasn't it this still?
Subject teacher: Yes, yes.
…………………………
…….. (bang) ……………….
All together: Ouuuu ….

In this group the teachers feel insecure and need more interventions from the subject teacher when performing the experiment. They do not understand why the warm water should be poured away. Teacher 8 wants to know why. This is an important step in the process of understanding, forming a critical event at this stage. The teachers use the concept "shrinking" in connection to the bottle. Do they understand that the bottle is not the cause of what happens?

Group IV:

Teacher 10: Now I think it is … Yes. It is shrinking.
……………….
Subject teacher: Yes I think you should do it (put the bottle under hot water).
………… (water running) ….
…………… (bang) ………..
Teachers: Yes, yes!
Teacher 11: It is funny, being that hard …

These teachers also use the concept "shrinking", but they seem to be ready to consider other possibilities: "It is funny, being that hard …" Teacher 11 demonstrates a willingness to develop and change her previous understanding. The event might be deemed critical. The subject teacher now and then confirms the teachers' intentions, but her interventions seem not to be very necessary.

3.1.3 Reflection on results

Group I:

Teacher 1: Well, I suppose that it has to do with the expansion … how to say … rather simply … warm air or cold air.
……………………..
Teacher 3: … from here one can deduce that air exists, air that needs less place when it is cold.

Teacher 3 connects the knowledge that teacher 1 shares with her to understand the concept of air. A conceptual leap as distinguishing a critical event takes place.

Group II:

Teacher 4: It has to do with the air …
… (inaudible) …
Teacher 5: … the molecules …

Group III:

Teacher 7: Well, it is, I assume, that the molecules in the air collide with each other and it becomes denser when it is cold. Smaller.

Teacher 7 might not yet have quite understood the connection between density and particle movement in gases! However, she is about to take a conceptual leap in her understanding.

Group IV:

Teacher 10: It has to do with the movement …
Teacher 11: It moves less then … and then more.

Now, already, the teachers discuss about what happens to the air molecules, not about what happens to the bottle. Only group IV does not yet explicitly mention the concept air.

3.1.4 Discussion

Group I:

Teacher 3: Yes. Then it is similar to water, also … That when it starts
  boiling …
Teacher 1: Yes. Well, this I have also … this way … with the water molecules and
  this precisely to try to get it described just in this way …
Teacher 3: It is very good. Everyone surely understands this when it starts to get
  warmer … (inaudible) … when it gets warmer they get more speed
………………
Teacher 1: … and then that, what I have participated in, that with the egg, that
  one has …
Teacher 3: Just so. You have a peeled egg?
Teacher 1: Yes, a peeled, boiled egg.
Teacher 2: Yes, yes, the top of it must of course …
Teacher 1: The opening can't be unlimitedly small …

These teachers have a lot of knowledge about different experiments. This was noted already, when they performed the present experiment. They wanted to tell about other similar experiments they had come into contact with. Also they know some concepts; "molecule" and "expansion" are mentioned during the reflective discussions. But it seems that the deep knowledge about these concepts is nonexistent. They do not want to discuss backgrounds, but go over to talk about air and how to show that air exists. They can answer "what"-questions, but not

"why"-questions. They also seem to be unaware of the behavior of different forms of the same material. Events that include instances of cognitive obstacles of significance can also be considered critical for the change process.

Group II:

Teacher 5: Was it not called molecules?
………………
Subject teacher: Can you from this deduce why a warm air balloon flies?
…………………
Teacher 4: Like there it is cold and there are active warm air molecules … so they will jump upwards … (inaudible) …

The application of the fresh knowledge about air molecules is too difficult. Maybe these teachers have not been able to see the connection between the concepts density and particle movement in a gas.

Group III:

Subject teacher: One can do a rather funny thing with this, also … Instead of this cork … you do everything: put it (the bottle) into warm water and pour out the water and instead of that cork you put on a balloon. One puts a balloon as cork.
Teacher 7: What happens then?
…………………
Teacher 8: It will be blown up …
Teacher 7: It probably is warmed by that warm air … the balloon is warmed.
Teacher 9: If it goes in?
Teacher 7: No …
… (inaudible) …
Teacher 9: Is the air warmed again, then?
… (inaudible) …
Teacher 8: Yesyes. As you said that …
Subject teacher: … it becomes cold … it is sucked in.
Teacher 7: Yes. – Yes.
Teacher 8: Yes. If one puts it under hot water again, then it will … then it pops up.
………………….
Teacher 7: But it is … everyone can't understand this with … that … on the whole that it (the air) exists, but then also that the air is particles … it is rather difficult to understand when one can't see anything.

Teachers try to find reasons for what would happen to a balloon. Their common reflections lead them to a conclusion. There is convergence and consolidation of their understanding.

Group IV:

Subject teacher: Well … this can also be done … be done in a more funny way if one has a balloon … instead of corking up you put on a balloon. What happens then? What do you think?

Teacher 12: Yes … well … it comes out, I assume …
Teacher 11: No….
Teacher 12: Yes, wait … No-no … it … it is pulled inside.
Subject teacher: It is pulled in, yes. It is pulled in. Yes. Yes. And then, if you then put it under warm water, then it pops up again.
Teacher 12: Yes.

Also in this group the teachers reach a conclusion by reflecting collaboratively. They seem to experience pleasure and acquire new knowledge. They really try to understand what happens.

I have collected the main features from the class teachers' discussions in the four groups in Table 1. The initial missing content knowledge of the teachers is protruding. Of course, it is not possible to request the same content knowledge as from subject teachers, but these class teachers stand at the same level as their students (Dumbrajs 2007, 160). They might have extended every-day-knowledge, they have larger experience, but this sometimes leads to knowledge, which is different from scientifically accepted views. The teachers ask few "why" questions. And they cannot easily apply what they have learned to new situations. However, when the first critical event appears, an increasing flow of new understanding develops as a consequence of collaborative sharing of thoughts and intervention by the subject teacher. This flow is shown in Table 2.

Table 1. Summary of class teachers' discussions.

Expansion of gases				
	Prior knowledge	Performance of the experiment	Reflection on results	Discussion
Group I	- "bang"	- interventions - what about the bang? (hard bottle) - I do not think that you get it …	- expansion (warm or cold air) - air exists - air needs less place when it is cold	- molecules - when it gets warm they get more speed - peeled egg
Group II		- collaborative work	- molecules	- molecules moving (children) - warm air rises (but why?)
Group III	- expansion - the bottle shrinks	- the bottle shrinks - interventions - because …. ?	- colliding molecules - the air becomes denser when it is cold	- one can't see the air particles - the balloon (why?)
Group IV	- "bang"	- confirming interventions - "it is shrinking" - "it is funny: being that hard"	- movement	- the balloon; it is pulled inside
Overall content	- expe-rience (2) - every-day-knowledge (1) - scientific concept (1)	- experience (4) - intervention (3) - reflective thoughts(2)	- air (3) - molecules (2) - density (1) - expansion (2) - movement, collision (2)	- molecules get more speed when heated (3) - warm air rises (but why?) (1)

Table 2. Development of change process.

Critical events				
	Prior knowledge	Performance of the experiment	Reflection on results	Discussion
Group I			air exists	when molecules get warm they get more speed
Group II				
Group III	air expansion	why?	colliding molecules, density	the balloon instead of a cork
Group IV		why?	why? movement of molecules	the balloon instead of a cork

3.2 Teaching Methods

The teaching profession has changed a lot over the years. New ideas, attitudes and values are realized. When the context of practice is changing, the teachers are not able to function as competently as earlier. Reflection on practices therefore forms an integrated part of their profession. After the workshop some class teachers discussed their experiences.

Teacher 4: The situation is that one thinks that physics and chemistry must be so terribly difficult.
Teacher 3: Mm..
Teacher 4: But it is not.
Teacher 3: But surely it is… The discussion, to carry it out … that, that the experiment as such, but then to be able to carry out that … - After … after the presumptions. They can bring forth presumptions, then it is still, like, free to guess anything.
Teacher 4: Yes.
Teacher 3: All sorts of ideas. But then, when one comes to that result, one has to formulate it somehow … cleverly.
Teacher 1: I think it is partly the idea in primary school with these discussions. Really, it is not the experiments as such that are important.
Teacher 4: No. No-no. It is what they experience and the thoughts that are raised. But it does not matter, if it would fail completely. It does not matter at all. To create the train of thought, like … to highlight … and then that one … is careful not to … to tell too much.

4 Results and discussion

The class teachers did not feel confident about their subject knowledge and also felt that they lacked the time to explore a wide range of materials. Generally, they did not want to seek help. They preferred ready units that worked. They thought that subject content should be expressed in terms that easily can be conveyed to their students. They asked themselves if time is used in an effective way if they allow their students to pursue their own investigations, if the activities should not be teacher-controlled so that the students get the "correct" results, and if students really can learn in a self-directed way. Similar experiences have been quoted by Geelan (1998) from implementation of

innovative teaching approaches in a mixed community of primary and secondary school teachers. Beliefs, values and goals that describe the teachers' orientation are at odds with those supporting investigative learning (Volkmann, Abell, and Zgagacz 2005, see also Rice 2005). However, the teachers in this study themselves clearly enjoy learning by investigating.

From the above considerations it can be concluded that class teachers might be helped by implementation of the following features in their everyday learning and teaching process:

1. Teacher teams should be developed to reflect over practices. Thus an informal learning situation could be achieved. There would be an array of teachers, each one with knowledge of a particular kind of domain or skill. They would together find out about content knowledge. They would discuss meaningful goals for their teaching and they could encourage each other to test innovative teaching approaches. (Levander and Repo-Kaarento 2004)

2. Expert knowledge and further education should be available. Class teachers should not be afraid to ask subject teachers for help. When someone attends a course for further education, the new knowledge must not stay with this person, but the whole team should be informed. Nowadays expertise is also available on the web. Teams of teachers at many sites can log in concurrently. They hear from and interact with a remote expert/facilitator but then return intermittently to discuss the topic face to face with people in their own team. This contextualizes the topic to the local school site. Thus learning activities are focused directly on work-related issues (Levander and Repo-Kaarento 2004, Knight 2002).

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Teaching Ancient and Modern Greek language and literature through theatre/ drama in Secondary Education

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Abstract

Teaching and learning through art, as a subcategory of arts education, is an effective educational process, no matter its official or non official introduction at the international curriculums. In this frame, teaching and learning other subjects through theater, as a cross-curriculum mode of teaching, has been increasingly applied in Education. This paper15 discusses an international Greek question: How and in which grade could theatre/ drama in education be useful for the teaching of ancient and modern Greek language and literature in secondary education in Greece?

I will present some basic results, part of the exploratory research[16] I did in order to include the students' voices as well in my study of teaching ancient and Greek language and literature through theatre in Greece, where theatre/drama education is not still systematically embodied in the national curriculum. The theoretical framework of this exploratory research is based on contemporary theory and methodology of theatre/ drama in education[17] and on the ideas of John Dewey, Jerome Bruner, Paulo Freire, Carl Rogers, Daniel Goleman, Howard Gardner, among others.

I give emphasis on the application of theatre and drama in the teaching of philological lessons, not as a substantial way of teaching these, but as a creative, alternative and additional way to the traditional teaching processes. For this reason my teaching was concentrated on a methodology which included:

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[15] The data of the research presented in this paper are part of my PhD's research, University of Patras, Department Theatre Studies, gained distinction February 2010.

[16] See, G. Shank and L. Brown, 2006: *Exploring Educational Research Literacy*, London: Routledge, J. O' Toole, 2006: *Doing Drama Research. Stepping Into Enquiry ın Drama, Theatre and Education*, Australia: Drama Australia Research Community.

[17] For theatre/ drama (in) education, see: M. Fleming, 2003: *Starting Drama Teaching*, UK: David Fulton Publishers, J. Neelands, 1998: *Beginning Drama 11-14*, UK: David Fulton Publishers, H. Nicholson (eds.) 2000: *Teaching Drama 11-18*, London: Continuum.

a. Reactivation of traditional didactic techniques such as dialogue, question-response, conversation, by introducing them into the dramatized lesson

b. Theatre-drama techniques and conventions, ranging from free dramatic playing to a complex dramatization of the lesson, contemporary theatre forms which call to physical and devised theatre[18], site specific performance[19], forum theatre[20]

c. Participatory role of the teacher who pretends ignorance and shows interest to inquire the subject with the students (teacher in and out of roles, which derived from the text or the philological subject)

d. Cooperative drama learning techniques, frequent use of team role

e. Dramatization exercises before, during or after the teaching of the basic didactic unit

f. Oral and written speech production

g. Self and team evaluation.

The need of adolescents nowadays to express and redefine themselves as integrated personalities among the digital reality imposed on them, could be effectively discussed or dramatized in the classroom by applying contemporary theatre forms and employing processes which facilitate these: team-building, personal commitment, creativity, political, social and intrapersonal issues, the participatory role of the actors, interactivity and critical thinking.

From the 1040 students who participated in this research, 768 answered a questionnaire after participating in a lesson of ancient Greek or modern language or literature by my guidance as the basic theatre/drama teacher in a pre-planned collaboration with the «philologist»[21] of each class. The lessons were not adjusted to some method that had to be applied, but instead I tried to choose and adjust the theatre-drama methods according to the teaching needs and the current lesson plan. Students were from each of the six classes of secondary education which constitute gymnasium (ages 12-15) and lyceum (ages 16-18). Almost all of them participated for the first time in a lesson taught by theatre's didactic methods and they had no previous experience with it. The specific

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[18] D. Callery, 2001: *Through the Body. A Practical Guide to Physical Theatre. Exploration and exercises in devising, mask-work, play, complicité and total theatre*, New York: Routledge.

[19] N. Kaye, 2000: *Site-specific Art: Performance, Place and Documentation,* London: Routledge.

[20] B. Augusto, 2002: *Games for actors and non-actors*, Second Edition, London and New York: Routledge.

[21] The term philologist is used in the greek secondary educational system for the teacher of ancient and modern greek language, literature, history, latin language and philosophy.

«philological» subjects that I examined were: ancient and modern Greek grammar and syntax, language, poetry and literature (by translation or the original ancient text).

After collecting the research data, the student responses at the open ended questions were categorized based on the content analysis and then, every response was coded . All the data was inserted into a computer with the help of the SPSS Statistics pack, with which the accurate processing of the research data was performed. As far as the resolution of the research questions is concerned, the tests of statistical significance that were done (x^2 criterion) allowed us to conclude whether there is any relevance among the questions or whether there are statistically important differences between the students' sex, age, type of school, school level, lesson and specific teaching units. The significance level that was adopted was 5% (α =.05), therefore if **p≤.05,** then we considered any difference statistically important.

TYPE OF SCHOOL (NOMARCHY OF HERAKLION)	LESSON	NUMBER OF STUDENTS THAT PARTICIPATED IN THE COURSE	NUMBER OF STUDENTS THAT COMPLETED THE QUESTIONNAIRE
Urban-Rural	Ancient Greek Literature	206	162
Urban-Rural	Ancient Greek Language	81	43
Urban Private Rural	Modern Greek Literature	503	391
Urban-Rural	Modern Greek Language	250	172

TABLE I

The first question that the students are called to answer is the degree in which they enjoyed the application of the TDTC[22] in the teaching of the philological lessons:

"What do you think of the application of the theater-drama techniques and conventions in the teaching of the philological lessons?"	Number of students	Percentage %
Excellent	308	40.1
Good	230	29.9
Mediocre	128	16.7
Poor	44	5.7
Bad	26	3.4
Don't know	32	4.2
Total	768	100

TABLE II

The second question is related to the effect that the teaching of the philological lessons through the TDTC had on the students, and it consists of seven multiple-choice categories. In this question students were allowed to answer to more than

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[22] I use the abbreviation TDTC for theater-drama techniques and conventions.

one category and each following percentage represents students that answered positively to each category.

"The teaching of the philological lessons through the theater-drama techniques and conventions:"	Number of students	Percentage that answered positively in each category %
Was interesting	476	62
Freed your imagination	352	45.8
Motivated you to participate actively and voluntarily in the lesson	287	37.4
Left you indifferent	29	3.8
Was boring	62	8.1
Motivated you to work more on the text and learn about the author	243	31.6
Motivated you to work on some other theater-drama activity	203	26.4
Anything else you would like to add	73	9.5
Total	768	100

TABLE III

We can therefore observe that the responses concerning the fulfillment of cognitive, social and emotional purposes of the teaching of the philological lessons through the TDTC are found with high frequency. On the contrary, the percentages of the students that expressed a negative opinion over this specific way of teaching are considerably small.

Question number three considers why students enjoyed or did not enjoy the teaching of the philological lessons through the TDTC in contrast with the traditional way of teaching. Being an open-ended question, it led to the analysis of the content of their responses and their distinction in eight categories which encompass relevant characteristics.

1)   The first category, titled **"more interesting – pleasant – vibrant"** in the following table includes answers similar to: it was a more interesting, lively, pleasant, exciting, creative, comfortable, free, realistic, and different way of teaching. The student mentioned as well that it helps them enjoy themselves and learn at the same time. They note that it cultivates their sense of humor and creates a comfortable learning environment.

2)   The second category, titled **"active and voluntary participation"** consists of responses that focus on whether the teaching of the philological lessons through the TDTC stimulates the students' attention and leads them to participate actively and voluntarily in the lesson (including the "weak" students, or those who did not usually participate in the lesson).

3)   The third category, titled **"imagination – freedom of expression"**, is related to the free expression of the students' imagination, thoughts, views, emotions, bodies, and the simultaneous experiential learning of the text. For example, the students described how teaching erased the barrier between the text and the reader and brought the book to life in front of their very eyes. They reported witnessing the facts, entering a role, experiencing the dramatized story and drawing on their own experiences and personal traits.

4)   The fourth category, **"boring"**, includes the responses from the students who did not like the teaching because they found it boring.

5)   The fifth category, titled **"communication – collaboration"**, is related to the communication and the collaboration that was developed not only among the students, but between the students and the teachers during the teaching through the TDTC. The students mention that they found a way to observe their fellow students' way of thinking.

6)   The sixth category, titled **"understanding – consolidation and cultivation of knowledge"**, contains responses that regard the understanding of the lesson by the students and the cultivation of creative thinking over its themes. The students state that they understood the lesson better or more easily when they were able to memorize and consolidate it directly when it was taught without having to work hard at home. This teaching process made them ponder over the themes of the lesson, helped them understand views, that they do not embrace or do not concern them, confront social issues and learn new things on various fields.

7)   The seventh category, titled **"difficulty in meeting the needs of the teaching"**, includes answers that have to do with the difficulty of students to express themselves and to meet the requirements of this specific way of teaching. The students mentioned that they were not able to express themselves freely in front of the others, they did not like this way of teaching, they are not used to it or it is not particularly necessary for their exams.

Based on the categorization we used, there are students that belong to more than one category, as illustrated in the table that follows:

"Why did you or didn't you like this specific way of teaching the lesson in relation to the way you are used to?"	**Number of students**	**Percentage that answered positively in each category %**
More interesting – pleasant – vibrant	419	54.6
Active and voluntary participation	123	16
Imagination – Freedom of expression	164	21.4
Boring	33	4.3
Communication - Collaboration	71	9.2
Understanding – consolidation and cultivation of knowledge	134	17.4
Difficulty In meeting the needs of teaching	51	6.6
Uncategorized	31	4
Unanswered	83	10.8
Total	768	100

TABLE IV

We can confirm that the biggest percentage of the students preferred the teaching of philological lessons through TDTC in comparison with the traditional way of teaching mostly because the former activated emotional, mental, social and cognitive need of the students during the lesson.

Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

The students' responses in question number four refer to the degree in which teaching through theatre and drama techniques helped the students understand the text:

"Do you believe that teaching through TDTC helped in the understanding of the text"	Number of students	Percentage %
Very much	505	65.8
Considerably	174	22.7
Moderately	56	7.3
A little	13	1.7
Not at all	6	0.8
Don't know	14	1.8
Total	768	100

TABLE V

We can observe an increase in the positive and a decrease in the negative statements for the effect that this specific way of teaching had on the understanding of the text.

In question number five, the students choose between seven close-ended categories what they thought that was developed between them and their fellow students during their lessons using TDTC. to the fact that students were allowed to answer to more than one category, Each percentage represents students that answer positively in each category.

"During the lesson using theater-drama techniques and conventions, what do you think was developed between you and your classmates?"	Number of students	Percentage that answered positively in each category %
Sense of unity – amicable Relations	474	61.7
Collaboration	516	67.2
Communication	380	49.5
Trust	110	14.3
Indifference	40	5.2
Discomfort	69	9
Anything else you would like to add	52	6.8
Total	711	100

TABLE VI

In the first part of question number six, students state if they noticed any change to the student-teacher relationship during the teaching of the philological lessons through the TDTC. Those that gave a positive response, explain in the second part why they liked this different student-teacher relationship. Their responses were divided into four categories based on their content analysis:

1)   The first category (**"friendly, intimate, efficient relationship"**) refers to the following: the teacher becomes friendlier, more social, more pleasant, and not at all strict or distant. It seems like he/she walks in their shoes and becomes

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themself a student again. The teacher experiences the text and transmits it to the students. In this way, the students trust the teacher, can express their opinion freely, without being afraid to say something that might be wrong. They can express their feelings towards the text, their emotions and goals, without the concern of being exposed in front of the teacher. During the class, all students can express themselves, even the more weak or indifferent.

2)   The second category (**"the teacher, part of the group and detector of the student's individualities"**) includes responses that focus on the fact that the teacher leads the students, does not actually dictate what they have to do, but rather works with them and listens to their opinions. He/she takes part in the activities, becomes a member of the group, and "teaches the lesson with them". In this way, the constant monologue of the teacher can be eliminated and the dialogue between the teacher and the students can be favored. The teacher can see that every student is part of this lesson and s/he gets acquainted with elements of their personality, learns more about the students, not only according to their assessed grade. Hence, together teacher and students become more responsible.

3)   The third category (**"pleasant, comprehensible, efficient lesson"**) refers to the fact that the aforementioned friendlier relationship between the student and the teacher brings changes to the lesson as well; it becomes more comprehensible and pleasant, students are more interested in what the teacher says, they are quiet, they improve and become more responsible and efficient. Through this spirit of collectivity, students mature. The lesson becomes more comprehensible because students can also have a visual image of it, not just audio. In addition, the translation of ancient Greek is more easily understood (fourth category: **"unanswered-uncategorized"**). According to their answers, we are led to the following results:

"Did you observe any changes in the student-teacher relationship during this teaching method?"	Number of students	Percentage %
Yes	471	61.3
No	190	24.7
Unanswered	107	13.9
If yes, did you like it and why?		**Percentage that answered positively in each category**
Friendly, intimate, efficient relationship	354	75.2
The teacher part of the group and detector of the students' individualities	100	21.2
Pleasant, comprehensible, efficient lesson	68	14.4
Unanswered - Uncategorized	47	10
Total	768	100

TABLE VII

The majority of the students observe a change in the student-teacher relationship during the teaching of the philological lessons through the TDTC. The students like the different relationship because the teacher becomes part of the group, recognizes the individuality of each student and encourages the student to participate willingly in the lesson.

Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

According to the content analysis of the students' responses in reference to their positive or negative observations about the teaching of the philological lessons through the TDTC, ten categories were created. According to the categorization undertaken, there are students that belong to more than one category. The study of the data given by the above categories produced the following results:

"What were your observations (positive/negative) on this specific way of teaching the philological lessons?"	Number of students	Percentage that answered positively in each category %
More interesting/pleasant – creative/efficient	481	62.7
Active and voluntary participation	63	8.2
Imagination – Freedom of expression	69	9
Communication - Collaboration	104	13.5
Understanding – Memorizing – Cultivation of knowledge	129	16.8
Commotion - discontentment	43	5.6
Boring	24	3.1
Time consuming	17	2.2
Difficulty in meeting the needs of this new way of teaching	25	3.3
Uncategorized	37	4.8
Unanswered	156	20.3
Total	768	100

TABLE VIII

The majority of the students expressed positive observations about the teaching of philological lessons through the theater-drama techniques and conventions, in comparison with those that focus on the negative observations, without, however, minimizing their importance to the research.

The sixth category, (**"commotion"**) refers to the commotion that is caused by some students in the classroom during this specific way of teaching. The eighth (**"time consuming"**) refers to the fact that the teaching of the philological lessons through the TDTC is time consuming; it demands more time in order for the whole lesson to be covered, and the students want to dedicate more hours to this kind of teaching as well. The tenth category, titled **"uncategorized"**, includes answers that were unable to fit into the previous categories or even new ones. Some examples: 'The lesson should be done this way since gymnasium", "It should be done more frequently, because it would draw students' attention and make them love the ancient Greek language". "If it is established, and students get used to it, they will not ridicule it", "If this was done on a daily basis, everybody would get a 20/20 in their exams".

In the first part of question number eight, students state which activities they think that helped them to participate in the lesson: individual, group activities in small groups or group activities including the whole classroom. In the second part of question number eight, according to the content analysis of the students' answers, we created five categories that justify the first part's choices:

1) The first category refers to the **communication, the collaboration and the reciprocal help:** all the students can express their opinions and they work

together for a common purpose. Together they can produce more ideas and thoughts, intercross impressions and collaborate. This collaboration helps them think over the themes of the lesson and participate more. At the same time the students learn to respect their classmates' opinion, to show empathy for their personal experiences, and understand their way of thinking. Moreover, through the group activities, students participate on the lesson without feeling embarrassed, since everything they do, their classmates do it as well; even if, however, they encounter some difficulty, their fellow students will help and give the answer. They provide each other with courage and support, in order to establish their opinions and each one can contribute with their own different way to the understanding of the lesson.

2)   In the second category, there are the responses that reflect the students' opinion that **in small groups they can find the answers more easily,** develop criticism, exchange ideas and can control more easily the harmony of a small group and avoid commotion. In this way, a group of mediocre students can become better, since each one undertakes a task; each student takes the floor and tries to always be present to the lesson. The group gives the students self-confidence, and helps them participate more. In addition, small groups help students have more fun but at the same time understand the lesson better.

3)   In the third category are the responses that refer to the **freedom of expression in the individual activities,** and more specifically to the fact that the student, as an individual can work better, can express his/her opinion at any moment, has the feeling that he/she contributes to the promotion of the lesson, there is no mixing of opinions or any commotion.

According to the categorization that was done, there are students that belong to more than one category.

"Which of the following activities do you believe that helped you to participate more during the lesson?"	Number of students	Percentage that answered positively in each category %
Individual activities	70	9.1
Group activities (in small groups)	414	53.9
Group activities (the whole class)	306	39.8
Don't know	102	13.3
Justify your response		
Communication – collaboration – reciprocal help, better performance in the groups (small-large)	322	41.9
Better collaboration and participation in the small groups	119	15.5
Freedom of expression in the individual activities	27	3.5
Uncategorized	11	1.4
Unanswered	292	38
Total	768	100

TABLE IX

It is obvious that students prefer group activities, which help them participate more during the lesson. Nevertheless, most students prefer small groups, because of the better collaboration, participation and performance in the lesson.

In question number nine students answer whether or not they would like to be taught again the philological lessons through the TDTC. Then, they justify their preference to the second part of the question. This open ended question was categorized based on the content analysis and then, every response was coded.

"Would like to be taught again the philological lessons through the theater-drama techniques and conventions?"	Number of students	Percentage that answered positively in each category %
Yes	664	86.5
No	89	11.6
Don't know	15	2
"Justify your answer ("because…)"		Percentage that answered positively in each category
More interesting/pleasant – creative/efficient	389	50.7
Active and voluntary participation	62	8.1
Understanding – memorizing – cultivation of knowledge	154	20
Communication - Collaboration	62	8.1
Difficulty in meeting the needs of the teaching	26	3.4
Boring	25	3.3
Imagination – Freedom of expression	29	3.8
Uncategorized	30	3.9
Unanswered	140	18.2
Total	768	100

TABLE X

The majority of the students want to be taught the philological lessons   through the theater-drama techniques and conventions, since this way of teaching covers their psycho-emotional, social, communicative and cognitive needs.

In the last question, the students are asked to select any other philological lessons that they would like to be taught through the TDTC.

"Which other philological lesson would you like to be taught through the theater-drama techniques and conventions?"	Number of students	Percentage that answered positively in each category %
Ancient Greek Literature	239	31.1
Ancient Greek Language	236	30.7
Modern Greek Literature	218	28.4
Modern Greek Language	218	28.4
History	319	41.5
Nothing	91	11.8
Don't know	77	10

TABLE XI

We note that the majority responded positively to the application of the drama-theater techniques and conventions to the teaching of philological lessons, since 78.2% of the students would like to be taught a philological lesson using this method. My personal reflection on the research accords to the students' response concerning this teaching proposal. It is true to admit that the application of theatre/drama techniques in the teaching of ancient and modern Greek language

and literature brings the contemporary pedagogical principles[23] to light and activates their totally effective performance by:

- using previous experience and students' personal stories in class
- connecting the lesson with reality
- cultivating the continuous, energetic and participatory watching of the
- giving light to students' personality and skills
  - creating a friendly environment through which students experience respect and a democratic, positive stance towards one another
- facilitating the understanding of ancient Greek language and literature, motivating students to read and write
- modifying the relationship between student and educator and activating a Socratic way of learning[24]

Simultaneously, it is obvious that this kind of teaching and learning process requires training on theatre in education methodology and calls for the introduction of specialized theatre/ drama educators in Secondary Education in Greece.

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[23] See, A. Moore, 2007: *Teaching and Learning. Pedagogy, Curriculum and Culture*, London: Routledge.

[24] See, P. Abbs, 1994: *The Educational Imperative: A Defence of Socratic and Aesthetic Learning*, London: The Falmer Press.

Reframing Perceptions of Teaching to become Globally Acceptable

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Abstract

With an increasing number of English as a Second Language (ESL) students entering teacher education, the support for ESL pre-service teachers is becoming an increasingly important issue facing Australian universities (Han, 2005). This paper explores the perceptions of the ESL pre-service teachers of the Bachelor of Teaching program at the University of Tasmania, and support strategies that are in place to support their future teaching and learning. This article reports a recent study that involved eleven ESL pre-service teachers from four language and cultural backgrounds. These student teachers were encouraged to reflect on their teaching practice in weekly focus group meetings and reflective journals. Surveys were also given to them. The finding of this study contributed to understanding ESL pre-service teachers' cultural and educational needs, which can inform and improve the support given to prospective ESL pre-service teachers.

Keywords: Teacher education – ESL education – Support strategy

1. Introduction

Due to the increasing number of ESL students entering teacher education in Australia, the support for this student-teacher group has become a critical issue. The increase in the number of international students attending universities and acquiring higher education in Australia is significant in recent years (Ryan & Hellmundt, 2003). Many of these international students choose to come to teacher education institutions in their goal to be professional teachers. These beginning teachers bring different experiences and a global perspective to Australian classrooms. However, they also face great challenges due to their state of being ESL students and pre-service teachers. That is, they need to overcome the challenge of language and cultural differences as well as form a new identity of being professional teachers (Han, 2005). In dealing with this situation, ESL pre-service teachers need to be provided with strategies and support structures. In response, universities are under pressure to accommodate and provide assistance to these students to address their significant cultural and language differences and their identity shift (Cruickshank, Newell, & Cole, 2003; Dong, 2004). Hence, the teaching of ESL pre-service teachers is becoming an increasingly important issue facing Australian universities.

This paper reports a qualitative and ethnographic study which seeks to understand what support strategies would be beneficial in supporting ESL pre-service teachers to become professional teachers. This paper describes the perceptions of a group of eleven ESL pre-service teachers, including the researcher, from the Bachelor of Teaching program at the University of

Tasmania. Data were gathered from surveys, focus group meetings, participants' journal entries on their practicum experiences, and the researcher's reflective journals on the focus group meetings, to seek further clarification of how to best cater for ESL pre-service teachers in future teaching and learning. During this research, the researcher placed herself as an insider within the research activities. This position enabled her to observe, participate and reflect as a member of this special target group. It is believed that the findings of this study may provide an opportunity to improve teacher education practices, especially support mediation for ESL pre-service teachers in their transition from ESL students to professional teachers.

2. Literature Review

The importance of providing support to students from non-English speaking backgrounds in teacher education profession has been emphasised by a large number of researchers (Cruickshank, Newell, & Cole, 2003; Dong, 2004; Li & Kaye, 1998). There is evidence which showed that ESL pre-service teachers from other language and cultural backgrounds bring students in English speaking countries multi-cultural learning experiences (Barkhuizen & Feryok, 2006; Cruickshank, Newell, & Cole, 2003; Han, 2005). Hence, support structures put in place in universities can assist in the development of worldly teachers who have multi-cultural and global perspectives (Clement & Outlaw, 2002). An examination of the support strategies adopted by universities is beneficial for the intercultural development of both beginning ESL pre-service teachers and the institutions they belong.

Due to the status of being both ESL students and pre-service teachers, ESL pre-service teachers are required to have a higher level of English proficiency and self-resilience, so as to complete coursework at university and to perform as professional teachers in classrooms. As a result of the language and cultural differences, the ESL pre-service teachers face great challenges in their coursework, such as hardly understanding lectures, getting poor marks for assignments, lacking of participation in tutorials, having problem communicating with colleague teachers, and hardly gaining rapport from their students (Cruickshank, Newell, & Cole, 2003; Han, 2005). In addition, some ESL pre-service teachers have difficulties in their practicum experiences which are an important part in their teacher education in Australia. The practicum experiences involve making connections between what they have learned at the university and how this knowledge and skills can be applied in classrooms (Kiggins & Gibson, 2003). Some ESL pre-service teachers suffer from lacking of prior experiences in local learning environments and systems. When confronting these problems some of them may feel under pressure or even lose their hope of becoming a teacher and withdraw from the program. Thus, effective support strategies are never so important for them to overcome the obstacles and continue their study.

Australian universities and other tertiary education institutions have developed a variety of support strategies to address the issues faced by ESL students. The traditional support strategy refers to university assistance, where ESL students

have access to language assessment, self-access materials, as well as short courses on study skills, such as academic writing, note making, and grammar (Cruickshank, Newell, & Cole, 2003). However, teacher educators nowadays intend to develop support models for a more specific purpose of assisting ESL pre-service teachers in their teaching profession. For instance, at the University of Sydney ESL pre-service teachers are supported by a number of teaching strategies including the Cruickshank, Newell, and Cole's (2003) mode, which provides remedial classes in each semester to help them cope with the mainstream classes.

3. Background of the program

The Bachelor of Teaching program in the Faculty of Education at the University of Tasmania is a two-year postgraduate degree with a graduate entry requirement. The program has curriculum and method classes as well as a professional practice component, Professional Studies, which is based around understanding the practice of teaching. The four practicum experiences are seen as a significant part of this program. They involve pre-service teachers going into schools and taking responsibilities in teaching with the help and guidance from one or more colleague teachers. The ESL pre-service teachers are required to undertake the School University Partnership Program (SUPP) and four practicum experiences in the same way as the local pre-service teachers. They also have the support from the colleague teacher(s) in the classrooms and a university lecturer to come to their classrooms weekly to monitor their progress.

Apart from the assistance provided for teaching experiences, these ESL pre-service teachers also benefit from the following relevant supports and assistances provided to support their coursework:

- University wide content-based courses, which allow ESL students to learn languages in meaningful contexts, rather than to have them study the language as a separate subject;
- Tutoring approach and focus groups, one in which support staff work with individuals or small groups on specific areas of needs (Cruickshank, Newell, & Cole, 2003).;
- Self-directed learning, which is mainly behind the establishment of self-access materials and the provision of on-line support (International Students, 2009);
- Other support services, (e.g. Weekly skill-based courses focusing on academic writing and preparation for examinations) (ELSIS, 2009).

4. Participants

The research involved the participation of eleven ESL pre-service teachers who are from four non-English speaking countries including Chile, China, Japan and Germany. Of these eleven participants, the five Chilean pre-service teachers and the one from Germany were exchange students who were studying a degree in the Faculties of Education in their own countries and came to Australia for a six month exchange experience. The other pre-service teachers were full-time

students in the program. These participants were from both the first year and second year of the program.

5. Aims and research questions

The study aims to determine the dominant discourses present in the ESL pre-service teachers' perceptions of their experiences in learning and teaching within the Bachelor of Teaching program. The research seeks to find out how the ESL pre-service teachers are supported in both their practicum experiences as well as their university courses. It also gives recommendations to enable future ESL pre-service teachers to be better supported in their teaching and learning. This paper addresses the following three research questions,

• What are the experiences and perceptions of ESL pre-service teachers studying in the Bachelor of Teaching program at the University of Tasmania?
• What are the responses and actions undertaken by educational institutions to include the culturally diverse student population?
• What support should be in place to provide ESL pre-service teachers with a meaningful cross-cultural experience, and assist their shift of teacher identity?

6. Methodology and data collection

This study is underlying by the theoretical framework of qualitative, ethnography (Charmaz, 2006) and constructivist grounded theory (Strauss & Corbin, 1990). During the eight weeks research period all the first year pre-service teachers were doing their School University Partnership Program (SUPP) as well as their Professional Experience One (PE1). The second year ESL pre-service teachers, however, were undertaking their Professional Experience Three (PE3). Within the research activities, the participants were encouraged to record and reflect on their teaching experiences, including the engagement, happiness, achievement, as well as their confusions, doubts, problems, difficulties and frustrations.

The data collection methods were in forms of surveys, focus group meetings, journal entries and the researcher's reflective journals. Surveys were given before and after the practicum experiences to seek changes in the participants' understandings toward the teaching profession. Focus group meetings were organised on every Tuesday afternoon during these eight weeks. The discussion of the focus group meetings was audio taped and made into transcripts to enable further analysis and interpretation of the conversations. The participants' journal entries in relation to their perceptions of teaching and learning in Australian classrooms were collected in the last week of the data collection to further support the evidence. It is important to mention that the researcher was involved in the research activities as a member of the participant group. Therefore, she was required to keep a journal on her practicum experiences as well as a reflective journal on the focus group meetings. These reflective journals were a further support to the tape recording of the focus group meetings.

7. Data analysis

A constructivist grounded theory approach was used to interpret and interrogate the textual data and transcripts to find the dominant discourses present in the ESL pre-service teachers' responses to their experiences (Strauss & Corbin, 1990). The researcher used three coding processes: open, axial and selective coding to organise the collection of data (Sarantakos, 2005). Through each step of the coding approach, the textual data were identified and labelled into open codes, axial codes and selective codes. The responses to the identified codes were recorded and constructed according to the frequency of their occurrence. Thirty seven open codes emerged from the open coding process. These codes were then reclassified into fourteen themes in the axial coding stage, and further refined and reduced into six categories in the selective coding process. Based on the categories emerged from data analysis, the research has uncovered four dominant discourses in understanding ESL pre-service teachers' perceptions of their experiences of the Bachelor of Teaching program. These dominant discourses are shown in Table 1 below:

Table 1: Dominant discourses

Dominant discourses	Reponses
Discourse 1: Cultural conflict	614
Categories:	
• Cultural aspects in teaching and learning	487
• Language aspect in teaching and learning	127
Discourse 2: Pragmatic practice	400
Category:	
• Experience about the Professional Experiences	400
Discourse 3: Limitations	314
Category:	
• Beginning teachers' concerns	314
Discourse 4: Professional identity	137
Categories:	
• Attributes teachers should have	121
• Reason for choice of education	16

8. Findings and discussions

Two dominant findings emerged in this study. The first finding involves the process of phronesis, in which the ESL pre-service teachers explore and refine their own perceptions of teaching through their practicum experiences. The second finding, however, is the construction of binaries in the ESL pre-service teachers' knowledge of teaching.

8.1. Phronesis

Developing a "practical wisdom based on the perception of a situation" (Korthagen cited in Berry, 2004, p. 1307) on their practicum experiences is a challenge for these ESL pre-service teachers. Added to these initial perceptions is their difficulty in speaking the language which limits their understanding and perceptions of teaching. These ESL pre-service teachers came to Australia with a non-English speaking background, they must adjust rapidly and learn fast, in order to cope both academically and socially (Sawir ,2005). The ability to develop and reconceptualise their perceptions of teaching on their practicum experiences and make adjustments to their teaching practices is an essential requirement.

For phronesis to occur successfully this means that the university needs to provide structures, such as focus group meetings, that support ESL pre-service teachers' construction of knowledge. Traditional teacher education practices have been challenged in that pre-service teachers cannot successfully produce the knowledge they have been presented and expected to produce in their own classrooms (Berry, 2004). In comparison to traditional lectures and tutorials, the focus group meetings provide ESL pre-service teachers with more opportunities to discuss their concerns and ideas, as the topics of the meetings are designed with more of a focus on their developing perspectives and the size of the groups are usually smaller (Cruickshank, Newell, & Cole 2003). Also, these focus groups support the construction of these ESL professional identities. As Lee and Boud (2003, p. 188) argue,"Academic identities, including identities as researchers, are forged, rehearsed and remade in local sites of practice". The Bachelor of Teaching program is a local site of practice for ESL pre-service teachers to develop and construct their teaching identities. This finding is evidenced in one of the ESL pre-service teachers' discussions in the last focus group meetings:

"Now I can possibly say, I have given a beautiful full stop to my PE3 (Professional Experience Three). In this practicum, I took more teaching and stayed closer to my students as a real teacher. I found now I can fit myself into an Australian classroom and I made another big step towards my life of teaching... It has been a great experience spending time with all of you to discuss what we have learnt during the weeks. I have learned a lot during the discussions, and most important, having the chance to meet all the people in the group gives me a lot more confidence because I know that I can come to someone to discuss the difficulties I met, and know that there is someone there to support me."

Transcription of focus group meetings

8.2. Binaries

The second finding specifically appears in a *Conflicting binaries* model which is developed from all of the discourses listed in the last section. As this research has an explicit focus on the ESL pre-service teachers' teaching and learning in

the Bachelor of Teaching program, there are a few "living contradictions" in their developing subjectivities (Whitehead cited in Berry, 2004). The ESL pre-service teachers' knowledge about teaching is reframed through phronesis which has the discursive effect of producing a number of conflicting binaries in their knowledge construction. The ESL pre-service teachers reframe their perceptions of teaching and learning, however, they learn to live with the contradictions and binaries in their knowledge construction. As Davies (1994, p. 2) argues, "It enables us to see the diversity and richness of our experience of being a person as we find ourselves positioned now one way and now another".

These binaries are shown in Table 2 below:

Table 2: Conflicting binaries

Initial perceptions of teaching and learning	Reframed perceptions of teaching and learning
Teaching is about transmission	Teaching is about the co- construction of knowledge with students
Teacher-centred climate	Student-centred climate
Surface attributes of a teacher	Inner attributes of a teacher
Initial teacher identity	Developing professional multicultural Identity
Scared and unprepared for teaching	Confident
Cultural conflict in teaching practice	Developing a multicultural teaching Philosophy
English language is a limitation	First language has become an advantage

From Table 2 it can be seen that the ESL pre-service teachers' knowledge and perceptions about teaching have been reframed through the pragmatic practice of teaching experiences. The main change in these ESL pre-service teachers' perceptions is how knowledge is constructed. That is, teaching in an Australian classroom is not about the transmission of knowledge, which appears as a teacher-centred teaching climate; instead, it is about guiding students to construct their own knowledge, values and beliefs, which appears as a typical student-centred climate. Another change is how these ESL pre-service teachers' initial teacher identities change and adapt Australian practices. Their ideas about what makes a good teacher changed to include teaching strategies. The ESL pre-service teachers' identities shift from their"old self" to a new professional teacher identity (Han, 2005), and they start to build a new rapport in Australian classrooms with this new identity to"gain respect from zero" (Han, 2005, p. 2). This finding is evidenced in the journal entries written by one ESL pre-service teachers before and after her first practicum experience:

"I am a little bit scared and feel unprepared for this course. …How can I teach students with my poor English, I don't know many technical words, I don't know all the Australian body language. I have a lot to improve within these two years!"

Journal written before PE1

"I assume studying this course has already had a certain influence to my mind. I want to be a teacher. Now I am not yet confident to say I am a great teacher, but I am sure I will be ready to take all the responsibility to teach in the future."

Journal written after PE1

8.3. Recommendations

Two recommendations are also provided in this study. One significant recommendation is that the Bachelor of Teaching program improves and

develops the support strategies for ESL pre-service teachers. It needs to provide, as in this research, focus group meetings in which the ESL pre-service teachers can learn to reconstruct their teaching practices in "local sites of practice" (Lee & Boud, 2003). Also, this research also suggests an enabling program which is an online-based program that can provide ESL pre-service teachers with opportunities to exchange ideas with lecturers or other pre-service teachers through online discussions or sending messages. It is believed that these support strategies can cater for ESL pre-service teachers' concerns and perceptions and better assist future ESL pre-service teachers in their teaching and learning in the Bachelor of Teaching program at the University of Tasmania.

9. Conclusion

This paper reported a study which aims to investigate ESL pre-service teachers' perceptions of the Bachelor of Teaching program at the University of Tasmania, Australia. The effects of globalisation and technology means that teacher education institutions need to provide and create spaces that allow for the development of global teachers rather than only focusing on locally acceptable teachers (Han, 2005). The global perspectives and pedagogy that global teachers bring into Australia provide students with a cross-cultural experience which help them to meet their future lifeworlds' needs in this rapidly changing world (Merryfield, Jarchow, & Pickert, 1997). Hence, setting up support strategies to assist them to enter the Australian teacher profession is becoming a necessary feature of teacher education institutions. This research has made transparent the continual need for teacher education institutions to provide supportive strategies that can better assist ESL pre-service teachers' teaching and learning. Supportive strategies and enabling programs, such as those made in the recommendations, are crucial in assisting ESL pre-service teachers to overcome the cultural and language difficulties and to develop their own professional identities to become worldly teachers who have a cross-cultural perspective to teaching and learning.

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Measuring the economic impact of an HEI in a deprived region of Portugal

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Abstract

This paper describes an economic impact study conducted for a Portuguese Higher Education Institution (HEI) - the Polytechnic Institute of Bragança (IPB), located on the region of Bragança, a very isolated and deprived region of northeast Portugal. Two approaches were followed. The traditional economic approach is based on the study of Caffrey and Isaacs (1971). It would lead to determine the economic impact that arises from the expenditure of the IPB and its individuals. The skills-based approach is based on Becker (1993) and Bluestone's (1993) works. It intends to measure the creation of human capital and the enhancement of local individuals' life quality. To achieve these purposes it was necessary to conduct surveys among the faculty, staff, students and graduates of the IPB, as well as to collect data from IPB's records and official sources.Following these two approaches, the total impact of the IPB in the region was determined, reaching 55 and 61 million euros, respectively.

Keywords: Economic impact – Higher Education Institution – Job creation – Human capital

1. Introduction

Higher education institutions (HEIs) are institutions of great financial and social importance for the hosting regions, granting educational, economic, social and cultural opportunities that would not be there otherwise, thus recognized as regional development mechanisms. HEIs not only create opportunities and jobs that contribute for the global economic activity of the region but they can also attract outside resources and investments (Charney and Pavlakovich-Kochi, 2003; Carr and Roessner, 2002; Smith, 2006). HEIs are a source of qualified workers, with valuable competences for local employers, generate new technologies through research and development and enhance local life quality through volunteer community service, among other contributions (Clinch and Gerlowski, 2002; Greenspan and Rosan, 2007).

HEIs grant the regions where they are located with a considerable return on revenues and employments, among other effects (Yserte and Rivera, 2008). In order to estimate the influence of HEIs it is appropriate to do an economic impact analysis.

Proceedings 2nd Paris International Conference on Education, Economy and Society – 2010

This impact analysis measures the economic impact that arises from the presence of the HEI in the region. It estimates the additional impact that occurs above the economic activity level that would happen, if the HEI would not exist there (Elliott et al., 1988). Other authors (e.g. Jefferson College, 2003) justify this perspective because the majority of the revenues of the HEI come from outside of the region and are maintained in the region and added to the local economic activity. This means that if the HEI did not exist, these resources would also be spent outside of the local economy.

HEIs can promote regional development in the following ways: with the inflow of money into regional economy; with the creation of human capital; with the enhancement of life quality; and with long term changes to the regional economy. Yserte and Rivera (2008) sustain that the impacts of HEIs in a region can be determined according to two approaches: through the HEI inputs, i.e., the impact upon expenses and through the HEI outputs, i.e., the impact upon knowledge (figure 1).
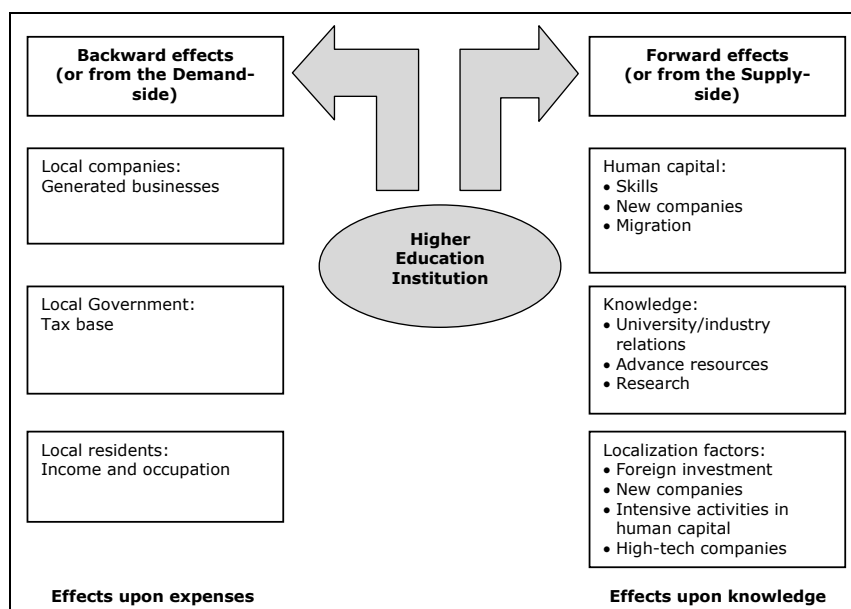

Figure 1 – The impact of Higher Education Institutions
Source: Yserte and Rivera (2008: 5).

According to the structure presented in figure 1, two approaches can be followed. The first approach - the traditional economic approach or demand-side approach – was used to determine the impact on jobs created which would not otherwise exist, arising from the capital and revenue expenditure of the IPB (Caffrey & Isaacs 1971). These would also include the jobs created and sustained by the incomes earned and subsequently spent locally by staff and students.

The second approach – the skills-based approach or supply-side approach (Becker 1993, Bluestone 1993) – measures the creation of human capital and the enhancement of local individuals life quality, through the community use of the HEI's initiatives, buildings and other facilities.

These two approaches estimate the impacts according to the demand-side (traditional approach) and the supply-side (skills-based approach). Several authors (e.g. Blackwell et al., 2002; Carr and Roessner, 2002; Lantz et al., 2002) recognize that a study that considers only the demand-side will underestimate the real impact of the HEI in a region. Although usually an economic impact analysis is restricted to the demand-side, it is advantageous to complete the analysis with the supply-side impacts as well.

As such, this paper describes the analysis of the economic impact of a Portuguese Higher Education Institution. Specifically, the economic impact of the Polytechnic Institute of Bragança (IPB) on the region of Bragança, a very isolated and deprived region of northeast Portugal, was determined. To do so, and to adequately estimate the impacts resulting from both approaches, it was necessary to conduct surveys among the staff, students and graduates of the IPB. The total effects are reflected on the regional GDP, on employment, on the enhancement of human capital and on a range of community benefits.

This paper is organized as follows: firstly, a brief review on the traditional approach (or demand-side) and on the skills-based approach (or supply-side) are presented. Afterwards, the analysis of the economic impact of the Polytechnic Institute of Bragança is explained. Finally, the main conclusions are drawn.

2. The traditional economic approach or demand-side approach

In the traditional approach, estimating the contribution of HEIs to local economy is based on the effects on employment and local revenues that are created by the spending of the institution and the individuals that are directly related to it (Brown and Heaney, 1997). This approach considers solely the economic flows, without considering them as an investment, i.e., it considers only the revenues obtained from the monetary spending in the region and not the results obtained with that spending (Arizona State University, 2003). It estimates the impact based on the export effects, which are the enhancement of the economic activities due to non-local sources (Blackwell et al., 2002).

The economic impact of an HEI on the demand-side perspective results from three parts: the direct, the indirect and the induced economic effects (Yserte & Rivera, 2008). The direct economic effects are the direct spending from the faculty, staff and students and from the institution itself in the region (Elliott et al., 1988). The indirect and induced economic effects are difficult to determined and, as such, a multiplier is applied to the direct effects in order to estimate these last two (Carr & Roessner, 2002; Elliott et al., 1988; Smith, 2006).

The majority of the economic impact studies (e.g. Carrol & Smith, 2006; Charney & Pavlakovich-Kochi, 2003) follows the guidelines defined by the work presented in the American Council on Education (ACE) by Caffrey and Isaacs (1971). In fact, Blackwell et al. (2002) and Elliott et al. (1988) refer to this model as the base of the HEI's economic impact analysis. The ACE model is developed in section 2.1.

The American Council on Education Model (ACE)

The ACE model was developed in 1971 by Caffrey and Isaacs and, just after 15 years of its presentation, was used by the majority of the North American universities, being now applied all around the world. The more recent studies that use this model demonstrate its continuous success and quality on the economic analysis (Yserte and Rivera, 2008).

The ACE model studies the impacts on local business, local government and local individuals (figure 2). It aims to identify who is spending, how much is being spent, and what goods are being bought and from where. To do so, it considers five sources of direct impact: the institutions, the faculty, the staff, the students and the visitors spending.
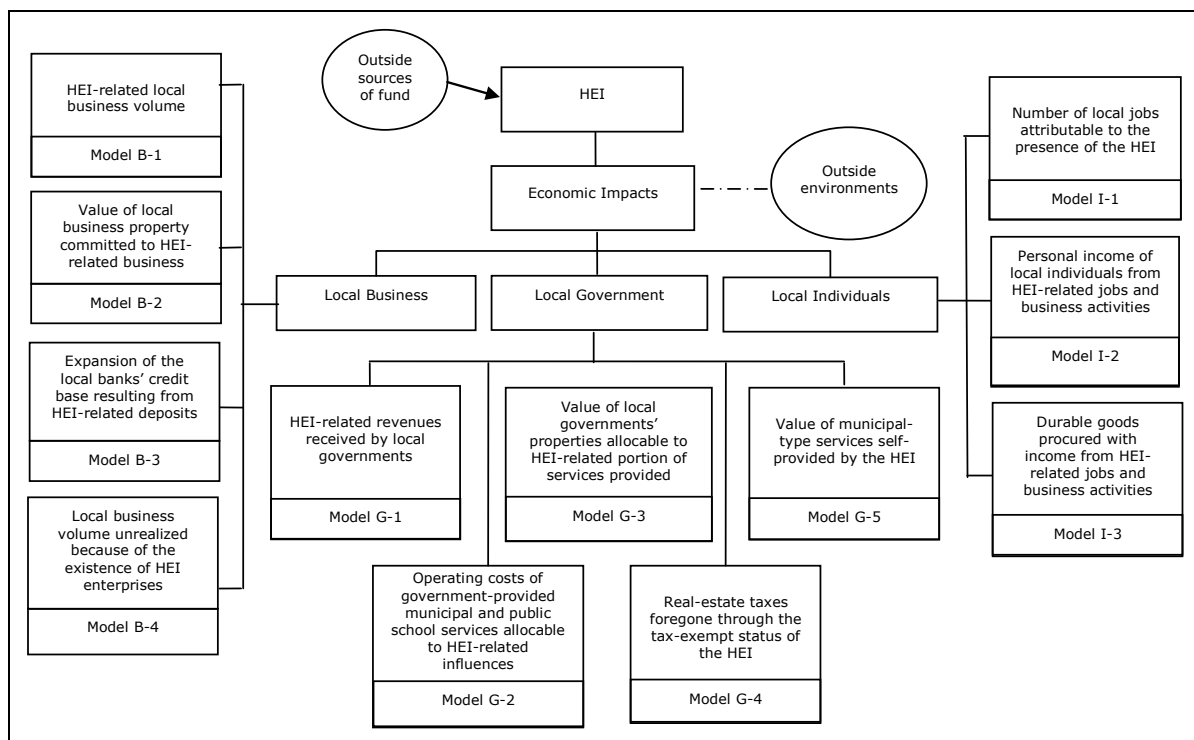
Figure 2 – The ACE Model
Source: Adapted from Caffrey and Isaacs (1971: 10).

As presented in figure 2, the ACE model estimates the HEI's impact on the following regional elements: local business, local government and local individuals. To use this model the necessary data is mostly obtained through surveys, from the institutions' records and from official sources.

Figure 3 presents a simpler version of ACE model that estimates only the HEI's economic impact over local business (model B-1 of figure 2). Due to several criticisms that the model received (among which mainly its complexity), some authors (e.g. Carrol and Smith, 2006; Yserte and Rivera, 2008) used only model B-1 as represented on figure 3.

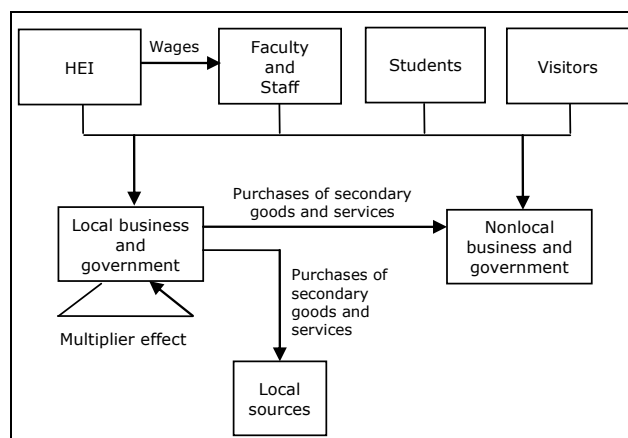Figure 3 – The monetary flow related to the HEI that influences local business volume – Model B-1
Source: Adapted from Caffrey and Isaacs (1971: 6).

The ACE model, in its complete version, received some criticiss because it did not estimate the long term impacts. Although Caffrey and Isaacs (1971) already recognized the existence of possible impacts, it is not possible to join in the same model the short-term and the long-term impacts. The reason is that they have different perspectives, being one from the demand-side and the other from the supply-side.

In order to complete an HEI analysis, the long-term impacts have to be considered. These impacts can be studied and estimated according to the supply-side approach, as described in section 3.

3. The skills-based approach or supply-side approach

The skills-based approach is based on the human capital concept (Schultz, 1961; Becker, 1993), which sustains that education, due to the competences and skills acquired, increases efficiency and, therefore, the lifelong incomes. This approach estimates the higher productivity and the higher earnings that HEI graduates benefit as well as the qualitative benefits that arise from a population with a higher educational level (Arizona State University, 2003; Brown and Heaney, 1997; University of Colorado, 2006). Some authors (e.g. Baum and Payea, 2005; Blackwell et al., 2002; Desjardins, 2003; Moretti, 2005) recognize among the qualitative benefits, a correlation between higher education and better health, intellectual stimulus, higher civic participation, lower criminal rates or even decreasing smoking rates.

None of this effects produce a direct monetary value, however, they all contribute to the growth and economic activity of a region. The problem with supply-side models is not related to the identification of the effects or its influence, but to their quantification.

Therefore, though the estimates on return on education that focus only on wage increase are limited and must probably underestimate global return, it is one of the more objective measures (Smith, 2006). In fact, in terms of measurement, formal school years have the strongest relative influence on economic results of the labour force and have been used as a good proxy for human capital (Becker, 1993; Desjardins, 2003).

Smith (2006) argued that it is almost impossible to create a supply-side model that can estimate the total impact objectively, but some estimates can be made such as the one developed by Bluestone (1993). This approach, although based on the human capital concept, was developed and applied by Bluestone (1993) to HEIs.

Bluestone (1993) considered that the traditional economic approach was very limited since there is an increase in skills, from attending higher education, which generates more qualified workers that earn more than they would earn had they not graduated and, as such, pay more taxes.

This method also received some criticism because some HEIs can be tempted to use this approach to present higher economic results and, therefore, it must be conducted with caution (Carrol & Smith, 2006). Thus, to prevent an inflated estimate, both approaches are presented separately and conservative assumptions were always chosen.

The Bluestone model

Bluestone (1993) presented a method that completes the traditional economic approach, including the long term effects that arise from a more educated population. To measure long term economic impact of higher education, Bluestone considered that future potential earnings of higher education graduates, that remain working in the region, were a good proxy.

This model attempts to estimate the regional economic activity enhancement, based on the assumption that if the graduates earn more, they will also spend more and, as such, the regions will benefit through a higher business activity. On the other hand, the government will also benefit because it will receive more taxes (on income or sales). Bluestone was able to estimate the return on investment (ROI) for the graduates that remain in the region and also for the government.

To determine the graduates' ROI, Bluestone estimates the difference in present value of the lifelong earnings between higher education (HE) and secondary education (SE) graduates. The opportunity cost that HE graduates must support throughout the degree (and not earning any income), as well as the cost of studying (such as tuitions, books, and others) should be included, to accurately estimate the ROI. The government's ROI is obtained by comparing the investment the government made in the student's higher education degree, with the lifelong income and sales taxes differential between HE and SE graduates (Guichard & Larre, 2006).

Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

4. The case of the Portuguese higher education institution

In this paper the case of the Polytechnic Institute of Bragança (IPB), located in the northern region of Portugal, was studied, using the two approaches described in the previous sections.

4.1. The demand-side analysis

On the demand-side analysis the economic impact, i.e., the region economic activity enhancement related to the expenses of the institution and of the individuals directly related to it, was estimated.

The necessary data to apply the ACE model was obtained from surveys to faculty, staff, students and graduates from the IPB. The results reflect the answers obtained from 166 responses from the faculty (42%), 105 from the staff (44%), 1343 from the students (26%) and 126 from the last 20 years' graduates (1.5%) (Fernandes, Cunha and Oliveira, 2008).

The application of ACE model allowed estimating the following values, resumed in table 1.

Table 1 – IPB's economic impact, according to the ACE model

Impact on Local business	
B-1: HEI-related local business volume	54,948,182 €
B-2: Value of local business property committed to HEI-related business	3,736,476 €
B-3: Expansion of the local banks' credit base resulting from HEI-related deposits	5,779,045 €
B-4: Local business volume unrealized because of the existence of HEI enterprises	0,0 €
Impact on local government	
G-1: HEI-related revenues received by local governments	241,390 €
G-2: Operating costs of government-provided municipal and public school services allocable to HEI-related influences	1,931,540 €
G-3: Value of local governments' properties allocable to HEI-related portion of services provided	Not available
G-4: Real-estate taxes foregone through the tax-exempt status of the HEI	29,340 €
G-5: Value of municipal-type services self-provided by the HEI	294,760 €
Impact on local individuals	
I-1: Number of local jobs attributable to the presence of the HEI	2,393
I-2: Personal income of local individuals from HEI-related jobs and business activities	30,636,970 €
I-3: Durable goods procured with income from HEI-related jobs and business activities	1,263,470 €

Source: Own elaboration.

Table 1 describes the IPB's economic impact according to the ACE model. IPB's impact over local business reached 54.9 million euros, over local business property was 3.7 million euros, and the expansion of local bank's credit base was 5.8 million euros.

The IPB's impact upon local government represented by the revenues the government received related to the IPB was 241 thousand euros. Local government also supported some costs due to the presence of this public HEI in the region: in operating costs was over 2.0 million euros and close to 30 thousand euros were not collected due to IPB's tax exemption. Model G-3 could not be estimated in the Portuguese context.

The impact of the IPB upon local individuals was estimated in almost 2,400 jobs created. The individuals earned 30.6 million euros due to activities related to the IPB and 1.3 million euros of durable goods were acquired with those incomes.

In total, the economic impact estimated on the demand-side approach according to the ACE model was approximately 62.0 million euros. This amount corresponded to an increase of 9.8% of the regional GDP. The number of jobs created is 7.5% of the local active population.

4.2. The supply-side analysis

The supply-side analysis begins by determining the earning differential between HE and SE graduates and the different taxes paid during their working life in present value terms. The value-base considered was the average wages in Bragança, for the year 2007, obtained in the National Institute of Statistic (table 2).

The return on investment of HE graduates was estimated by comparing the wage differential during 40 years of labour, assuming that this difference is only due to different educational levels, and the cost that HE graduates support during the four years degree, assuming that they will not fail any year. The cost a student will support for attending the IPB was obtained from a survey conducted in 2007 (Fernandes, Cunha & Oliveira, 2008). Table 2 describes the results, namely the income differential through the working life, the cost of attending HE degree and the earning differential for HE graduates, as well as the ROI.

Table 2 – Present value of lifelong net income of both educational levels

	Monthly wage[a]	Lifelong income (in present value)	Degree cost (in present value)	Net earning	ROI
HE graduate	1,214.79 €	468,010 €	53,288 €	100,100 €	10.3%
SE graduate	816.61 €	314,607 €	0 €		--

(a) Available at INE (2008).
Source: Own elaboration.

Table 2 demonstrates that an IPB graduate will earn more 153,400 euros during his/herworking life than a SE graduate. The amount an IPB graduate spends to study was determine considering: (a) the opportunity cost of attending the HE degree that corresponds to the loss of a SE wage every month; (b) the monthly

expenses directly related with the attendance of the degree, such as tuitions and books; and (c) the deduction of fiscal benefits that HE graduates benefit. The net differential between HE and SE graduates reaches 100,100 euros in 40 years of work, corresponding to an internal rate of return of 10,3%.

The return on investment for the government was determined by comparing the amount the government spent during the four years degree and the taxes it will receive during the graduates' 40 years of working life. Table 3 summarizes the analysis.

Table 3 – Earnings and tax paid during 40 years of working life

	Lifelong income	Tax paid	Tax differential	Cost per student	Government's return (2-3)	ROI
HE graduate	468,010 €	86,516 €	36,050€	13,600 €	22,450 €	9.4%
SE graduate	314,607 €	50,466 €				

Source: Own elaboration.

Table 3 presents the lifelong income of HE and SE graduates and also the taxes both will pay. HE graduates will pay 86,516 euros during their working lives while SE graduates will pay 50,466 euros, i.e., SE graduates will pay 36,050 euros less. The analysis of the government's investment relates only to the tax differential. Since HE students will cost the government 13,600 euros, the government will have a net revenue of 22,450 euros. This corresponds to an internal rate of return of 9.4%.

In total, on the students' perspective, the 2007 graduates from the IPB that will remain in the region have a direct impact of 30.5 million euros (considering the 462 graduates of the year 2007 that will remain in Bragança according to Fernandes, Cunha & Oliveira, 2008). According to the Portuguese Central Bank, 50% of the national GDP is based on salaries and compensations and assuming that proportion for the municipalities, the GDP generated by the existence of the IPB reaches 61.0 million euros. This amount represents 9.7% of regional GDP. On the government's perspective, during 40 years of labour those graduates will pay in the form of taxes, the Bragança region benefits to the tune of., 10.4 million euros.

5. Conclusion

Currently it is recognized that public HEIs are not only learning, research and innovation centres but also important development and economic growth mechanisms, being critical for the regions' future success (Charney & Pavlakovich-Kochi, 2003; Lantz et al., 2002).

These institutions generate important economic benefits for the economy were they are located and for the governments that support them (Lantz et al., 2002). The investment in higher education allows a great return to local community,

through income and jobs created; to the individuals, through higher lifelong incomes and other benefits; and to the government, with higher tax revenues (Baum & Payea, 2005; Clinch &Gerlowski, 2002).

To determine the IPB's economic impact on the surrounding region, two separate approaches were followed: on the demand-side, based only on the spending of the institution and the individuals directly related to it; and on the supply-side, based on the long term incomes of the graduates.

From the analysis conducted it is possible to sustain that the IPB has a major impact on the region of Bragança. The demand-side approach was followed according to the ACE model (Caffrey & Isaacs, 1971) and a total economic impact of 62.0 million euros was obtained, which lead to the creation of 2,400 jobs. This approach also estimated the cost the region has with the presence of the IPB, reaching 2 million euros. However, even though the region has a cost with the IPB, in the overall perspective, the economic activity generated by the IPB is 9.8% of the Bragança regional GDP.

Furthermore, according to the supply-side approach, based on Bluestone's model, the individuals that remain in the region will generate 61.0 million euros of economic activity that correspond to 9.7% of regional GDP and will pay back to the government 10.4 million euros, in the form of taxes.

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The education premium of the Portuguese higher education graduate

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Abstract

The study of Higher Education Institutions (HEI) impacts, until 1990s, only focused on the short term impacts, i.e. the economic approach. In recent years, there has been a more significant advance about the long term impacts of higher education, especially concerning the human capital. The human capital analysis, developed by Schultz (1961) and Becker (1993), estimates the increase in productivity and incomes for the individuals due to the acquired knowledge and skills for attending an HEI. Following these authors, Bluestone (1993) suggested that the creation of human capital for higher education graduates can be estimated assuming that the wage is correlated only with the number of official school years. In this paper, the human capital of the Portuguese higher education graduate is determined, considering that the education premium (the increased wage when compared with secondary education graduates) is due only to the number of years in higher education.

Keywords: Human capital – Education premium – Economic impact – Higher Education Institution

1. Introduction

The study of the impacts of Higher Education Institutions (HEI), until 1990s, only focused on the short term impacts, i.e. the economic approach. In recent years, there has been a more serious advance about the long term impacts of Higher Education (HE), especially on the determination of human capital creation.

Although several authors (e.g. Blackwell et al., 2002, Carr and Roessner, 2002) have recognized the existence and creation of human capital on those individuals that invest in a higher education, they also recognize that this impact is very difficult to quantify. Usually, when the long term impacts are taken into account, only the identification of those impacts was made and no quantification was attempted.

Following the econometric approach developed by Mincer (1958), that establishes a relationship between wage differential and various factors, such as the number of years of official school, the family background and personal skills, other authors (e.g. Becker, 1993) have presented ways to determine this impact. Bluestone (1993) presented a more straightforward method, suggesting that one

can establish the value of human capital for the HE graduates assuming that the increase in the wages is correlated only with the number of official school years. This is a simplified way to determine the human capital, through its more visible form called education premium.

In this paper the formation of human capital for individuals that graduate from a Portuguese HEI was determined, considering that the education premium (the increased wage when compared with the graduates of secondary education) is due only to the number of years they attended the institution. With this assumption, and following Bluestone's model, it was possible to determine the education premium of the students that decide to obtain a higher education degree and remain in a certain region.

The remainder of the paper is organised as follows. In section 2 a brief review about human capital literature is presented. In section 3 the Bluestone's model is revisited. In section 4 an application of this model is described for the case of a Portuguese higher education institution. Section 5 draws the main conclusions of the paper and presents the perspectives of future work.

2. Human Capital

The human capital theory is a concept that appeared in the XVIII century. Its basic premise is that people that constitute the society are a form of capital in which the society can invest in the same way as they invest in physical capital (Williams and Swail, 2005). This theory was greatly developed in the 1960s by Schultz (1961) and Becker (1993, 1st edition 1964).

The human capital analysis attempts to determine the increase in productivity and incomes for the individuals due to the acquired competencies and knowledge and skills for attending an HEI. Therefore, is a supply side approach and is concerned with the education effects on the overall economy, and, in particular, on the individual's earnings.

Becker (1993) defined human capital as the economic effects on jobs and income due to the investment in education and training.

The main assumption is that education increases efficiency and, as such, the lifelong incomes (Nakabashi & Figueiredo, 2008). This theory sustains that there is a correlation between human capital and economic growth, i.e. higher levels of education can bring higher earnings (Altinok, 2007; Becker, 1983; Desjardins, 2003, Monks, 2000; Perna, 2003; Sudmant, 2002; Rosan, 2002). Becker (1993: 12) reinforces that "probably the most impressive piece of evidence is that more highly educated and skilled persons almost always tend to earn more than others".

In practical terms, through the use of income functions (following Mincer's (1958) approach) there has been an attempt to determine the relationship between education and earnings, and the educations' return rate (Becker, 1993). These earnings are a measurement of the increase in efficiency for the individual

and, as such, of its contribution for the economic development (Williams and Swail, 2005; Strayhorn, 2005).

In terms of measurement, the average school years of the labour force has been used as a good proxy for human capital. Formal education is, from all education forms, the one that has the strongest relative influence in the economic results, according to the seminal work of Becker (1993).

Education as an investment is analysed through the relation between the benefits and the costs, being this relation the concept of return on investment – ROI (Clarck et al., 1998). Even though the cost of studying in a higher education institution is high, the benefits from that investment are expected to be high enough to compensate that cost (Bryant, 2001). However, the time period for those benefits to outweigh the costs can take several years after graduation. That time period is often difficult to determine and the majority of the studies (e.g. Bluestone, 1993; Portugal, 2004) assume that the students find a job soon after graduation.

Beside the above mentioned benefits, individuals with higher educational levels enjoy other advantages: obtaining jobs faster; more and better job experiences; higher job stability; more capabilities and knowledge to apply in a labor environment; and more productive and higher wages (Bryant, 2001; Clarck et al., 1998; Thomas & Zhang, 2004).

One shortcoming of this approach, pointed out by Blackwell et al. (2002), is related to the data used in the calculations. When trying to estimate human capital, according to higher lifelong returns, the innate differences of capabilities or skills of the individuals are not included. It is likely that not all the earnings associated to a higher education degree are due to the education itself, but also to the innate capabilities of the students (Becker, 1993; ~~Lindahl & Regnér, 2002~~). However, there are still no developments in this area, and, as long as there are no evidences about which acquired skills or competences make the difference, the number of school years is still a good proxy. Therefore, a way to determine the human capital value in the market is correlating the individual's incomes with their level of knowledge and school years. Moreover, the assumption that education has a similar effect on all individuals is not granted.

Although the existence of benefits from investing in human capital has been largely recognized, it is still very difficult to accurately determine the return coming from that investment. One way to gain some insight of the magnitude of that impact is by estimating the increase in the regional earnings as a result of the higher education (Sudmant, 2002; Williams & Swail, 2005).

Theoretically, the earnings are determined by the individual's productivity and it is expected that the differences in productivity are due to personal differences in educational investments. As such, it is expected that additional school years increase labour productivity (Jefferson College, 2003; Perna, 2003).

3. The Bluestone model

Bluestone (1993) is referred to as the pioneer on the studies about HEI's long term impacts, or supply-side impacts in a region in which the human capital has a great importance. The Bluestone model was first developed and applied in the Boston region, estimating the impact of the Massachusetts University. The objective here is to show how the model was first implemented by Bluestone in the Boston region.

This study analysed the institution's impact according to three economic contribution for the region where it is located: "(1) the additional income that UMass/Boston students generate within the state as a result of their university education (2) the added state income and sales taxes revenue generated for the state government as a result of the additional income earned by these students, and (3) the "export base" income and tax revenue generated from non-resident tuition, fees, and living expenses; gifts and unrestricted funds from non-Massachusetts sources; student federal grants-in-aid; non-Massachusetts sponsored grants and contracts; and federal endowment income (Bluestone, 1993: 3)."

Bluestone estimated future potential earnings of the higher education graduates that remain working in the region as a measurement of the long term economic impact of higher education.

It should be noted the following critics to Bluestone's model: it does not control the innate capability of the workers (in other words, it is not capable to determine if a worker earns more because of certain education or simply because of being a better worker); it does not guarantee that the graduates remain in the region. However, none of the posterior studies following Bluestone´s approach (e.g. Blackwell et al., 2002) was able to respond to these criticisms.

The main advance in this approach was the attempt to estimate not just the total value of the institution but the regional economic activity enhancement as a result of the activities of the institution. Bluestone was able to estimate the human capital creation using the wage differential as a proxy (Blackweel et al., 2002). It also determines the impact on government revenues by comparing the amount spent by the government in financing the institutions and the amount received in the form of taxes paid due to the additional income of the graduates of that HEI (Bluestone, 1993).In short, if the graduates will earn more they will also spend more and, as such, the regions will benefit of a higher business activity. Moroever, , the government will also see its tax collecting increased (on income or sales). Bluestone (1993) assessed if the government's investment in higher education has a satisfactory rate of return, by analysing the government spending and the government revenues in the form of taxes over income and sales.

In order to facilitate the presentation of Bluestone´s model, two subsections will be considered: the first concerns the ROI of the students and the second the ROI of the government.

3.1. Return on Investment (ROI) from the graduate's perspective

In pure economical terms, the rational individual evaluates the future earnings of their educational investment and chooses the educational program that will maximize the return of the investment (Becker, 1993). However, it should be noted the look for university qualifications is not solely determined by maximization of future earnings. Many are the reasons to seek for university qualifications such as self discovery or to make a contribution to society.

This perspective, followed by other authors (e.g. Perna, 2003; Ruby, 1995; Strayhorn, 2005; Thomas & Zhang, 2004) estimates the difference, in present value terms, of the lifelong earnings between a higher education graduate and individuals with different educational levels. Usually the comparison is made between higher education and secondary education graduates. To accurately estimate the value, several costs must be considered: the cost that a graduate must incur during a degree program, such as tuitions, books, and others and, moreover, the absence of income for not working over the period of study.

3.2. Return on Investment (ROI) from the government's perspective

Bluestone's model estimates the education premium for the graduates as well as estimates the return on investment for the government, since it considers that an increase in the educational level will also have an impact on tax revenues, considering just the graduates that stay in the region[25].

This last part is obtained by estimating the present value of the differential in taxes received over income and sales during the labor life of the graduate of higher education (HE) when compared with an individual with only secondary education (SE). This result is then compared with the investment the government made in the higher education student throughout the degree, usually of four years, which is often determined by dividing the HEI annual budget by the number of students. From this comparison the internal return rate is obtained (Guichard & Larre, 2006; Rubi, 1995).

In the estimation of the return from the taxes over income, it was assumed that if all the other conditions remain the same, those that earn more will pay more taxes (Arizona State Board of Directors for Community Colleges, 1995). In the same line of thought, those that earn more will have more expenses and spend more.

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[25] Taxes over business are not considered, since the analysis is based on the individual. It is however something to be considered in the future. However, it might be difficult to associate an enterprise to the human capital formed by an HEI. The profits might be difficult to input to a particular associate of an enterprise.

4. The case of a Portuguese higher education institution

According to Bluestone's model, in order to estimate the human capital impact of an HEI in a specific region it is necessary first to establish the earning differential between HE graduates and SE graduates and then the present value of the taxes differential paid during their working life.

In order to describe the application of this method, a region and an HEI from the northeast of Portugal were selected. The region was Bragança and the HEI was the Polytechnic Institute of Bragança (IPB).

The value-base considered was the average wages in Bragança, for the year 2007, obtained in the National Institute of Statistics, as presented in table 1.

Table 1 – Average monthly wages per educational degree, in 2007

	SE degree	HE degree
Bragança	816.61 €	1,214.79 €

Source: National Institute of Statistics (INE, 2008).

4.1. Return on Investment (ROI) from the graduate's perspective

To determine the return on investment of the HE graduate it was necessary first to estimate the earning premium. This can be done by estimating the wage differential considering, in general, a working life during 40 years (which is likely to be an over estimation), assuming that this differential is only due to the different educational levels[26]. Other assumptions were made in order to allow future comparisons with other studies: in both cases an equal 40 year labour period and also that a job will be find out as soon as they graduate. It should be noted that usually there is a search period for the first job of 8 to 15 months in Portugal.

Table 2 – Present value of lifelong net income of both educational levels

	(1) Monthly wage	(2) Average monthly wage (14 months[a])	(3) Real discount rate[b] (i)	(4) Discount factor $\left[\dfrac{1-(1+i/12)^{-40years\times12}}{i/12} \right]$	(5) Present value (2x4)
HE graduate	1,214.79 €	1,417.26 €	2.0%	330	468,010 €
SE graduate	816.61 €	952.71 €	2.0%	330	314,607 €

(a) The monthly wage was adjusted for the Portuguese reality of 14 months of payment.
(b) Average inflation rate of 3.0% and a nominal interest rate of 5.0% (Data available in the Portuguese Central Bank).
Source: Own elaboration.

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[26] The study does not differentiate between males and females. We are not able to find which proportion of men and women may leave the work force.

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Table 2 details the lifelong earnings of both educational graduates. A HE graduate will receive, during their working life, in present value terms, 468,000 euros, while a SE graduate will earn, on the same time period, 314,600 euros.

To obtain the education premium it is necessary to estimate the cost that a HE graduate will support during the four years of degree, assuming that he will not fail any year (table 3). All the values were based on a student attending an HEI in the north of Portugal, specifically an IPB student, according to an extended survey obtained in 2007 (Fernandes, Cunha and Oliveira, 2008).

Table 3 – Cost of a higher education degree

	(1) Monthly opportunity cost	(2) Monthly expenses (except room and board)	(3) Monthly fiscal benefit	(4) Monthly cost (1+2-3)	(5) Factor de actualização $\left[\dfrac{1-(1+i/12)^{-4\,years\times12}}{i/12}\right]$	(6) Total cost in present value (4x5)
HE graduate	952.71 €	257 €	54 €	1.156 €	46	53,288 €

Source: Own elaboration.

In table 3 it can be observed that an individual that studies in an HEI for four years will spend, in present value, 53,288 euros. In this calculation the following is included: (a) the opportunity cost of attending a HE degree that corresponds to a secondary education wage that is lost every month; and (b) the monthly expenses directly related with the attendance of the HE degree, such as tuitions and books. The expenses with room and board were excluded since a secondary education graduate will also have this expenses; (c) the fiscal benefit was deducted, since Portugal has an annual tax reimburse policy of 645 euros per student.

The education premium, or the earning differential between a HE graduate and a SE graduate, is presented in table 4.

Table 4 – Education premium of a HE graduate

	(1) Lifelong income differential (40 years)	(2) HE cost (four years)	(3) Education Premium (1-2)
HE graduate	153,400 €	53.288 €	100,100 €

Source: Own elaboration.

Table 4 shows that the net income differential in 40 years of working life, between a HE graduate and a SE graduate, reaches 100,100 euros, when both live in Bragança. The internal rate of return for a higher education graduate that will remain in Bragança after graduation, without considering increasing differential incomes over the years, is, therefore, 10.3%.

4.2. Return on Investment from the government's perspective

Previously the educational premium for the HE graduates was determined. It is then necessary to determine the taxes over the additional income in order to

estimate the return on investment on the government perspective. This can be done by comparing the amount that the government spent with each student's graduation and the taxes it will receive during the graduate's working life. The application of Bluestone's approach implies that a student will take four years to graduate and will not fail any year, and, as such, the government will support only four years of higher education.

The income taxes paid by a HE graduate and by a secondary education graduate is presented on table 5.

Table 5 – taxes paid by the higher education and secondary education graduates

	(1) Average monthly Income (14 month)	(2) Tax rate (c)	(3) Monthly tax (1x2)	(4) Discount factor $\left[\dfrac{1-(1+\frac{i}{12})^{-40\text{years}\times12}}{\frac{i}{12}}\right]$	(5) Taxes paid (3x4)
HE graduate	1.417,26 €	18.49%	262 €	330	86,516 €
SE graduate	952,71 €	16.04%	153 €	330	50,466 €

(c) The tax rate was adjusted to the annual average income, according to article 68º of the Portuguese Tax Code.
Source: Own elaboration.

As can be observed in table 5, for 40 years of labor, a HE graduate will pay in income taxes a present value of 86,500 euros (at a tax rate of 18.48%) while a SE graduate will pay almost 50,500 euros (at a tax rate of 16.04%). The differential tax paid is, in present value, 36,050 euros.

Table 6 presents a summary about the earnings, tax paid and net income of a HE graduate and a SE graduate.

Table 6 – Earnings and tax paid during 40 years of working life

	Lifelong income	Tax paid	Net income
HE graduate	468,010 €	86,516 €	381,500 €
SE graduate	314,607 €	50,466 €	264,140 €

Source: Own elaboration.

On table 6 the values show that a HE graduate will receive during their working life 468,000 euros that totaling more 153,000 euros than a SE graduate. However, after taxes, the income net value is 117,350 euros.

Since the government spends, during the four years of graduation 13,600 euros per student (Fernandes, Cunha and Oliveira, 2008), this means that the government has a return on its investment of 21,000 euros (table 7).

Table 7 – Return on investment

	(1) Tax paid	(2) Tax differential	(3) Cost per student	(4) Government's return (2-3)
HE graduate	86,516 €	36,050€	13.600 €	22,450 €

Source: Own elaboration.

Table 7 illustrates that the government has a return for its investment in the students HE degree, in the form of returns on income taxes. In fact, the government's return rate reaches 9.4%, which is considerably high for a public investment.

5. Conclusion

In this paper, the analysis of the human capital created due to the higher education obtained by the Portuguese students, was estimated.

Following Bluestone's model, it was possible to estimate that the government recovers its investment during the HE graduate's active working life. On the government side, it is projected an additional tax income of 36,000 euros per HE graduate and which will correspond to an internal return rate of 9.4% on the educational investment.

On the other hand, a HE graduate from the IPB can expect an education premium of 100,100 euros (64,000 euros after taxes) during their working life, when compared with a SE graduate. This education premium represents a 10.3% internal return rate on the students' investment.

It should be noted that the number of students that graduate from the IPB and remain in the region of Bragança every year reached 462 graduates in 2007 (Fernandes, Cunha & Oliveira, 2008). The total number of graduates will generate, in the form of taxes, 10.4 million euros, and will benefit from an education premium totaling 30 million euros during their active life. Thus, the economic impact on the region due to the presence of the Polytechnic Institute and on tax revenue is quite considerable, particularly for a developing region as Bragança.

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Teaching and Assessing Higher Order Thinking in Science and Social Studies: Teachers' Understandings

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Abstract

This paper presents a description and analysis of the aspects of thinking that teachers in grades 4-9 value, teach, and assess in their classrooms. Higher order thinking is considered essential to education, and many thinking frameworks have been developed since Bloom's 1956 taxonomy, but it is acknowledged that not all students are being taught to think critically. Twenty-one teachers from eight schools in Newfoundland and Labrador, Canada were interviewed twice to determine how they incorporate higher order thinking in teaching and assessing social studies and science. Teachers believed that higher level thinking was important for all students and attempted to teach thinking, but had different expectations for weaker students. They indicated uncertainty about what higher level thinking means and they were even less sure of how to assess thinking. The teachers believed that they were not well prepared to teach or assess thinking, particularly higher order thinking.

Keywords: teaching thinking—higher order thinking—higher level thinking—critical thinking—classroom assessment

1. Purpose

This paper presents a description and analysis of the aspects of thinking that teachers in grades 4-9 value and assess, and particularly how they incorporate higher order thinking in their teaching of social studies and science.

2. Theoretical Framework

Marzano (1998), based on his meta-analysis, emphasized teachers' understanding of the cognitive system for effective teaching. Explicit teaching of thinking is necessary and one cannot assume students will automatically become critical thinkers (Lipman, 2003; Paul, 1991). Students' thinking can be developed by direct instruction, and learning progress can be enhanced by teaching thinking (Moseley et al., 2004; Siegel, 1997).

Pithers and Soden (2000) concluded that not all teachers teach thinking and that "learning to think well needs to be acknowledged explicitly as an aim" of education (p. 246). Mayer (2002) maintains that for transfer, assessment tasks should require higher order thinking; however, assessment of higher order and

critical thinking appears to be more neglected than the teaching of good thinking (Ennis, 2003; Pithers & Soden, 2000). Resnick (2001) states that students who "have not been taught a demanding, challenging, thinking curriculum do poorly on tests of reasoning or problem solving, confirming many people's original suspicions that they lack the talent for high-level thinking" (p. 3); instead, they have not been taught higher order thinking.

The importance of higher order thinking is recognized in Canadian curriculum guides, although not as systematically and explicitly as we would like (FitzPatrick & Schulz, 2009). There are many thinking skills frameworks and development programs available (Moseley et al., 2004), but there is little evidence of explicit teaching and assessing of higher order thinking in our schools. This study determined teachers' beliefs and classroom practices regarding teaching and assessing thinking.

3. Method

Several schools in Newfoundland and Labrador were identified that represented students with a range of academic achievement and socio-economic backgrounds. Twenty-one teachers from grades 4-9 were selected using purposeful sampling (Cresswell, 2005). We conducted semi-structured interviews of approximately 30-45 minutes with individual teachers. Structured questions related to teacher perceptions of important thinking, how thinking was part of their instruction in social studies and science, and how thinking was assessed. Responsive interviewing was used to complement the structured questions, including ongoing analysis, modifying questions, and preparing follow up prompts throughout the interview (Rubin & Rubin, 2005). Several weeks later, focus groups were conducted with these teachers, to question teachers on concepts that emerged from the initial interviews and to modify or confirm our understandings (Barbour, 2007).

4. Data

All interviews and focus groups were audio-taped, listened to several times by both researchers and a research assistant, and transcribed (Rubin & Rubin, 2005; Kvale & Brinkman, 2009), and then coded according to procedures outlined by Saldana (2009). The coding was concept driven, using codes we developed from the literature, and data driven, using codes we developed from the interviews (Kvale & Brinkman, 2009). We also counted how many participants mentioned each concept, as one part of comparing themes across interviews and focus groups, and examined the variation and complexity of the data (Rubin & Rubin, 2005). Member checking (Saldana, 2009) was conducted by providing individual summaries, direct quotes, and common findings to the teachers for them to read, and amend and confirm.

5. Results

Concepts were identified and seven themes were developed to encompass them.

5.1. Teaching thinking is important

A. Within subject areas.
B. For problem solving in a global society.
C. Important to make a conscious effort to teach thinking.

All teachers agreed that in addition to teaching content, teaching thinking is important. One grade 4 teacher questioned: "the end of our school system, isn't it to come out with a thinking conscious global citizen?" A grades 7-9 social studies teacher added "when you get out in the real world you're going to be lost if you can't think for yourself".

Teachers acknowledged that a "conscious effort" must be made to teach thinking. All teachers thought that it was too easy to become caught up with the amount of subject content that students are supposed to master, and that teaching higher order thinking must be directly addressed within the content areas.

5.2. Thinking is complex

A. Thinking is associated with many concepts.
B. Subject content and background knowledge are necessary for thinking.
C. There is ambiguity about critical thinking, critical literacy, and scientific literacy.
D. Bloom's taxonomy was familiar to most of these teachers.

The teachers used various descriptions of thinking, including reasoning, problem solving, predicting, comprehending, creating, reflecting, drawing conclusions, making sense, risk-taking, and making judgements. Literal thinking, in-depth thinking, empathy, meta-cognition, and literacy were included by some teachers. One common concept was making connections: students should be able to apply what they are taught to both school and real life situations, and to use real life experiences to help them remember facts and understand concepts.

Questioning was mentioned frequently. Questions at the inferential, application, and analysis levels were cited as higher order thinking. A grade 4 teacher stated: "When a child can ask the question back to you, there's thinking."

Most teachers mentioned content and background knowledge being important for thinking. One grade 4 teacher said, "you can't get to higher order thinking without knowledge to start off". A grades 7-9 social studies teacher discussed students "activating prior knowledge so they can make connections that are a little more relevant to them and then applying it to other situations outside of what we may be talking about at the moment". Teachers also discussed

struggling students who have "major skill gaps" (grades 7-9 science teacher), which impede their ability to engage in higher level thinking in content areas.

Several grades 4-6 teachers used the term critical thinking interchangeably with critical literacy, and discussed the uncertainty of what critical thinking means and how to teach and assess it. A grade 5 teacher bemoaned:

"People don't have a defined idea as to what it means and that's why I think there's critical literacy, critical thinking, critical analysis, critical everything and it all gets meshed into one big lump sum of critical, I don't think it's been clearly defined so people really and truly understand. "

At the grades 7-9 level, science teachers referred to scientific literacy when talking about critical thinking. They were unsure of what scientific literacy means and felt they were getting conflicting views from the school district, curriculum guide, and other sources. Scientific literacy seemed to encompass skills from basic reading comprehension of an article with scientific content to more critical issues of validity of scientific conclusions, bias, and scientific habits of mind. Their students were required to complete a district assessment in scientific literacy, but as one teacher described the assessment, it was "just reading comprehension, on something that just happened to have a scientific theme to it. But it wasn't scientific thinking in my mind."

All teachers were familiar with Bloom's taxonomy and approximately two-thirds of them used it directly or indirectly. They referred to it in conjunction with questioning, and mentioned analysis, synthesis, and evaluation. Familiarity with other taxonomies was not common.

5.3. Students should be taught higher order thinking

A. All students should be exposed to higher order thinking, but not all students
        will, nor be expected to, achieve success.
B. There are doubts about thinking abilities of students with:
a. low academic abilities.
b. low socio-economic backgrounds
c. language and reading difficulties

Teachers agreed that all students should be taught thinking, but with caveats. One grade 4 teacher said, "I think, actually for the weaker child it's imperative that we try and teach them some critical thinking skills, I think they're so very vulnerable." Another insisted:

"I think for some, where learning is a challenge, that we put a demand on them that may be too great, I'm not saying that they can't be challenged but they need to be challenged where they're to."

Some teachers thought that all children should be exposed to higher order thinking, but they believe that not all children will be successful at this level of thinking: a grade 5 teacher said, "When I think of the higher level thinking skills

I don't really think I'm going to get all my students there. Some of your lower end students, their answers are still going to be just literal, whatever is there." This belief was reiterated by a grades 7-9 social studies teacher:

"You're always going to have students in that room, particularly your modified students who may never get to higher level thinking, but that doesn't mean that they can't benefit from hearing it, discussion, and so on, they may never be able to come up with something that's higher order thinking on their own."

Teachers in schools with high numbers of students from low socio-economic backgrounds had further concerns about higher order thinking, such as lack of background knowledge, and weak language and cognitive abilities. This comment from a grade 5 teacher:

"With our kids, a lot of our parents are not educated, there's not a lot of talking going on, not a lot of stimulation and discovering things and expose them to a lot of different things in the world and …, they don't interact with their kids enough."

One grade 4 teacher stated:

"we as a staff are challenged with, how much can we expect from our children in that way? Can they really do it cognitively? They're not able to go there. Maybe we're asking them to do too much, for example, inferencing, you know it's a big thing, thinking at a higher level, …. You know, you work with children that are reading significantly below reading level, are functioning below grade level, are challenged with all areas of the curriculum."

5.4. Paper and pencil tests form a minor part of classroom assessment in social studies and science in grades 4-6, but take on a larger role in grades 7-9

A. Teachers use various assessment activities.
B. Teachers use various assessment "checks".

Teachers in grades 4-6 emphasized that instruction and assessment are often seamless: one teacher remarked, "I find assessment, you're doing it every day. You're observing them, you're putting them into groups". Many classroom activities such as experiments, labs, journals, class projects, class discussions, and group activities are used both as instruction and assessment. All grades 4-6 teachers used observation on a regular basis for assessment. Some teachers used checklists and anecdotal comments to record observations. Not all teachers, however, were systematic in what they were looking for or what they recorded. For example, a grade 5 teacher stated that "anybody that makes comments in social studies and does something really good I usually try to make anecdotal comments".

In grades 7-9, testing is the dominant form of assessment in science and social studies. Projects, assignments, labs, and group activities make up the rest of the

assessments, with students often having choice as to how they present information. Portfolios and performance assessments were also mentioned.

5.5. Teachers adjust their assessments based on their knowledge of student performance during instructional activities

A. Some students can write answers to higher order prompts.
B. Some students can respond orally to higher order prompts.
C. Some students are not comfortable making mistakes.
D. Some students do not persevere with problem solving.
E. Higher order questions are usually at the end of the assessment.
F. Not all students are expected to show the same level of thinking for higher order questions.
G. Teachers may give a higher order bonus question at the end of the assessment to challenge some students.

Teachers sometimes base their paper and pencil assessments on what they think their students can do. A grade 5 teacher noted, "it will work with some and it won't work with others, so sometimes we revamp, we got to look at the test each year and look at our group and see, well is this good for this group…."

Teachers generally thought that some students are not able to answer higher level questions so they give more lower level questions in paper and pencil assessments. A grades 7-9 social studies teacher noted, "Oftentimes I throw in at the end, a case study, or sometimes it's a bonus, and that's where your higher end comes in lots of times, so the weaker kids don't necessarily get it."

Teachers also agreed that language can cause difficulties with students explaining their reasoning in writing. One grade 5 teacher stated: "orally they're a lot better with it, that's what I find. A lot of them have writing trouble so what I like to do is have class discussion."

However, many teachers said that some of their students have difficulty answering higher level questions orally as well: "they can express at their own level, but sometimes they can't, it's still a minimal, sometimes they don't have the language to describe it" (grade 4 teacher).

Teachers indicated that many students want to know the right answer, and are not willing to risk take. A grade 4 teacher stated "they don't like being wrong, they don't like anything wrong on that page". And a grades 7-9 social studies teacher said that when students are given application questions, she often hears: "but I can't find it; it's not in the book; it's not there; there's no sentence that says...."

Some teachers discussed the lack of perseverance for problem solving: a grade 5 teacher lamented that "hard is a reason to stop and as soon as I get on that I stop, but I don't want to go anymore, you don't back off to think, you just back off and stop doing it". And a grades 7-9 science teacher was concerned that "the kids don't give themselves a chance to understand, if you're talking about

something and they don't grasp it right away, I don't know this, I'm not doing this, I can't understand this".

5.6. Assessment, particularly paper and pencil, is not always aligned with instructional activities for higher order thinking

A. Cooperation and interaction are assessed in group work.
B. Paper and pencil "tests" include predominantly lower order thinking questions.
C. Students find application questions difficult.
D. Some students are given less complex assessment prompts.
E. Teachers include some of the highest levels of thinking in instruction, but they may not include these levels in assessment.
F. Sometimes, high achieving students are not comfortable with questions that do not have a right or wrong answer.

These teachers often use heterogeneous groups in their classrooms. Stronger academic students usually lead the weaker students, thus all students are exposed to higher order thinking, and all are expected to contribute. A grade 5 teacher stated, "I just won't let one person answer, I'll try to draw out something from everybody". Some teachers, when assessing students in group situations, look for interaction and cooperation among students: a grade 4 teacher stated "I would evaluate, you know, as to whether they were participating, did they join in where they could have joined in".

Typically, the teachers' paper and pencil assessments include recall, literal comprehension, multiple-choice, and selected response questions. A grade 5 teacher stated that those who "can only do the rote are able to pass and do well and feel good about themselves". Teachers usually include an application question for higher achieving students, but teachers in grades 7-9 said many students, even high achievers, find these questions hard. One grade 5 teacher said, "some students do fairly well, and others just lose it because they can't apply, they can't bring that information that they learned to a higher level or can't generalize it to another situation or to their daily living."

Teachers acknowledged that some students are given less complex questions than others, but may be given the opportunity to respond orally, use jot notes, draw diagrams, or represent in other ways. A grade 5 teacher explained: "yes, their thinking is there, if they could read something and understand it, comprehend it at their reading level, they could take it from there, critically, reasoning, or whatever, now that mightn't be at a real high level either."

Higher taxonomic levels, such as Anderson and Krathwohl's (2001) analyze, evaluate, and create, may be part of instructional activities, but are not usually part of paper and pencil assessments. In grades 7-9, an example is: students would analyze the advantages and disadvantages of Confederation in a class discussion, but this would not be assessed.

Teachers at grades 7-9 mentioned that some of their high achieving students are not risk takers, and are not comfortable "thinking outside the box". They usually

want to "get it right" and want the teachers to specify exactly what they should learn. If teachers put higher order questions on paper and pencil tests, some fear that students may not be able to answer them. Teachers indicated that if higher order questions are put on assessments and students cannot answer them, then the teacher needs to re-teach and there is no time for this. Consequently, lower order questions tend to dominate paper and pencil assessments.

5.7. Teachers are uncertain about what higher-order thinking means, how to teach and assess it, and how to include it along with the content demands

A. Teachers have doubts about how to teach and assess thinking.
B. Assessment of thinking is not always systematic.
C. Teaching and assessing thinking is linked to report card expectations.
D. Not all teachers include thinking with grading in social studies and science.
E. Learning outcomes and subject content dominate teaching.

The teachers said they had recollections of Bloom's taxonomy from undergraduate work, but had not been taught how to teach thinking. Even though all of these teachers attempted to teach and assess thinking, most did not appear to use a systematic approach. They were unsure of the meaning of terms such as apply, analyze, evaluate, and create, and often equated representation with higher order thinking. They might have students represent their explanations in different formats, (e.g., graphic), and think of that as higher order thinking.

While observation was used by all teachers, and checklists and anecdotal comments by some, only a few teachers at grades 4-6, and none at grades 7-9, explained how they observed and recorded evidence of thinking. Some teachers believed that if thinking is not explicitly indicated in report cards, then not all teachers will teach or assess higher order thinking. They had mixed opinions about whether their report card indicators included thinking as part of social studies and science.

Grading reflected student thinking for some of the teachers, but not all. A grade 5 teacher expressed this about the report card:

Language arts would be different because teachers would be "expecting thinking to be there because it says personal and it's written in language in the 11 learning outcomes. It's written on the report card as a descriptor - "ability to personally and critically connect". Because there's an exact descriptor and it's written there it's expected, but it's not expected in science or socials or history or wherever else it is that we teach, it's just not there."

Teachers had differing opinions about whether a student's ability to show reasoning in writing should be reflected in social studies and science marks. Some teachers thought it should and others thought that students could show reasoning through oral communication and other forms of representation.

Teachers in all grades talked at length about having to follow learning outcomes: they have too much content to cover and they are sometimes overwhelmed by the everyday demands of teaching. One grades 7-9 science teacher vented:

"...and then somehow having gotten the science across to them now we're supposed to be engaging them in critical, assessing the issues, recognizing different points of view, and recognizing, there just really a) isn't the time and b) as science teachers we're not very comfortable doing that, we haven't got the training for it."

6. Conclusion/Discussion

Teachers' beliefs and perspectives are important in determining how to effectively teach and assess thinking (Zohar, Degani, & Vaaknin, 2001). One of the major concerns of teachers is limited time to teach the curriculum. They need time to: a) teach the curriculum so students can understand the material; teachers feel pressured to move through the program even when many students do not grasp the concepts, b) allow students to understand the concepts before the teacher has to move on, c) allow students to reflect and reason, and d) think about what thinking means, reflect on its place in the curriculum, and think about how best to teach and assess thinking. This also impacts classroom assessment. Teachers need to use formative assessment information to modify instruction and involve students in their own learning, but these teachers do not feel they have the time. Summative assessment is affected because higher order questions are not prevalent. This concern with too much content and too little time is well identified in the literature (e.g., Marzano & Haystead, 2008).

The teachers agreed that in order for students to engage in higher order thinking students require subject matter knowledge. However, all of the teachers felt they had an overloaded curriculum, and that there should be a balance between the amount of knowledge and time to think. A grade 5 teacher asked, "Is there too much stuff to do critical thinking with?"

Teachers identified the necessity to know more about teaching and assessing higher order thinking. They need to learn about recent "thinking on thinking" and become comfortable with thinking frameworks, such as those recommended by Moseley et al. (2004), and to understand both general thinking skills and subject specific thinking skills. They would also benefit from instructional and assessment strategies for higher order thinking and how to meld these with subject matter content. To accompany this they need specific work in developing higher order questioning and criteria for assessing higher order thinking. These teachers believed that students need to become problem solvers and "conscious, thinking global citizens", but that teachers are not teaching or assessing as much higher order thinking as they think they should.

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What model underlies patterns and practices of parenting?

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Abstract

The study was an ethnographic research carried out in the *Aymara* community of Tupe, mountains near Lima, Peru. The search aimed to find what models underlie patterns and practices of parenting children from Tupe and what model underlies education. The question that served as starting point was: Is the model underlying patterns and practices of parenting and education model compatible? The research began from the importance of cultural compatibility, which suggests that if education is compatible with the upbringing patterns, you can expect improvements in learning. After the ethnographic study, models of upbringing and education were developed. It was found that both models had major differences and that in order to improve children's education, it was important to incorporate features from the model underlying patterns and practices of parenting.

Keywords: Patterns – practice - rearing - education - model.

1. Introduction

This study started from an interest in contributing to the understanding of the low performance of children in rural areas, based on a case study. The study was carried out in the Highlands of Lima, in Tupe, an Aymara community, 3,200 meters above sea level.

Academic performance studies conducted in rural areas by the Area of Quality Measurement of the Ministry of Education from 1986 until 2008 show that it is still very low. Quantitative studies were conducted to find factors related to the problem, and since the year 2005 the need for qualitative studies has arisen in order to understand this. So far, there are no solutions in this regard, but the need for studies on upbringing patterns has been confirmed. The study aimed to fill this gap in understanding the relationship between patterns and parenting practices and patterns and teaching practices. The main question was: Is the model underlying patterns and practices of parenting and education model compatible?

The starting point is the importance of cultural compatibility, which suggests that if education is compatible with parenting patterns you can expect similarities between the everyday practices that parents apply and those applied by the school teachers.

The cultural compatibility hypothesis was developed by Deyhle, 1987; Jordan, 1985; Tharp, 1989; Vogt, Jordan, & Tharp, 1987. Most of the evidence relating

to cultural issues in education comes from halls of Native Americans from the western part of the United States and Canada, Alaska and Hawaii. They are all ethnographic studies that are based on the relationship between education and culture.

2. Frame of reference

2.1. Patterns and practices of upbringing

It was not easy to develop the framework which was our reference in the process of research on patterns and rearing practices; we are based on studies[27] related to the processes of socialization and parenting. We have the contributions of Margaret Mead and Ruth Benedict. They believe that all subjects and stages involved in the process of socialization of the subjects of a group shape them into a way of being, a structure which can be his personality, thus relating culture and personality. This suggests the relative importance of the guidelines of a group, their regularities, i.e. their "patterns".

Search finally led us to the comparative study of six cultures by Whiting (1963) on patterns of parenting, "Six Cultures. Studies of Child Rearing" by three universities Cornell, Harvard and Yale. The selected places were: Nyansongo, a community in Gusii, Kenya: the Khalapur Rajputs in India; a villa in Okinawa; the Juxtlahuaca Mixtecans in Mexico; Iloco, a neighborhood in the Philippines; and the new English of the city of Orchard in the United States.

This study was a synthesis of anthropological and psychological constructs in an effort to clarify behavior patterns. And for us, it was the starting point for the development of our frame of reference.

The authors argue for observation and interpretation of children in their natural settings, where they carry out actions that are significant from the point of view of the actors. That is why they suggest the importance of linking "scenarios" (as they call it) where socialization takes place and "actors" that are present in it. They claim that what shows greater variations between culturally diverse societies are these combinations of scenarios and actors.

The "scenario" as they call it, would refer to ecology, economy, the social organization and politics of these various places. These scenarios would provide the background parameters for the behavior of the rearing agents; in other words, they influence the patterns and practices carried out by adults in the upbringing of children.

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[27] Referring to anthropological studies of Mead, Benedict, Deng, Erchak, Freed &Freed, Grindal, Honigmann &Honigmann, Howard, Jocano, Kawharu, Kaye, Landy, Leis, Peshkin, Read, Williams.

We were interested in the description of these scenarios, the issues considered in these descriptions of each context and the actors, especially children. With regard to descriptions of the context, this topic was dealt with in these studies concerning the development of the lifecycle, and the priority activities of each cultural group where the ethnographic research took place. Regarding guidelines and practices, the authors noted patterns (regularities) of behavior of children and adults in the activities, in ceremonial life rituals, in beliefs about the supernatural, the theories of disease, among others.

We could summarize that when we mention patterns and rearing practices we are referring to:

• Adult activity (especially women) on the child
• The cultural orientations of the group as regards training, care and development of children
• Description of the lifecycle, from pregnancy to puberty. An emphasis on the role of women.
• Customs being transmitted to new generations in the socialization process.
• Knowledge, behaviors and skills are expected to be acquired by the new generations.

Taking these basic aspects into account, it was very broad to work on these issues and we established categories that could serve as a reference for addressing them. And we obtained these base categories to review that which concerned education.

2.2. On patterns and practices of education

Another important issue considered was patterns and practices of education, where we found that there is a vast American literature on ethnographic analysis of education[28] and referrals to ethnographic books in classrooms[29]. In these studies topics are:

• Interactions
• The ritual followed in the classroom
• Teaching styles / learning styles

The question that helped us to focus on leading this part of the study was: Which elements are those taken into account by a teacher[30] in order to organize a class in the classroom with pre-school children and how teaching is understood by the Ministry of Education in Peru.

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[28] We have the studies of Gallimore, Boggs &Jordan, Wolcott.

[29] We have the studies of Cox, Shultz &Florio, Splinder.

[30] It led us to review what are considered by the teacher to plan and implement that organization in classroom. So we take as a reference guide of the Ministry of Education in 1998.

Teaching[31] is understood in the basic curricular structure of initial education (5 years) and primary education of minors[32] as "generator of an eminently interactive process, where children build their learning in an active relationship with their context, with their peers, their work materials and the teacher." There is always an intentional interaction created by the teacher in the educational process. Educational interaction will be effective to the extent that the teacher interventions are appropriate and responsive to the interests, needs and level of development of students. "In this context education can be conceived as a set of aids offered by the teacher to the children in the personal knowledge construction process" (1998: 19-20).

This notion of teaching is designed with these characteristics: focusing on the student and his personal process; interested in the type of interaction established by professor according to the interests of students; for that interaction to be timely, the professor intentionally supports through a set of aids that he or she organizes previously. And, in these ages (5 years) interaction and communication with the child is most relevant.

If we talk about patterns and practices of education, we are referring to regularities, orientations, actions expressed in the Guide of the Ministry which is followed by most of the teaching staff of the public sector. These elements and others that we incorporated after revising literature on education became categories from which we gathered information on patterns and practices of parenting.

These elements (categories) were:

a. The Organization, understood as the arrangement of time, space, the content, activities and resources offered by the teacher in the classroom (Uria, 1988; Meyer &Rowan, 1983 Hargreaves, 1992)

b. The contents to be provided or developed, which can be conceptual, procedural or attitudinal. (Uria, 1988; Rosales, 1988; Ciscar & Uria, 1993)

c. Interactions (roles) carried out between the teacher and the parents; between colleagues; with children. These roles depend on the characteristics assigned to children as well as adults. (Uria, 1988; Hargreaves, 1992; Medina, 1991)

d. Communication, content and the way of giving it to parents and children. (Uria, 1988; Medina, 1990)

e. Activities, which refer to programmed actions or not by the teacher to teach. (Uria, 1988; Medina, 1990)

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[31] This notion of teaching is also maintained in the curricular year 2000 proposal.

[32] The Structure Curricular Basic, is the Official document of the Ministry of Education and the governs all relating to the level which in this case is that of initial education and primary.

f. Regulations, such as rules established by teachers or in agreement with the children. (Gotzenz, 1997; Watkins & Wagner, 1991)

g. Values developed or promoted by the teacher in the classroom. (Nereci, 1973).

In short, we will use the following notions:
Rearing-teaching patterns: regularities in the education of boys and girls conceived by adults in a community or by the teachers.

Rearing-teaching practices: regularities in everyday practice applied by parents and teachers to educate boys and girls.

These regularities were observed in all the above respects (life cycle, customs, etc.) and from the above-mentioned categories.

Model: for us it will be an abstraction of what we found based on the seven categories mentioned above.

3. Methodology

We proceeded with a study at a descriptive level, an ethnographic study type, since the interest focused on identifying patterns and practices both in parenting and education, and from then on determine the similarities or differences.

Field work was conducted in five stages.The first stage consisted in getting to know the area, talking to the authorities there and finding lodging. During the second stage, a census of the area was carried out; the third was devoted solely to field work; the fourth consisted in contrasting the findings in the community of Tupe with those in schools and in the last stage, the underlying models were elaborated..

After fourteen months, the research came to an end.The last four months of this work were devoted to analyzing and elaborating the underlying models.

The only limitation was having to reduce our visits to certain times of the year because of other tasks that were pending.

Likewise, to save the time constraints and results we found, we decided to choose random couples who had several children or were couples who would potentially have them so as to observe this process of girls and boys. It was not difficult since it is normal for families to have at least four children.

3.1. Categories of analysis

We have taken into account those categories that are very important in relation to those considered in the teaching-learning sessions in the classroom such as:

a. The organization, understood as the available time, space, the content, activities and resources offered by the teacher in the classroom or by the adult in the community.

b. The contents to be provided or developed, which can be conceptual, procedural or attitudinal.

c. The interactions (roles) carried out between the teacher or parents; with the children. The roles will depend on the characteristics assigned to children and adults by the teacher or by the adult community.

d. Communication, content and how to offer it.

e. Activities, which refer to programmed actions or not by the teacher to carry out teaching, activities of the community of the children.

f. Regulations, as rules established by teachers or in agreement with the children. Or valued or rejected community rules
g. Values developed or promoted by the teacher in the classroom, or by adults in the community.

3.2. Population and sample

The population of the town of Tupe: 72 couples with young children from 0 to 6 years of age; 54 boys and 40 girls from 0 to 6 years of age and 6 teachers who work in Tupe. There is only one teacher responsible for infants from 0 to 6 years of age.

Deliberate sample

Ten couples:

According to age, place of origin and instruction: 2 young couples between 20 and 29 years of age (one couple from Tupe and one from another zone); 2 young couples between 30 and 39 years (one couple from Tupe and one from another zone); 2 couples between 20 and 37 (a couple from Tupe and one from another zone); 2 couples between 30 and 50 years (a couple from Tupe and one another zone); and 2 single mothers

There was only one teacher responsible for the kindergarten level (which in Peru is called "inicial")

3.3. Techniques employed

a. Census for the diagnosis.
b. Participant observation and interviewing children, parents and teacher.
c. Implementation of a checklist

Collecting information from the categories above entailed:

 Observation:

a. Activities carried out by the adult parents and teacher.
b. Activities carried out by children by indication of the adult or by their own initiative.
c. Distribution of time in adults, boys and girls.
d. Distribution of space in the house and in the classroom.
e. Games involving boys and girls.
f. Class sessions.

Interview

a. On the activities performed by adults, boys and girls.
b. Games in which they participated.
c. On the activities carried out by the teacher.
d. On the ways of controlling boys and girls.
e. On the distribution of time of adults, boys and girls.

Initial survey (District census)

On each family data
A checklist of skills applied to girls and boys.

4. Results

4.1. We highlight some of the results

We can say that there is no compatibility between patterns and parenting practices and patterns and practices of education. To be more specific:

•   There is no relationship between the content, activities and roles developed in the classroom and that acquired by the children on what they learned in the community. The contents dealing with activities in the area (classification of livestock, diseases, cure, preparation of cheese, marketing, etc.) are very specific to their context and incorporate a range of classifications hardly referred to in the activities carried out in the classroom or considered by the teacher. Roles are also differentiated between girls and boys.

•   Many of these contents are expressed through the daily games, games played alone or with peers, in different age groups. A large amount of information is obtained from observation and the interchange when boys and girls play.

•   The contents are product of the daily activity. Especially girls who assume obligations of taking care of the younger ones at home unlike boys who assume specific obligations from seven years of age.

• The description of the activities of livestock, trade and agriculture (in this order of hierarchy) allowed a delimitation of the cycle followed both by adults and by children of the community each month of the year. This cycle does not coincide with the school year, and that is why there is absence at certain times of the year when the girl is five years old and there are other younger family members.

• One of highly appreciated values among the Tupe community is the autonomy achieved by girls from the age of five. This autonomy is reinforced by other older girls. You could say that it is women who have leadership in this community. Besides, competitiveness among all children is encouraged. They are always competing and adults are always comparing.

• A highly valued attitude among the Tupe community is the resistance to physical pain. He who does not overcome a disease is openly questioned; he is considered useless.

• There are a number of skills achieved by children which are not profited in the classroom activities. Beginning with balance, motor skills, achieved through activities carried out according to roles assigned in the community.

• Adult relationship with children is direct during the first months, then the older sisters take care, and adults only guide when needed. Between the ages of 9 months to five years bonds with their older sisters are reinforced. The brotherhood relationship is very strong and the community reinforces this as a value.

• The adult only rewards and stimulates when something has been well done. One way to control children is through stories, especially those of missing people and those of souls in pain.

• Support among peers of the same sex is very strong and consolidated from age 5 in the girls. And boys from age 6.

• In the classroom, the teacher emphasizes obedience and questions the autonomy of the girl to decide; they are rewarded or stimulated only if they have been obedient (if they have been subject to his authority). Furthermore, the teacher encourages participation and leadership of the boy and not of the girls.

• Not all children and the community girls attend initial school. The average attendance rate is 20 children per classroom.

4.2. Conclusions

• All interaction in the classroom is the reproduction of the interaction learned by children and girls (pattern and practice). When they just start school, in the best of cases they will try to reproduce their patterns and practices and understand those of the teacher to be able to start a relationship.

- In most situations the teacher tries to adjust a certain psychological theory of how a boy or girl has to be in the classroom and does not ask himself why this child behaves this way or that way.

- The relationship patterns and practices of education versus patterns and practices of rearing really express a communicational relationship: knowledge, behaviors recognized in the social group which the children come from and the social group which the teacher comes from.

- To understand how this pattern and practice is would improve the relationship between both sides.

- It is those levels of coherence between the contents received at home and those learned elsewhere, which would improve learning. Contents that are expressed mostly through playing.

- Ethnographic studies in the classroom would allow a better understanding of the learning situations and finding critical points in the interaction and raising questions about the knowledge we have on boys and girls.

- Ethnography allows furthering the patterns and practices of various actors, that well used would allow improving the situation of the school.

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Développement de la littératie des idéologies linguistiques : intervention étatique et campagnes d'éducation

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Abstract

L'observation de la situation des langues régionales et minoritaires en France révèle que leur maintien ne peut être assuré que si les idéologies linguistiques ayant inspiré les politiques linguistiques de l'état français depuis la Révolution sont renversées. La nature de ces idéologies et leur portée sur les communautés linguistiques abandonnant leur langue en masse, analysées selon les paramètres proposés par Silverstein (1979) et Dorian (1994, 1998), permettra de démontrer que des modifications aux politiques linguistiques de la France sont nécessaires, mais insuffisantes pour assurer le maintien des langues régionales et minoritaires. La modification des politiques linguistiques françaises ne portera fruit que si elle est accompagnée de campagnes d'éducation publiques promouvant une compréhension en profondeur de la signification culturelle des langues et de l'influence de la culture linguistique sur le comportement des locuteurs.

Keywords: Langues régionales et minoritaires – idéologies linguistiques – politiques linguistiques – campagnes d'éducation – signification culturelle des langues

1. Introduction

Cet article s'inscrit dans le contexte de la construction européenne et de sa volonté affirmée de protéger la diversité linguistique de son territoire. Cet engagement de l'Europe à l'égard de ses langues régionales et minoritaires, bien que louable, ne peut se concrétiser que s'il est relayé par les états-membres. Or, l'analyse de la situation des langues régionales et minoritaires de France, telles que définies et décrites par Cerquiglini (2003), confirme leur déclin[33] et même leur disparition possible. La révision constitutionnelle de 2008[34], qui reconnaît enfin la contribution des langues de France au patrimoine du pays, témoigne de l'intérêt croissant de la France pour sa diversité linguistique, mais ne suffira pas à freiner le dépérissement de ses langues. Seule la transformation en profondeur des idéologies linguistiques dominant l'état français a quelque chance d'y arriver. En effet, selon Dorian (1998) et Fishman (1991), c'est en amont de la planification linguistique, dans la culture[35] et les attitudes linguistiques d'une communauté que se prépare l'abandon en masse des langues. La planification de

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[33] Voir également Salminen (1999).

[34] Les lois et les articles de la constitution française cités dans cet article peuvent être consultés sur le site *Légifrance- le service public de l'accès au droit*.

[35] Le terme *culture linguistique* est utilisé comme synonyme *d'idéologie linguistique* dans cet article.

politiques linguistiques favorables au maintien des langues régionales, tout en étant nécessaire pour affirmer la volonté de l'Etat, ne peut à elle seule assurer leur avenir. Elle doit être accompagnée de campagnes d'éducation visant le renversement du rapport entre les langues et la transformation des *a priori* linguistiques de la société.

2. L'Union européenne et les langues régionales et minoritaires

L'adoption récente de la déclaration universelle des droits linguistiques (1998)[36] s'inscrit dans la lignée de la Déclaration universelle des droits de l'homme, affirmant dans son article 2 que « chacun peut se prévaloir de tous les droits et de toutes les libertés » sans distinction « de race, de couleur, de sexe, **de langue**[37] […]» (1948) et suit l'adoption par l'UE de la Charte européenne sur les langues régionales ou minoritaires (1992), où une définition juridique de la notion de langue régionale[38] est enfin proposée.

Les différentes vagues de peuplement de la France, de même que la manière dont le territoire tel qu'on le connaît aujourd'hui s'est constitué, expliquent la traditionnelle diversité linguistique du pays, même si l'on semble aujourd'hui avoir oublié que les nombreuses langues régionales de France étaient, dans un passé plutôt récent, les langues de communication de la majorité de la population. L'histoire de la France est ainsi marquée par un multilinguisme dont le pays aurait toute raison de s'enorgueillir. En fait, bien après que le français y est devenu la langue officielle de l'administration (1539), la diversité linguistique s'y est maintenue encore longtemps, en raison de l'utilisation des langues dites vernaculaires dans les fonctions communicatives quotidiennes, tandis que les langues de prestige : latin, grec, hébreu et, à partir du 16e siècle, le français, se limitaient à certaines fonctions, notamment dans le domaine du savoir ou de la religion.

L'unification linguistique de la France suit de près l'histoire républicaine, quoiqu'il ait fallu presque deux cents ans pour arriver à combler les vœux exprimés dans le rapport Barère (1794)[39]. En 1997, cependant, lorsqu'il fut établi que moins de 20% de la population bretonne pouvait encore parler le breton, et que parmi ceux qui le pouvaient encore, une grande majorité avait plus de soixante ans (Broudic 1999 : p. 26), la victoire presque sans appel de l'unilinguisme français pouvait être célébrée. Le breton, ainsi qu'un bon nombre d'autres langues régionales de France, sont maintenant considérés comme en (sérieux) danger d'extinction par l'UNESCO.

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[36] Cette déclaration a été signée à Barcelone en 1996 par l'UNESCO, PEN et différentes ONG.

[37] Nous soulignons.

[38] La charte considère comme langues régionales celles qui sont pratiquées traditionnellement sur un territoire d'un Etat par des ressortissants de cet Etat qui constituent un groupe numériquement inférieur au reste de la population de l'Etat. Ces langues doivent également être différentes de la (des) langue(s) officielle(s) de cet Etat. En France métropolitaine, les langues régionales territoriales sont les suivantes : alsacien, basque, breton, catalan, corse, flamand occidental, franco-provençal, occitan et langues d'oïl.

[39] Ce rapport énonce clairement la haine des langues régionales dans une citation maintenant devenue célèbre : « [L]e fédéralisme et la superstition parlent bas-breton ; l'émigration et la haine de la République parlent allemand » (1794).

On ne peut cependant accuser l'Etat français d'être tout à fait indifférent au sort de ses langues régionales, surtout depuis les révisions constitutionnelles du 23 juillet 2008 stipulant qu'elles appartiennent désormais au patrimoine de la France[40]. Cette reconnaissance des langues régionales, certes un peu tiède et tardive, marque à n'en pas douter la fin des hostilités françaises à l'égard de sa diversité linguistique. Mais cette modification récente des politiques linguistiques françaises, qui ne tiennent compte ni de la précarité de la situation des langues régionales ni de l'ampleur des enjeux en cause, a peu de chances d'assurer la survie de la diversité linguistique du pays. Seule une approche holistique de la sociolinguistique des langues en déclin tenant compte de la culture linguistique de la France profondément ancrée dans la psyché de la population a quelque espoir d'améliorer le sort de ces langues.

3. Idéologies linguistiques et déclin des langues

C'est Silverstein (1979) qui est responsable du développement de l'étude des idéologies linguistiques en champ d'étude indépendant, qu'il définit dans ses propres mots, comme des « sets of beliefs about languages articulated by users as a rationalisation or justification of perceived language structure and use » (1979 : p. 193). Cette conception des idéologies linguistiques présente notamment l'avantage de permettre de démasquer les croyances concernant les langues, habituellement considérées comme allant de soi, et de les transformer en un objet pouvant, et devant, enfin être analysé[41].

L'Europe est un exemple de continent où les idéologies linguistiques se sont suivies sans toujours se ressembler. Ainsi, là où de nombreuses langues ont cohabité relativement pacifiquement pendant des siècles, la montée des nationalismes et l'industrialisation ont marqué le développement d'a priori linguistiques négatifs à l'égard de certaines langues, soudainement devenues dialectes, patois ou jargons. Les principales idéologies en cause dans le déclin de la diversité linguistique européenne ont été identifiées par Dorian, qui mentionne a) la croyance à la supériorité de certaines langues[42] ; b) l'existence d'un darwinisme linguistique voulant que les langues les plus « faibles » soient éliminées par les langues les plus fortes[43] ; c) la condamnation du bilinguisme, surtout en raison de ses coûts[44] (1998 : pp. 8-12).

En France, la trace de ces idéologies se retrouve notamment dans le vocabulaire désignant les langues régionales comme des patois, jargons ou dialectes, comme dans les efforts de l'Etat en matière d'unification linguistique. Il fallut tout de

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[40] Modification à l'article 75-1 de la Constitution du 4 octobre 1958.

[41] Qu'ont ait quelquefois du mal à distinguer les idéologies des attitudes linguistiques (Fishman 1991 : p. 49) ne change rien à la nécessité de cette analyse.

[42] La linguistique a depuis établi sans conteste que toutes les langues se valent.

[43] Il s'agit d'une croyance résistant plutôt mal à la vague écologique déferlant sur l'Occident.

[44] Cet argument est assez difficile à invoquer dans une France qui défend le multilinguisme sur le plan international.

même du temps et beaucoup d'effort pour imposer cette idéologie de langue unique à la société française.

3.1 Politiques et idéologies linguistiques françaises

La France, tout comme beaucoup d'autres états européens, a connu moult tensions entre politiques et idéologies linguistiques au cours des siècles, qui ne coïncident pas toujours. La politique linguistique promue par François 1er, par exemple, telle que formulée dans l'édit de Villers-Cotterêts (1539), faisait du français la langue de l'administration, et marquait à n'en pas douter le début de l'ascension du français dans l'échelle du prestige linguistique. Cet édit se situait tout de même à contre-courant de l'idéologie linguistique du seizième siècle, où c'était le latin qui trônait au sommet du prestige linguistique, ainsi qu'en témoignent les efforts de Du Bellay (1549) pour prouver la valeur du français en le comparant constamment au latin. Un siècle plus tard, la codification de l'usage « de la plus saine partie de la cour » par Vaugelas (1649), suivant la fondation de l'Académie française par Richelieu (1635), marquait une autre étape de l'ascension hiérarchique du français. C'est au dix-huitième siècle que politiques et culture linguistiques de la France semblent avoir convergé vers la reconnaissance des vertus littéraires du français, de sa clarté, de sa précision et de son statut de langue de la diplomatie en France et ailleurs[45]. Certains aspects de la culture linguistique de l'époque demeuraient cependant inchangés : en effet, quelle que fût la langue de prestige, et le français était dorénavant devenu l'une d'entre elles, elle n'était utilisée que par une minorité de la population lettrée ou faisant partie de l'élite[46].

3.2 Révolution linguistique

Un changement dramatique d'idéologie linguistique eut lieu dans la classe dirigeante française, à l'époque de la Révolution, plus particulièrement, à partir de 1794[47], ainsi qu'en fait foi la présentation du rapport Barère, où les communautés linguistiques de France sont représentées comme des foyers possibles de dissension dont il faut débarrasser la République. L'enquête de Grégoire (1794) sur les langues de France suggère quant à elle que la diversité linguistique française est une manifestation passéiste aux relents de Babel que la République ne saurait tolérer.

La mission linguistique des dirigeants, bien décrite à partir de ce moment dans les documents officiels, connut quelques hésitations. Après une tentative d'interdiction de l'emploi d'aucun idiome autre que le français dans quelque acte que ce fût, l'exécution de la loi du 2 Thermidor fut suspendue dès le 16 Fructidor (Julia 1975 : p. 4). La convention nationale fit néanmoins voter la nomination

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[45] La rédaction du traité de Rastat (1714) en français est le symbole du prestige du français en Europe.
[46] Cette situation allait persister jusqu'à la fin du 18e siècle. Le rapport Grégoire (1794) constate en effet que seulement 5 des 26 millions de Français parlent le français.
[47] Il n'en a pas toujours été ainsi. Le 14 janvier 1790, les révolutionnaires avaient pris la décision de traduire les décrets dans les différentes langues de France.

d'un instituteur de langue française dans les communes où les habitants parlaient un idiome « étranger » (ibidem).

En dépit de ces prises de position linguistiques claires de la part des autorités, suivies de la mise en place de politiques linguistiques favorables au français, les communautés linguistiques de la France, attachées à leurs langues, résistèrent à la francisation pendant plus d'un siècle. C'est l'adoption de la loi Ferry (1882), faisant de l'instruction en français pour tous les petits Français une obligation, qui servit davantage la cause du français. En effet, les statistiques sur les langues régionales, le breton, par exemple, montrent qu'en 1863, soit presque plus de cent ans après que les Républicains eurent appelé de leurs vœux la disparition des « patois » et « jargons », plus de 80% de la population bretonne parlait uniquement le breton. Un siècle après la promulgation de la loi Ferry, en revanche, il ne restait plus d'unilingues bretonnants en Bretagne (Broudic 1999 : p. 27).

Ce succès de la loi s'explique d'une part par son application zélée, soit par immersion obligatoire ou exclusion pure et simple de certaines langues, dont le breton (dont l'emploi était régulièrement accompagné de sanctions[48]) pendant la première partie du 20e siècle. Il s'explique d'autre part par le fait que la mise en application de la loi fut renforcée par la promotion de représentations différenciées des langues de France. Le prestige de la langue française ayant mission civilisatrice est dès lors abondamment évoqué, alors que les langues régionales sont réduites au rang de dialectes ou de patois jargonneux freinant l'accès à la modernité[49]. Cette stigmatisation des langues régionales de France ne s'est pas répandue au moyen des politiques linguistiques, qui se limitaient la plupart du temps à promouvoir l'emploi du français. C'est par l'intermédiaire de représentations plus subtiles, diffusées notamment dans l'éducation, que la manière de se représenter le rapport entre les langues de France fut profondément transformée. Les récits de l'épopée mythique d'une langue française supérieure imprègnent toujours les esprits, tandis que le traitement des langues régionales résultant de l'ascension du français au faîte du prestige linguistique européen est la plupart du temps oblitéré. L'Histoire de la langue française de Bruneau, par exemple, règle la tourmente linguistique révolutionnaire en quelques pages où l'on mentionne à peine le sort réservé aux « patois » sous la République. Il n'en est pas autrement des régions représentées dans les livres d'histoire, qui sont le plus souvent décrites en termes peu flatteurs. Le Tableau de la France, de Michelet[50], par exemple, évoque une Bretagne barbare et arriérée : « […] la Bretagne bretonnante[51], [est un] pays devenu tout étranger au nôtre justement parce qu'il est resté trop fidèle à notre état primitif ; peu français, tant il est gaulois ; « […]]'y [à Brest] sens partout l'effort, et l'air du bagne et la chaîne du forçat »(pp 32-35).

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[48] Le symbole est sans doute la sanction la plus connue (voir Broudic 1999 pour plus de détails à ce sujet).
[49] Voir également Jacquesson (2008) : p. 270.
[50] Michelet est un historien du 19e siècle ayant eu beaucoup d'influence sur la conception de l'histoire française.
[51] La Bretagne bretonnante est la Bretagne où l'on parle le breton.

4. Politiques linguistiques ou campagnes d'éducation ?

Il fallut attendre l'après-guerre pour voir la fin des hostilités linguistiques entre l'Etat et les langues régionales. Dès 1951, la loi Deixonne prône l'enseignement des langues régionales, selon un phrasé, certes peu enthousiaste, à l'article 1 :

« Le Conseil supérieur de l'Éducation nationale sera chargé dans le cadre et dès la promulgation de la présente loi, de rechercher les meilleurs moyens de favoriser l'étude des langues et dialectes locaux dans les régions où ils sont en usage. (article 1) »

L'article 3, quant à lui établit que :

« [t]out instituteur qui en fera la demande pourra être autorisé à consacrer, chaque semaine, une heure d'activités dirigées à l'enseignement de notions élémentaires de lecture et d'écriture du parler local et à l'étude de morceaux choisis de la littérature correspondante. »

Cet enseignement reste cependant facultatif pour les élèves (article 3.2). La loi Haby (1975) stipule pour sa part que l'« enseignement des langues et des cultures régionales peut être dispensé tout au long de la scolarité ». En 1984 et 1989 on définit le rôle des langues régionales dans l'enseignement supérieur. Finalement, la révision constitutionnelle de 2008 reconnaît leur appartenance au patrimoine de France, sans leur accorder toutefois un statut égal à celui du français, et bien que l'Etat ait refusé de ratifier la charte des langues régionales et minoritaires de l'Europe.

Les politiques linguistiques récentes de la France, sans refléter un engouement débordant pour ses langues régionales, témoignent d'une certaine sympathie à leur égard. Ce regain d'intérêt des autorités pour la diversité linguistique du pays ne pourra cependant être pris au sérieux que si le déclin des idiomes traditionnels de la France est éradiqué. À cet égard, le financement par la DGLFLF (Délégation générale à la langue française et aux langues de France) de projets concrets visant la revitalisation des langues régionales doit être salué. Tout semble indiquer cependant que le déclin de la plupart des langues régionales de France, plutôt que de se résorber, s'accélère. Pour renverser ce mouvement, les politiques linguistiques adoptées par la France doivent être accompagnées de campagnes d'éducation visant la réparation des dégâts plus profonds causés par des décennies de dénigrement et de stigmatisation ayant donné lieu au développement d'attitudes[52] linguistiques particulièrement dommageables au maintien ou à la restauration de ces langues.

5. L'effet des politiques linguistiques : le cas de l'Irlande

L'Irlande, seul Etat européen où une langue minoritaire est la langue officielle, illustre la limite des effets des politiques linguistiques. Dans ce pays, l'irlandais a

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[52] Ajzen (1988) définit l'attitude comme une "disposition to respond favourably or unfavourably to an object, person, institution or event" (p.4).

été proclamé langue nationale et première langue officielle de l'Irlande (avant l'anglais) dans la constitution de 1948 (article 8). À cette époque, décimé par des siècles d'oppression visant les locuteurs du gaélique, l'irlandais n'était plus parlé que par 1,1 % de la population, concentrée dans six comtés le long de la côte ouest du littoral. Cinquante ans plus tard, le taux d'Irlandais ayant l'irlandais comme langue maternelle reste inchangé, bien que 40% de la population affirme avoir l'irlandais comme langue seconde. Les Irlandais appuient par ailleurs les politiques de promotion linguistique à l'égard de l'irlandais et la population dans son ensemble est en faveur de l'apprentissage de la langue nationale à l'école, mais refuse que la langue irlandaise soit une matière obligatoire. Elle est par ailleurs contre l'obligation de l'utiliser et n'aime d'ailleurs pas particulièrement la parler. En d'autres mots, les locuteurs de l'irlandais démontrent à l'égard de leur langue des attitudes paradoxales[53] qui ont un effet dévastateur sur ses perspectives d'avenir. Cette situation, quelquefois qualifiée d'échec irlandais, est en partie attribuable à l'état de délabrement dans lequel se trouvait la langue lorsque les politiques linguistiques concernant l'irlandais ont été implantées (Leclerc 2009), mais on évoque aussi parfois le lourd héritage venant de plusieurs siècles d'oppression linguistique, pour expliquer la résistance des Irlandais à l'utilisation de leur langue traditionnelle. Dorian (1994) a identifié quelques-uns des facteurs sociopolitiques ayant joué un rôle dans le développement d'attitudes linguistiques qu'elle a recensés dans ses enquêtes. Elle mentionne par exemple les lois pénales ayant empêché les catholiques (et donc les locuteurs du gaélique) de travailler au Parlement, d'occuper quelque fonction gouvernementale que ce fût ou même de devenir avocat. Il y eut de plus des époques où les locuteurs du gaélique ne pouvaient acheter de terres, alors que ceux qui en possédaient étaient forcés de les céder. A cela s'ajoute la famine qui a sévi sur un territoire où l'on parlait massivement le gaélique ayant causé la mort d'environ un million de personnes et l'émigration d'un autre million. Croire que l'aliénation résultant de ces tactiques d'oppression liée à l'utilisation d'une langue et échelonnées sur plusieurs siècles puisse disparaître en quelques dizaines d'années par la seule énonciation de politiques linguistiques sympathiques à une langue ayant été stigmatisée à l'envi est donc sans doute un peu naïf.

5. Conclusion

Les langues régionales de France ne sont pas toutes dans le même état de délabrement que celui dans lequel l'irlandais était lorsque l'Irlande fit de sa langue traditionnelle la langue officielle de l'état. Elles n'ont par ailleurs pas toutes subi des interdictions aussi draconiennes que celles de la langue irlandaise. Les langues d'oïl, cependant, souffrent plus particulièrement de leur statut de non-langues, en raison de leur parenté avec le français et sont dans une situation particulièrement précaire. Le breton est en sérieux danger d'extinction en raison de l'âge avancé d'un grand nombre de ses locuteurs. D'autres langues peuvent se vanter de résister un peu mieux à un déclin amorcé

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[53] Une attitude paradoxale est identifiée lorsqu'un individu déclare d'une part son attachement à la langue de la communauté linguistique tout en refusant de la parler, de la transmettre ou de l'apprendre.

il y a déjà longtemps. C'est notamment le cas du basque et du catalan qui bénéficient indirectement du statut de langue officielle régionale dont ils jouissent en Espagne. Aucune des langues régionales de France ne peut cependant se complaire dans un optimisme sans borne en songeant à ses perspectives d'avenir.

Les politiques récentes de l'Etat français semblent indiquer un désir de s'aligner sur les politiques promues par l'UE. Si ce désir est réel, l'Etat français aura intérêt à s'inspirer de son passé pour comprendre comment assurer l'avenir de ses langues régionales. En effet, il devra se souvenir que le virage linguistique amorcé par les révolutionnaires a échoué dans un premier temps parce qu'il s'est appuyé uniquement sur la planification linguistique. On est venu à bout des résistances linguistiques régionales en combinant politiques linguistiques de promotion du français et campagnes justifiant l'unification linguistique du pays, l'abandon d'idiomes jargonneux, et la nécessité de punir les locuteurs de langues inférieures et indignes. Par conséquent, la promotion de la diversité linguistique devra accompagner l'expression de sa sympathie officielle pour les langues régionales, exprimée d'abord dans ses politiques linguistiques, de programmes d'éducation visant à changer la manière de concevoir les rapports entre les langues de France. Il s'agit surtout de comprendre qu'il n'est plus question de restaurer seulement la légitimité de ces langues mais de faire renaître leur dignité et, en même temps, le goût de les utiliser dans toutes les activités de la vie quotidienne.

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De l'intérêt d'une formation à la communication non-verbale dans les programmes universitaires professionnalisants

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Résumé

Les programmes universitaires professionnalisants visent le développement du savoir-agir des futurs professionnels. Une lecture des descriptions desdits programmes montre l'importance stratégique du savoir-communiquer pour nombre d'entre eux. Or, si l'enseignement de l'expression orale y est facilement identifiable, celui de la communication non-verbale (CNV) l'est beaucoup moins. Sachant que de futurs enseignants rapportent une augmentation de confiance à communiquer suite à une formation CNV (Gazaille, Plouffe, Gauthier, Gagnon, et McClintock, 2009), il importe de vérifier empiriquement la valeur d'une telle formation auprès d'autres programmes universitaires professionnalisants. Inspirés des techniques théâtrales et des préceptes de l'Approche par compétences (APC), 7 ateliers de CNV de 2 heures chacun sont offerts à des étudiants issus de 3 programmes universitaires professionnalisants différents. Deux questionnaires et une entrevue semi-dirigée permettent de mesurer l'impact des ateliers. Les résultats sont comparés aux études existantes et confirment l'intérêt d'une formation CNV pour les programmes identifiés.

Mots clés : savoir-communiquer – non-verbal – pédagogie universitaire.

1. Introduction

Les dernières décennies ont mené à des avancées importantes en ce qui a trait à la connaissance et la compréhension des mécanismes et composantes de la communication. Bon nombre de ces études s'accordent pour dire que jusqu'à 93 % de la communication émanerait du non-verbal (NV). Les écrits sur le sujet démontrent l'importance de l'expression faciale, de la voix, de la gestuelle et de la posture comme sources de signaux de compréhension du discours mais aussi comme sources d'indicateurs de crédibilité et de compétence. Savoir communiquer constitue aujourd'hui une des habiletés principales sur laquelle repose le succès de nombreux professionnels. Ainsi, suite à des formations de CNV, les enseignants en service démontrent une nette amélioration lorsqu'ils communiquent en classe (Cooper et Simonds, 2007) et les futurs enseignants de langues secondes (L2) se disent plus confiants en leurs habiletés à communiquer devant leur groupe ou avec eux. Afin d'améliorer les habiletés de communication des futurs professionnels, des efforts doivent être faits à la fois par l'individu et les entités responsables de la formation. La présente étude propose de vérifier le potentiel d'ateliers de communication non-verbale dans différents programmes universitaires professionnalisants.

2. Contexte

Qu'il s'agisse de transmettre des informations, de convaincre ou d'entrer en relation avec autrui, savoir communiquer s'avère un atout majeur dans plusieurs professions. Communiquer efficacement réside, d'une part, dans la qualité du discours et du langage et, d'autre part, dans la capacité de l'individu à « tirer profit » de son corps et de sa personnalité (Quentin, 2004). Quoique ces deux qualités soient essentielles à une bonne communication, la dimension NV semble autant sinon plus importante que sa contrepartie verbale (V) (McCroskey, Richmond & McCroskey, 2006). La composante NV estsi importante que, lorsque le contenu du message oral et le NV de l'émetteur sont en désaccord, c'est le message NV décodé qui est retenu comme le « véritable » message et ce, au détriment du contenu oral (Quentin, 2004). Or, un survol des descriptions des programmes universitaires professionnalisants met en lumière que, si l'enseignement de l'expression orale y est facilement identifiable, celui de la communication non-verbale (CNV) y est pratiquement absent. Les programmes universitaires ayant pour but de former des professionnels compétents pour la profession, une partie de la formation devrait aussi intégrer le développement du savoir-communiquer.

L'entraînement à la CNV développerait, chez les futurs enseignants de L2, le dynamisme, la confiance en soi et la perception de la capacité à communiquer. Ces apprentissages seraient de plus transférables et maintenus à moyen terme (Gazaille, Plouffe, Gauthier, Gagnon & McClintock, 2009). Considérant les difficultés particulières de l'enseignement d'une L2 qui exige que la langue, objet d'enseignement, soit aussi la langue utilisée comme outil de communication, il est logique de croire que travailler sur le langage NV aidera le futur enseignant de cette discipline. Cependant, le petit nombre de participants de l'étude pose la question de la validité et de la transférabilité des résultats obtenus.

Bien que Gazaille et al. (2009) aient empiriquement découvert des incidences positives de l'entraînement à la CNV, il importe de vérifier la valeur d'une telle formation dans d'autres programmes universitaires. Situé dans le contexte de l'enseignement universitaire québécois, notre objectif vise à vérifier le potentiel d'ateliers de CNV comme moyen d'aide au développement de la compétence de communication d'étudiants inscrits aux programmes de loisir, culture et tourisme (LCT),d'enseignement de l'éducation physique, de la santé (EPS) et des L2. Les sections suivantes présentent le cadre dans lequel nous nous situons, suivi dela méthodologie, des résultats et dela conclusion.

3. Cadre conceptuel

Afin d'éclairer notre propos, le cadre décrit ci-dessous s'intéresse aux composantes d'une communication efficace, aux caractéristiques de l'enseignement universitaire et aux techniques théâtrales comme outil d'enseignement.

3.1 Langage non-verbal et efficacité de la communication

Communiquer c'est « (faire) partager », « faire connaître quelque chose à quelqu'un » (Le Nouveau Petit Robert, 1993, p. 417). Communiquer c'est transiger des symboles V (mots, paroles) et NV (gestes, posture, regard, voix, proxémie, expression faciale, …) à propos d'un contenu. Autrement dit, l'émetteur d'un message oral utilise à la fois mots et paroles, gestes et comportements pour exprimer des idées, transmettre une information ainsi que pour maintenir et établir un climat favorable à la communication. C'est donc dire qu'il faut savoir à la fois s'exprimer verbalement et non-verbalement ainsi que décoder les signaux V et NV de son auditoire pour communiquer efficacement.

Du point de vue de l'émetteur, un message oral clair suppose que les signaux verbaux et non verbaux envoyés se renforcent mutuellement. Un décalage entre le message V et le message NV peut créer de laconfusion chez le récepteur (Tremblay, 2003). D'ailleurs, même le plus éloquent des discours ne saura ni toucher ni maintenir l'intérêt du public cible si la voix manque de dynamisme, le regard fuit ou si la posture est affaissée. Le rôle du NV est donc aussi important pour marquer le discours et aider à la communication, car il confirme,complète, accentue, contredit, régule le message oral, ou bien se substitue à lui. C'est dire que le NV peut affecter le « contenu » du message et qu'une communicationefficace réside, au-delà de la capacité à discourir, dans la capacité du locuteur à « tirer profit » de sa personnalité et de son « corps » (Quentin, 2004). Bref, l'efficacité d'un message oral procède à la fois de la clarté du discours et des habiletés de communication.

Les travaux sur l'efficacité en enseignement montrent qu'il existe un lien étroit entre la façon dont l'enseignant communique avec ses étudiants et son efficacité (Cooper & Simonds, 2007). Or, tous les états d'âme, peurs et émotions que peut ressentir un communicateur ont des répercussions physiologiques visibles (tremblements de la voix, transpiration, rougeurs, etc.). Ces signaux contituent autant d'indices utilisés par le récepteur pour juger de la compétence et de la confiance en soi de l'émetteur. La qualité du contrôle du corps et des signaux NV qu'il transmet contribue à l'efficacité de la communication (Justen, 1984). Le NV joue un rôle crucial dans la confiance en soi du communicant (Georget, 2008 ; et (Briñol, Petty & Wagner, 2009). D'ailleurs toute expérience positive qui nourrit la confiance en soi augmente la qualité de la présence de l'émetteur de la communication. Travailler le contrôle du corps et le language NV permettrait ainsi de développer la confiance en soi, le dynamisme du communicateur et la perception de la capacité à communiquer devant un groupe. Il est possible d'enseigner la CNV, mais il s'agit de savoir comment le faire en contexte universitaire.

3.2 Enseigner à communiquer en contexte universitaire

L'enseignement universitaire québécois s'inspire depuis quelques années de l'approche par compétences (APC). Qu'est-ce donc, alors, qu'enseigner à « communiquer » selon l'APC ? Selon Tardif (2006), une compétence est « un savoir-agir complexe prenant appui sur la mobilisation et la combinaison

efficaces d'une variété de ressources internes et externes à l'intérieur d'une famille de situations ». Nous inspirant de cette définition, nous pouvons affirmer qu'enseigner selon l'APC c'est « guider : 1) le développement d'un savoir-agir ; 2) la mobilisation de ressources variées ; 3) la réalisation efficace d'activités contextualisées dans des situations diversifiées et non spécifiques ».

L'APC ne repose pas seulement sur l'agir ; enseigner selon cette approche c'est aussi favoriser la réflexion de l'étudiant pour qu'il apprenne de son expérience. Cette définition met en évidence le rôle de l'apprenant dans ses apprentissages : c'est l'apprenant qui, mobilisant des ressources internes et externes, réfléchit sur- et développe son savoir-agir par et dans la « réalisation » d'activités contextualisées proposées par l'enseignant. Enseigner à communiquer selon l'APC c'est mettre l'apprenant en action et en réflexion sur son action. Nous nous situons ainsi dans une conception socio-constructiviste de l'apprentissage.

Communiquer se définissant en termes de communication V et NV, « enseigner à communiquer » en contexte universitaire professionnalisant selon l'APC consiste à guider le futur professionnel vers la mobilisation et l'utilisation consciente de son V et de son NV afin qu'il transmette son message de façon claire et accessible à son interlocuteur dans différentes situations pouvant se rencontrer dans le contexte de la profession. Combiner à la fois action et réflexion en enseignement universitaire requiert le recours à des techniques pédagogiques moins populaires en enseignement universitaire et à un contexte où la simulation pourra dépasser le cadre strict de la classe traditionnelle. C'est pourquoi nous nous sommes penchés sur les techniques théâtrales, qui proposent des activités pour développer la CNV tout en misant sur l'exécution, favorisant un enseignement basé sur l'action.

3.3 Techniques théâtrales et enseignement de la communication

L'intérêt du recours aux techniques théâtrales pour enseigner à communiquer aux futurs professionnels réside d'une part dans les similitudes et rapprochements pouvant être faits entre le rôle de l'acteur et ceux de l'enseignant ou de l'animateur[54] en situation de communication. Ainsi, tous communiquent un message, dans un lieu et un temps circonscrits, devant un « public », en traduisant une réalité par le langage du corps comme principal instrument de travail. Tout comme l'acteur, ils doivent être crédibles dans leur rôle, convaincre leur auditoire, utiliser leur voix, bouger, se déplacer, coopérer, interpréter et improviser pour transmettre des informations.

D'autre part, les répercussions de l'utilisation consciente de techniques théâtrales sur les comportements NV sont nombreuses, notamment la posture corporelle et la présence, l'attention et la concentration, la détente mentale, la voix, la confiance en soi, … (Quentin, 2004), ce qui n'est pas peu dire, considérant l'importance du NV en situation de communication. En plus de faciliter

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[54] Le programme de Loisir, culture et tourisme forme, entre autres, des professionnels appelés à travailler comme animateurs.

l'acquisition de nouveaux outils pour la communication, les techniques théâtrales favorisent la découverte de soi, l'exploration de l'environnement, la présence accrue à l'auditoire et la prise de conscience de l'existence du corps dans l'espace. Bref, à la fin d'un cours d'art dramatique, les étudiants sont différents, leur voix est mieux placée, la conscience du mouvement est augmentée et, leur confiance en eux est réelle.

3.4 Objectif de recherche

La communication est une habileté primordiale pour plusieurs professions. Il demeure toutefois inquiétant de constater que, malgré l'importance du NV dans la communication, les programmes professionnalisants n'en tiennent toujours pas compte dans leur enseignement. Puisque la très grande majorité des futurs professionnels ne sont pas formés aux techniques théâtrales, ils doivent apprendre à reconnaître et à « jouer » efficacement les signaux et les comportements de la situation de communication. Les techniques théâtrales rencontrant les principes d'un enseignement universitaire APC, la présente étude a pour but d'évaluer, du point de vue de l'apprenant, le potentiel d'ateliers de CNV en tant que stratégie pédagogique pour l'enseignement de la communication à des étudiants inscrits à différents programmes universitaires préparatoires à des professions dans lesquelles savoir communiquer est essentiel. Plus précisément, nous croyons qu'un entraînement à la CNV pourrait faire prendre conscience de l'importance du langage NV en situation de communication, améliorer les comportements NV (voix, posture, mouvement), le dynamisme, la capacité et la confiance à communiquer devant un groupe d'étudiants inscrits en TCL et en enseignement d'EPS ou de L2.

4. Méthodologie

Une première expérimentation s'est déroulée à l'automne 2008 auprès de 8 étudiants du programme en enseignement des langues secondes de l'Université du Québec à Trois-Rivières. Afin de vérifier la valeur de ceux-ci, 7 ateliers de CNV de 2 heures chacun sont à nouveau offerts, à l'automne 2009, à une quinzaine d'étudiants issus de 3 programmes universitaires différents. Empirique, la méthodologie suit un devis pré-test/post-test. Deux questionnaires et une entrevue semi-dirigée permettent de mesurer le taux de satisfaction par rapport aux ateliers et l'impact de ces derniers sur les éléments étudiés. Les sections suivantes décrivent les étapes qui ont permis de mener cette recherche à bien. Y sont décrits les participants, le traitement, le recueil et le traitement des données.

Parmi la quinzaine d'étudiants recrutés à l'origine, 9 d'entre eux (3 hommes, 6 femmes) termineront les ateliers. (Un des deux groupes initialement formés a été particulièrement affecté par la reprise des cours et/ou des conférences obligatoires offertes au moment même où se donnaient les ateliers.) Les 9 finissants proviennent du programme de LCT (2), en enseignement de l'ÉPS (3) et en enseignement des L2 (4). Parmi les 9 finissants, 3 ont été personnellement invités à participer aux ateliers (les ateliers constituaient d'ailleurs une condition

préalable au stage pour deux d'entre eux), 2 autres participants avaient déjà annoncé leur intérêt pour les ateliers avant même qu'ils ne soient offerts et 1 autre s'est inscrit dans le but explicite d'améliorer ses présentations à l'université.

Inspirés des travaux sur la communication, des techniques théâtrales et des préceptes de l'APC, nous avons développé et offert, à l'automne 2009, 7 ateliers de CNV de 2 heures chacun aux futurs professionnels en enseignement et en LCT. Chacun des ateliers comprend une initiation à la pratique de comportements NV (expression faciale, voix, mouvement, regard, etc.) ainsi que des exercices de communication, d'improvisation et d'interprétation en lien. Chaque atelier recourt à différentes techniques de jeu (ressources externes nouvelles) et exercices réflexifs pour faire ressortir les liens avec la future profession des étudiants (contextualisation) et stimuler chez eux le développement du savoir-communiquer (savoir-agir). Le nombre de participants par groupe est limité à 12, comme le propose Quentin (2004). Enfin, puisque les ateliers ne font pas partie du curriculum obligatoire, nous optons pour une approche ludique afin de diminuer l'impression de charge supplémentaire à une session universitaire déjà bien remplie. Pour cette raison, les explications « théoriques » sont réduites au minimum ; des moments de réflexion ont toutefois été aménagés à l'intérieur de chacun des ateliers.

Les participants réalisent deux tâches imposées identiques c'est-à-dire que les consignes et le contexte sont les mêmes et pour la tâche pré-test, et pour la tâche post-test. Filmées, elles deviennent le point de départ des entrevues pré-tests et post-tests. Après chacune des tâches filmées, les futurs enseignants d'ALS participent à une entrevue composée de 6 éléments à choix de réponses, chacun d'eux étant par ailleurs associé à une question à court développement. L'entrevue est initiée par le visionnage de la tâche imposée, et le tout dure environ 50 minutes, soit 20 minutes pour l'entrevue pré-test et 30 minutes pour l'entrevue post-test. La rencontre post-test se compose du visionnage de la deuxième prestation filmée et d'un bref questionnaire de type Lickert sur échelle allant de (1) pas du tout à (4) très satisfait ou de (1) peu à (4) beaucoup, selon les éléments évalués. Ce questionnaire mesure l'appréciation des participants vis-à-vis des ateliers ainsi que leur perception de développement relativement aux éléments visés. Cette entrevue de suivi permet d'évaluer l'impact des ateliers à moyen terme. Une analyse de contenu est réalisée sur les questions à court développement.

5. Résultats

Les résultats indiquent l'intérêt d'une formation CNV pour les programmes professionnalisants identifiés. Cette section rapporte et compare les résultats obtenus par la cohorte 2 de l'automne 2009 à ceux obtenus par la cohorte 1 de l'automne 2008. Y sont d'abord présentés et comparés les résultats sur la satisfaction générale puis ceux relatifs à la perception d'apprentissage réalisé.

Satisfaction générale

Le taux de satisfaction générale de la cohorte 2 eu égard aux ateliers suivis est élevé (voir tableau 1 ci-dessous) ; il se situe à 3,78 /4, c'est-à-dire que les 9 participants se disent très satisfaits des ateliers suivis. Tous les recommanderaient d'ailleurs à un ami ou à un collègue dans leur programme.

Taux de satisfaction

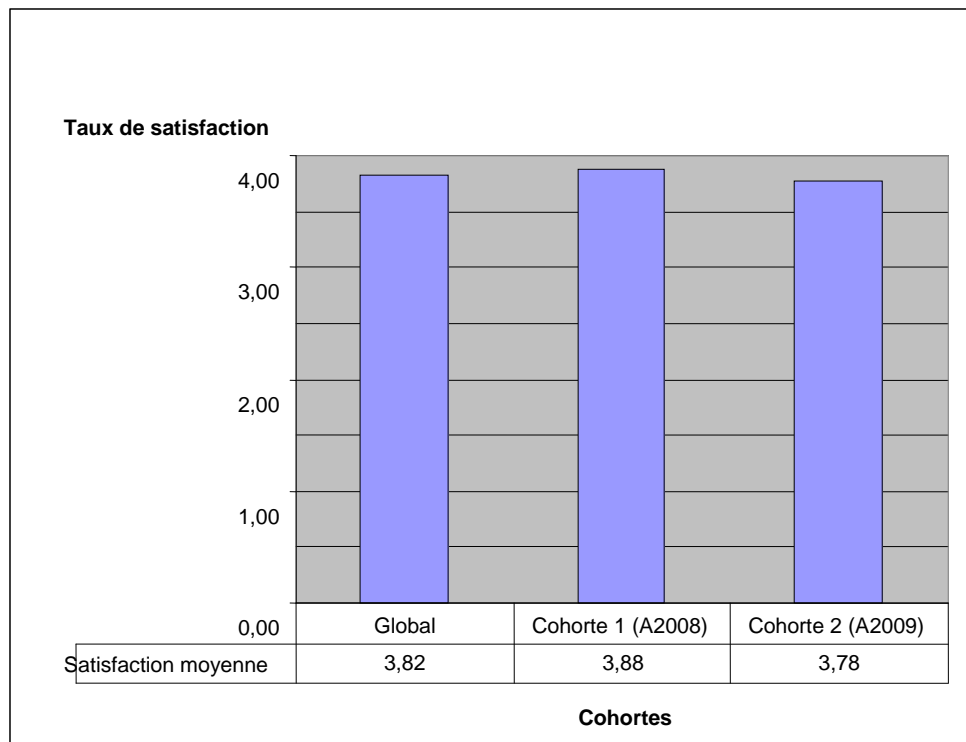|	Global	Cohorte 1 (A2008)	Cohorte 2 (A2009)
Satisfaction moyenne	3,82	3,88	3,78

Cohortes

Tableau 1 : Comparaison des taux de satisfaction par rapport aux ateliers de CNV pour les cohortes 1 et 2

Les commentaires à l'appui de la satisfaction des participants (cohorte 1 et 2) se rejoignant, nous les présentons conjointement ici. Ainsi, tant les participants de la cohorte 2 (A2009) que ceux de la cohorte 1 (A2008) parlent de gain de confiance en soi, d'une prise de conscience de leur corps et de l'importance du NV dans la communication. Tous recommanderaient à leurs collègues de suivre les ateliers notamment parce que « ça m'a fait du bien… j'suis une personne qui manque énormément [de confiance] en soi, et je sais que c'est pour ça que j'ai un peu de misère à l'école … justement parce que je suis gênée, et que j'ai de la misère à me réaliser alors ça, ça aide beaucoup justement » (participant 5, cohorte 2008). En somme, les participants se disent très satisfaits d'avoir suivi les ateliers et disent y avoir appris. Plus précisément, qu'ont-ils appris ?

Le tableau 2 (page suivante) rapporte la perception d'apprentissage des participants eu égard aux différents éléments mesurés. De façon générale, les ateliers de CNV ont permis un développement satisfaisant des cinq variables à l'étude, pour des moyennes globales variant de 3,38 à 3,80 /4.

Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

Les participants de la deuxième cohorte (A2009) évaluent toutefois plus fortement leurs perceptions d'apprentissage que ceux de la première cohorte (A2008) sur 2 des 5 variables étudiées à savoir, la « prise de conscience » vis-à-vis l'importance du NV en situation de communication (3,89 /4 vs 3,67 /4) et « la perception d'apprentissages réalisés par rapport à « l'habileté à communiquer devant le groupe » (3,56 /4 vs 3,44 /4). Les participants de la cohorte de 2009 affichent des scores plus faibles que la cohorte de 2008 relativement à la perception de développement de son NV (3,17 /4 vs 3,63 /4), de leur dynamisme (3,11 /4 vs 3,81 /4) et de leur confiance en eux à communiquer devant un groupe (3,33 /4 vs 3,56 /4).

Perception d'apprentissages réalisés

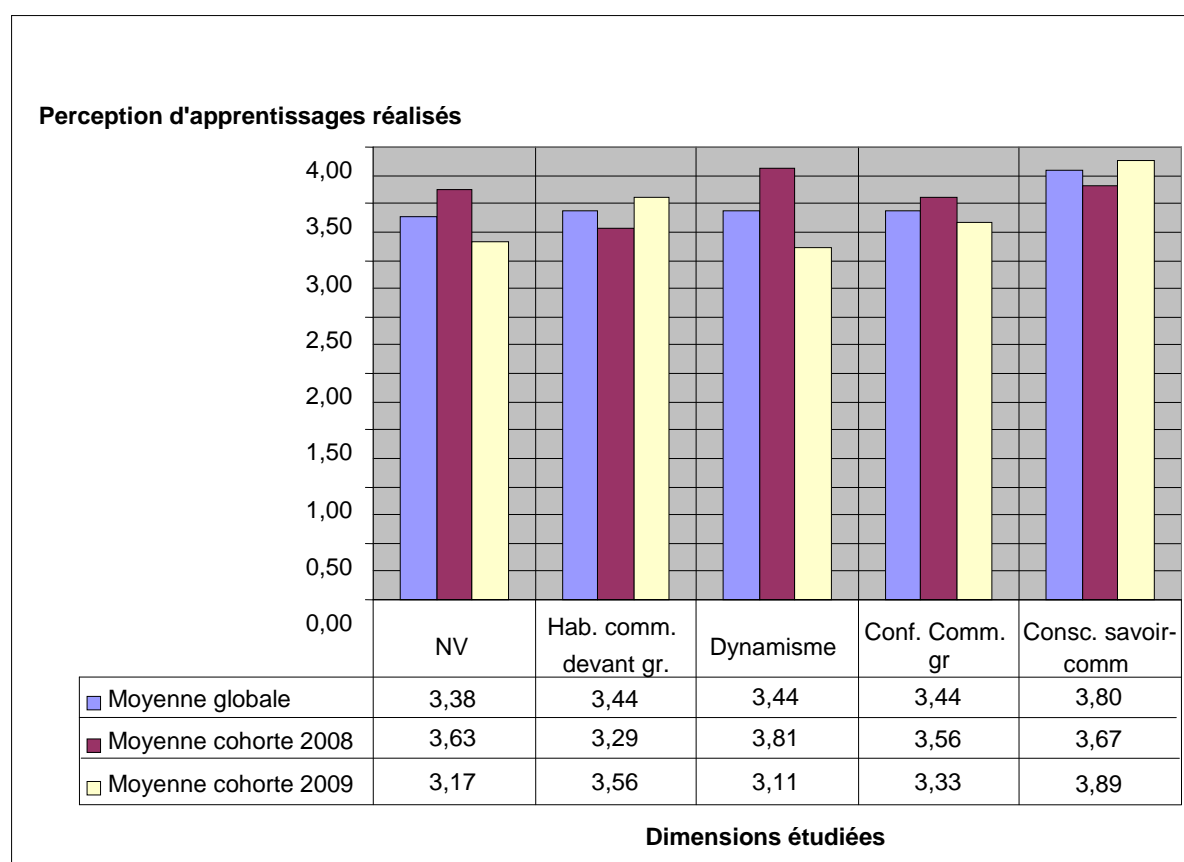|	NV	Hab. comm. devant gr.	Dynamisme	Conf. Comm. gr	Consc. savoir-comm
Moyenne globale	3,38	3,44	3,44	3,44	3,80
Moyenne cohorte 2008	3,63	3,29	3,81	3,56	3,67
Moyenne cohorte 2009	3,17	3,56	3,11	3,33	3,89

Dimensions étudiées

Tableau 2 : Comparaison des taux de perception d'apprentissages réalisés suite aux ateliers de CNV

Ces résultats peuvent s'expliquer par la présence de participants ayant davantage besoin de suivre ce type d'ateliers en 2009 qu'en 2008. D'une part, 3 participants de la cohorte 2009 ont été fortement encouragés par leurs professeurs à suivre les ateliers. D'autre part, 2 participants avouent être toujours timides et avoir encore besoin de travailler leur NV. Aucun des participants de la cohorte 2008 ne nécessitait autant d'aide sur le plan de l'habileté à communiquer verbalement ou non-verbalement. Nous supposons que les candidats qui auraient le plus besoin d'une telle formation ne s'y inscrivent tout simplement pas, du moins pas sur une base volontaire. Ainsi, deux étudiants à qui nous avions suggéré de participer aux ateliers, à la suite des faiblesses observées lors de leurs présentations orales dans leurs cours

universitaires, furent à nouveau invités à s'inscrire aux ateliers à la suite de leur performance en stage. Les deux candidats ont décliné les deux invitations.

A la lumière de ce qui précède, les résultats obtenus nous apparaissent positifs et encourageants. Les étudiants, leurs professeurs universitaires et/ou leur enseignant constatent des améliorations qu'ils associent aux ateliers. A titre d'exemple, soulignons ce commentaire d'un des étudiants qui dit que « […] pendant mon stage, j'ai vu la progression même dans mes enseignements. Je l'ai remarqué. Mon enseignant [associé] […] a dit justement ça parait » (participant 9, A2009).

En général, bon nombre de participants soulignent aussi que les ateliers les ont aidés à développer leur confiance en soi, à diminuer leur sentiment de stress, à se sentir plus en contrôle et plus « confortables » devant le groupe. Ceci rejoint les commentaires des participants de 2008. Plus précisément, les ateliers ont

« permis de prendre conscience de plein de petits détails justement que je ne prenais pas en considération quand je faisais une présentation, mais qui sont quand même très importants pour te permettre de faire une présentation plus agréable pour l'auditoire. Puis, ça te met plus en contrôle et en confiance pendant l'exposé » (participant 1, A2009).

Des commentaires des deux cohortes, nous retenons les bienfaits du jeu comme technique d'apprentissage et l'importance de l'ambiance pour ce genre d'atelier. Les participants de 2009 ajoutent qu'il en va aussi de l'assiduité car « je suis allé à 6 des 7 ateliers puis j'ai l'impression d'avoir perdu un p'tit quelque chose. […] l'impression de suivi, puis la chimie avec le groupe, puis la confiance et tout ça… » (participant 7, A2009). Enfin, le nombre limité de participants ressort de façon unanime pour les deux cohortes comme facteur déterminant de la réussite pour ce type d'apprentissage. Une partie du succès des ateliers résiderait ainsi dans la taille du groupe. Un petit groupe assurerait, selon nous, la cohésion et la confiance nécessaires à ce type d'activité et d'apprentissages visés. Sans ces conditions, le degré d'engagement des participants serait moindre, selon les commentaires mêmes de ces derniers, diminuant d'autant les possibilités de développement.

Il était impossible d'évaluer, au moment d'écrire ces lignes, la possibilité d'utiliser à nouveau les apprentissages des participants de 2009 à cause du délai de 3 à 4 mois établi lors de la première collecte de 2008. Cependant, selon les commentaires reçus, les éléments de NV travaillés ont été réutilisés à court terme par au moins 5 participants soit dans leurs présentations orales à l'université (2), lors de la réalisation d'ateliers éducatifs (1) ou en stage (2).

6. Conclusion

Cette étude cherchait à évaluer le potentiel pédagogique d'ateliers de CNV pour enseigner les habiletés de communication dans les programmes universitaires ciblés. Malgré le nombre limité de participants, la réplication des résultats obtenus pour les variables à l'étude ainsi que les commentaires émis à l'appui

des résultats suggèrent un potentiel certain des ateliers de CNV dans les programmes universitaires pour lesquels le savoir-communiquer est une compétence importante. Les taux élevés de satisfaction et de perception d'apprentissages réalisés devraient inciter à développer l'offre de formation CNV en enseignement universitaire. Il serait intéressant de refaire l'expérience avec des étudiants en ayant plus particulièrement besoin ou de vérifier l'impact d'une telle formation à plus long terme, à la suite de l'insertion professionnelle par exemple. Les travaux sont aussi à poursuivre en ce qui concerne l'intégration d'un apport théorique aux ateliers.

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Tutorat TIC inter-ordre : de l'apprentissage des apprenants et des futurs enseignants d'anglais langue seconde

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Résumé

Malgré l'ajout de cours à différents ordres d'enseignement, une plus longue formation des maîtres d'anglais langue seconde (ALS) et l'avènement des TICs, plusieurs réclament encore l'amélioration de l'enseignement-apprentissage de l'ALS. La situation parait particulièrement préoccupante en région unilingue francophone québécoise où les contacts hors-classe avec l'anglais sont pratiquement inexistants. Les TICs facilitant le soutien à l'apprentissage au-delà de la classe, nous expérimentons un projet de tutorat TIC auprès d'une centaine d'élèves inscrits à un cours d'ALS au collégial. Assurées par 20 futurs enseignants d'ALS, les 10 sessions de tutorat offertes visent le soutien à l'enseignement-apprentissage de l'ALS. De type empirique, l'étude mesure, par le biais de groupes focus et de questionnaires, l'impact du projet eu égard aux perceptions de progrès réalisés par les tuteurs et les tutorés. Les résultats suggèrent que le tutorat TIC inter-ordre est un outil prometteur en enseignement-apprentissage des langues secondes en région unilingue.

Mots clés
tutorat inter-ordre – apprentissage – langues secondes – TIC.

1. Introduction

Les technologies de l'information et de la communication (TIC) semblent aujourd'hui devenu des incontournables en enseignement des langues secondes (L2) (Sotillo, 2000). Par ailleurs, les enseignants de L2 doivent recourir à une variété de stratégies pédagogiques pour s'adapter aux différents besoins et styles d'apprentissage des élèves et créer un environnement facilitant l'apprentissage de la L2. Or, contribuer au développement de la compétence à communiquer dans la L2 paraît encore plus difficile en région unilingue où les contacts hors-classe avec la L2 et la motivation à apprendre une nouvelle langue se révèlent souvent minimaux. Associées à Internet, les TICs permettent aux enseignants de L2 d'offrir à leurs élèves de nouvelles occasions de communiquer dans la L2 et d'en favoriser ainsi l'acquisition. Né d'un intérêt de collaboration entre le département des Langues modernes et traduction de l'Université du Québec à Trois-Rivières et deux établissements collégiaux privés de la région, le présent projet de tutorat inter-ordre à distance d'une durée totale de 3 ans[55] a

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pour but de soutenir l'enseignement-apprentissage de l'anglais langue seconde (ALS) en région unilingue francophone.

2. Contexte

La mondialisation, le développement économique et l'accroissement des communications ont mené à un essor important du domaine de l'enseignement-apprentissage de l'ALS. Afin de répondre aux attentes dans ce domaine, le ministère de l'Éducation (MEQ) a transformé les exigences en anglais de même que les cours offerts aux différents ordres d'enseignement. Il a rendu, entre autres, deux cours d'ALS au collégial obligatoires en 1993 et en 2001, a augmenté de 3 à 4 ans la durée des programmes en formation des maîtres dont celui en enseignement des L2. Cependant, malgré ces mesures, nombreux sont ceux qui réclament encore l'amélioration de l'enseignement de l'ALS au Québec (Maisonneuve, 2005; SPEAQ, 2001).Des sondages réalisés auprès d'employeurs de cégépiens[56] diplômés montrent en effet que, de tous les aspects étudiés, ce sont des compétences linguistiques en   en anglais des diplômés que les employeurs sont le plus insatisfaits (MEQ, 1997, 2002). En fait, les cégépiens éprouvent de réelles difficultés à mobiliser les savoirs enseignés dans le cours d'ALS pour communiquer (Lord, 1993, dans De Guire, 2007).

Dans les faits, la connaissance élémentaire d'une L2 requiert environ 1200 heures d'étude alors que sa maîtrise en requiert environ 5000, e dans une période de temps concentrée (SPEAQ, 2001). Les documents officiels montrent que l'élève québécois qui suit les programmes réguliers aura cumulé environ 735 heures d'enseignement de l'anglais réparties sur 11 ans[57]. Ceci étant, force est de reconnaître que le diplômé du cégep est incapable de converser avec aisance en anglais. Le but ultime de l'enseignement-apprentissage d'une langue moderne étant de communiquer, l'enseignant d'une L2 doit donc amener l'élève « à parler en anglais ». Or, « faire parler ensemble » des cégépiens en anglais relève du tour de force lorsque les groupes comptent 20 élèves ou plus. Par ailleurs, bien que plusieurs des élèves aimeraient converser en anglais avec leur enseignant, leurs lacunes en L2, la peur d'avoir l'air ridicule ou l'effort à faire pour converser en L2 avec des pairs de même niveau constituent autant de facteurs qui contribuent à l'évitement de la L2 dans la classe d'ALS au collégial.

Les TICs offrent, de par leurs fonctionnalités, la possibilité de prolonger le soutien à l'apprentissage à l'extérieur des limites de la classe et de créer des

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[56] Au Québec, le collège d'enseignement général et professionnel (cégep) dispense un enseignement soit pré-universitaire de 2 années, soit technique de 3 années. L'enseignement de niveau collégial suit normalement la cinquième année du secondaire. Un établissement d'enseignement collégial *privé* n'est pas un cégep, le terme « cégep » étant réservé aux établissements *publics*. Dans ce texte, « cégépien » désigne l'ensemble des élèves fréquentant les deux types d'établissement. Le cégépien est un **élève** ; l'**étudiant** fréquente une université.

[57] Les participants de la présente étude n'ayant pas été soumis à cette mesure, ces chiffres excluent les cours d'anglais en première et deuxième années du primaire offerts depuis 2007-2008. Néanmoins, soulignons que le nombre d'heures total demeure toujours inférieur au nombre requis de 1200 pour l'atteinte du niveau d'aisance en L2.

échanges avec d'éventuels locuteurs de niveau plus avancé. La majorité des cégépiens apprenant l'ALS se disent d'ailleurs ouverts aux nouvelles approches et outils d'enseignement (De Guire, 2007; Gazaille, Lavine & Fiala, 2005), le présent projet de collaboration université-collégial jumelle des cégépiens à de futurs enseignants d'ALS selon une formule de tutorat inter-ordre en région unilingue francophone.

3. Cadre conceptuel

Contrairement à l'enseignement d'une langue morte, l'enseignement d'une langue moderne vise la communication dans la langue cible. Enseigner une L2 consiste donc, entre autres, à initier des conversations et à assurer la participation de tous aux conversations. Si une partie du rôle de l'enseignant consiste à aider l'apprenant à acquérir une connaissance du vocabulaire et une compréhension des structures de base de la L2 afin qu'il la comprenne et s'exprime dans cette langue il demeure que c'est dans l'application et l'utilisation de la langue que s'acquièrent la précision et la fluidité d'expression. Les enseignants de L2, dont l'objectif premier est la communication, doivent donc s'assurer de créer des occasions de communiquer dans la langue cible pour en favoriser l'acquisition.

3.1 Interaction et apprentissage des langues secondes

La perspective socioculturelle accorde un rôle central à la collaboration et à l'échange verbal en acquisition des langues. Participer à des activités sociales et dialoguer avec des locuteurs plus avancés permettent à l'apprenant d'améliorer ses connaissances de la langue et de progresser à l'intérieur de sa zone proximale de développement. Les théories d'acquisition des L2 accordent, elles aussi, une place importante à l'interaction (Gass & Selinker, 2001). C'est en tentant de résoudre ensemble un problème, par le biais de l'interaction et de la négociation de sens, que les apprenants d'une L2 construisent leur interlangue. Apprendre une langue exige également que l'on interagisse dans la langue cible et que l'on s'exerce à utiliser cette langue avec autrui.

Selon l'approche socioculturelle et les théories d'acquisition citées ci-dessus, il importe, pour le développement de la L2, de mettre l'élève en relation avec d'autres locuteurs. Bref, s'il revient à l'enseignant d'offrir l'occasion d'observer la L2, l'obligation lui est également faite d'offrir à l'élève l'occasion d'interagir dans la langue cible, car c'est l'apprenant qui apprend la langue.

3.2 Motivation et apprentissage des langues secondes

Plusieurs études démontrent le rôle crucial de la motivation en apprentissage des L2. La motivation est d'ailleurs la variable la plus influente en apprentissage d'une L2 en milieu unilingue (Colletta, Clement & Edwards, 1983). Pour stimuler la motivation, l'enseignement d'une L2 doit tenir compte de la dimension socio-affective et de « l'authenticité » de la situation de communication (Brown, 2001).

Autrement dit, il est important, en enseignement des L2, de proposer à l'apprenant des contextes dans lesquels il pourra utiliser la langue cible « comme dans la vraie vie » et où il se sentira respecté. Favoriser l'interaction de l'apprenant de L2 passe par la création d'un environnement d'apprentissage non-menaçant, adapté à l'apprenant pour aider ce dernier à prendre confiance en lui et à « se risquer » à utiliser la L2. « Se risquer » dans une langue qu'on ne maîtrise pas demande des efforts considérables. Par ailleurs, l'effort doit mener à des résultats satisfaisants pour l'apprenant afin que la réussite devienne un élément motivateur pour ce dernier (Viau, 1994).

Les TICs permettent l'extension de l'enseignement-apprentissage à l'extérieur de la classe et l'accès à des contacts « authentiques, interactifs et sociaux ». Dès lors, le tutorat à distance apparaît comme un outil au potentiel intéressant pour soutenir l'enseignement-apprentissage de l'ALS en région unilingue.

3.3 Tutorat inter-ordre à distance en apprentissage des L2

Le tutorat par les pairs se conçoit comme une forme d'aide individualisée offerte par un pair de niveau plus avancé. Au-delà de la correction, le tutorat peut servir à donner une formation particulière ou à distance. La formule tutorat bénéficierait tout autant aux tuteurs qu'aux tutorés.

Les TICs et Internet facilitent le contact entre les individus malgré les contraintes de distance et de temps. Ce faisant, les TICs permettent d'augmenter les contacts avec la L2, d'en individualiser l'enseignement et d'augmenter la motivation de l'apprenant eu égard à son apprentissage. Elles peuvent ainsi servir de levier à des activités de tutorat par les pairs à distance et aider à l'amélioration de l'enseignement-apprentissage d'une L2 (Gelabert, Gisbert, Thurston et Topping, 2008).

L''impact des TICs en enseignement-apprentissage de l'ALS au collégial serait lié à la stratégie d'exploitation pédagogique (Gazaille, 2001) et au facteur « humain derrière l'outil » (Gazaille, 2009). En outre, l'interaction et l'authenticité du contexte sont cruciaux pour l'apprentissage d'une L2. Ces conditions sont particulièrement difficiles à recréer en région unilingue où l'accès à la L2 se limite plus souvent qu'autrement à la classe. Combiné à Internet et aux TICs, le tutorat inter-ordre permettrait de créer des situations combinant les caractéristiques d'interaction et d'authenticité souhaitées. Le tutorat à distance exige cependant des efforts particuliers en termes de disponibilité, de respect et d'engagement à autrui. Si ces efforts mènent à la réussite, la satisfaction et la motivation seront au rendez-vous, améliorant d'autant l'enseignement-apprentissage de la L2. Puisque tuteurs et tutorés apprennent autant l'un que l'autre en situation de tutorat, la présente étude vise à vérifier, à la suite de la participation à un projet de tutorat inter-ordre à distance, les éléments suivants :

- leur degré de satisfaction ; et
- leur perception de progrès en anglais.

4. Méthodologie

Afin de vérifier les objectifs de cette étude empirique, nous optons pour un devis pré-test/post-test. Les sections suivantes décrivent le tutorat et sa logistique, les participants et les outils utilisés.

4.1 Le tutorat

Le tutorat inter-ordre à distance se réalise en mode synchrone par le biais d'un outil d'échange multimodal (VIA). Les échanges reposent sur des bases audio et textuelle. Les échanges se réalisent obligatoirement en anglais ; l'utilisation de la webcam n'est pas permise. Le support textuel est un bref texte écrit par le tutoré qui, après une première correction par le tuteur, est publié par celui-ci sur la plate-forme d'échange pour rétroactions au tutoré.

Le projet de tutorat s'échelonne sur dix semaines et comprend au total, et à raison de une par semaine, 10 séances de tutorat de 30 minutes chacune. Chaque séance se compose de deux tâches distinctes. Le premier segment de 15 minutes de la séance est dédié à la communication orale, le deuxième, à la correction du texte de l'élève.

La tâche de communication orale consiste à échanger des informations sur des thèmes donnés, en rapport avec le sujet ou le thème abordé dans le cours précédent la session de tutorat. Tant les tutorés que les tuteurs sont appelés à poser des questions, à donner des réponses ou à échanger des informations sur des thèmes de la vie courante, sur des textes étudiés par les tuteurs ou des activités réalisées en lien avec leur cours d'ALS. Ainsi, les participants se présentent, échangent à propos de leurs passe-temps, de leur visite d'un musée virtuel ou d'un voyage culturel.

Du point de vue du tuteur, la tâche d'écriture consiste à aider le tutoré à corriger le texte que ce dernier a rédigé sur un sujet ou un thème étudié en classe, antérieurement à la séance de tutorat. L'aide à la correction se réalise dans la L2. Le tuteur aide le tutoré à identifier et comprendre ses erreurs sans pour autant lui fournir les réponses.

Deux équipes distinctes se partagent les tâches de supervision et de logistique en lien avec le tutorat. L'équipe issue de l'université se compose de la professeure en charge et d'un étudiant au baccalauréat en enseignement des L2 qui agit à la fois comme coordonnateur et tuteur. L'équipe issue du réseau collégial se compose de deux enseignantes d'ALS provenant de deux établissements d'enseignement collégial privés. Afin d'assurer la cohérence avec le curriculum enseigné, les enseignantes sont en charge de l'élaboration des activités de tutorat (conversations orientées et textes à écrire). Les tuteurs sont de futurs enseignants d'ALS embauchés pour offrir le tutorat alors que le tutorat constitue un devoir évalué pour les élèves du collégial.

Le tableau 1 (ci-dessous) résume les principales activités et actions réalisées par les différents acteurs engagés « avant », « pendant » et « après » l'implantation du projet de tutorat inter-ordre à distance.

	AVANT	PENDANT	APRÈS
Équipe de l'université	– Jumeler tuteurs et tutorés – Offrir la formation à la relation d'aide (tuteurs) – Offrir la formation à l'utilisation de la plate-forme (tuteurs et tutorés) – Administrer le pré-test (tutorés)	– Assurer le suivi des présences – Offrir un soutien aux tuteurs	– Administrer le post-test (tutorés) – Animer le groupe de discussion (tuteurs) – Analyser les données
Enseignantes du collégial	– Élaborer les guides et les activités pour les sessions de tutorat	– Superviser les tutorés	– Participer à une entrevue
Tuteurs	– Suivre les séances de formation	– Converser en L2 avec les tutorés – Guider les tutorés dans la correction de leurs textes	– Participer au groupe de discussion
Tutorés	– Répondre au pré-test	– Participer aux séances de tutorat – Rédaction et correction de textes	– Répondre au post-test

Tableau 1 : Rôles des acteurs pour la phase d'implantation du projet

4.2 Les participants

Le projet pilote de tutorat inter-ordre s'adresse à des élèves d'ALS du collégial et à de futurs enseignants d'ALS inscrits au baccalauréat en enseignement des L2 de l'UQTR.

Les tutorés proviennent de deux établissements privés et sont inscrits à un cours d'ALS. En tout, 40 élèves (7 hommes, 29 femmes) de niveau débutant (n = 20) ou intermédiaire (n = 20) participent au tutorat inter-ordre. Ils sont tous des francophones natifs; leur moyenne d'âge est de 21,1 ans.

Les tuteurs sont des étudiants de première (1), troisième (1) ou quatrième année (8) inscrits au baccalauréat en enseignement des L2 de l'Université du Québec à Trois-Rivières. Ils sont recrutés sur une base volontaire. Dix futurs enseignants d'ALS participent à l'implantation du projet. Sauf pour l'un d'entre eux, l'anglais est la deuxième langue des tuteurs.

4.3 Outils et procédures

Les paragraphes suivants décrivent brièvement les outils et procédures qui ont permis l'évaluation des variables à l'étude.

Les questionnaires pré-test et post-test administrés aux tutorés se composent de 8 étiquettes de type Likert, allant de (1) pratiquement pas à (4) beaucoup. Les trois étiquettes ciblant la satisfaction et la perception des progrès sont

accompagnées d'une demande d'explication. Les autres étiquettes tracent le profil de l'apprenant en fonction de ses caractéristiques sociodémographiques et des six caractéristiques du « bon apprenant d'ALS » (Brown, 2001). Considérant les objectifs et les limites de cet article, ces résultats ne seront pas ici discutés.

Les tuteurs participent pour leur part à deux groupes de discussion, le premier ayant lieu à mi-parcours et le second à la fin du projet de tutorat inter-ordre. Les groupes de discussion sont animés par l'équipe universitaire ; 10 questions ouvertes servent de point de départ à l'animation.

Une analyse quantitative est réalisée pour identifier le degré de satisfaction et de perception des apprentissages des tutorés. Une analyse de contenu des questions de justification (tutorés) et du verbatim des groupes de discussion (tuteurs) est réalisée pour identifier les raisons de la satisfaction et de la perception des progrès des uns et des autres. Les deux corpus sont ensuite revisités pour une évaluation qualitative.

5. Résultats et interprétation

Les paragraphes suivants rapportent les résultats sur la perception de satisfaction et les raisons sous-jacentes de la satisfaction des tuteurs suite à leur participation au tutorat inter-ordre à distance. Sont ensuite présentées les perceptions de satisfaction et de progrès réalisés des tutorés obtenus après la mise en place du projet.

Les tuteurs se disent tous satisfaits d'avoir participé à la concrétisation du projet. Plusieurs disent avoir amélioré leur anglais grâce à leur participation au tutorat. Ils rapportent aussi l'amélioration de leur capacité à donner des explications claires. À la lumière des commentaires émis par les tutorés (page suivante), les tuteurs auraient aussi développé leur capacité à entrer en relation avec les apprenants de L2 ainsi qu'à instaurer et à maintenir un climat favorable en situation de relation pédagogique. Les éléments d'insatisfaction relevés ont trait aux absences non-motivées des tutorés et aux aspects techniques (configuration des microphones, branchement à Internet, délai de transmission de l'audio qui diminue l'aspect « naturel » de la conversation, …). Les commentaires émis par les tuteurs aident à comprendre la satisfaction exprimée : en général, le tutorat ancre l'enseignement de l'ALS dans la réalité, il stimule la compétence langagière et facilite le développement d'habiletés professionnelles nécessaires à l'emploi.

Les élèves du collégial se disent à 62,5 % « assez satisfaits » du tutorat offert (2,7 /4). Parmi les commentaires expliquant leur satisfaction, les tutorés mentionnent la possibilité de pratiquer l'oral et la qualité de la relation avec le tuteur. À l'appui, soulignons le cas de cette élève qui a mis 3 semaines à dire un mot à sa tuteure et dont la fierté était palpable une fois la glace brisée. Selon les dires mêmes de l'élève, le soutien de l'enseignante ainsi que la patience et les encouragements de la tuteure ont contribué à ce succès. Cet exemple renforce l'importance de « l'humain » en contexte d'enseignement-apprentissage TIC d'une L2. Les insatisfaits identifient davantage (33 %) la charge de travail que les satisfaits (25 %) comme source d'insatisfaction associée au tutorat. C'est

aussi parmi les insatisfaits que se retrouve la majorité d'élèves affirmant « se débrouiller suffisamment » ou « parler assez régulièrement » en anglais. Bref, le type d'investissement ou d'effort exigé par le tutorat est interprété négativement par les élèves qui n'ont perçu aucune amélioration de leur L2 suite au projet.

Variable	Moyenne (max. 4)
Satisfaction (par rapport au tutorat)	2,7
Perception de progrès (suite à la participation au tutorat)	2,6

Tableau 2 : Degré de satisfaction et de perception de progrès des tutorés
r : 0,66

Le taux de perception de progrès se situe à 2,6 /4. Si 55 % des élèves disent avoir « assez ou beaucoup » appris (scores de 3 + 4), 45 % disent ne s'être pratiquement pas ou peu améliorés (scores de 1 + 2). Les tutorés qui disent avoir progressé soulignent une plus grande aisance à prendre la parole en L2. La perception de progrès (r = 0,66) aide à expliquer la satisfaction des tutorés et, par conséquent, à mieux concevoir la valeur à accorder au tutorat comme outil pédagogique en enseignement-apprentissage des L2 au collégial.

6. Conclusion

Cet article rapporte les résultats d'un projet de tutorat inter-ordre à distance en soutien à l'enseignement-apprentissage de l'ALS en région unilingue francophone. En général, tuteurs et tutorés se disent satisfaits par rapport aux séances de tutorat. Les uns et les autres croient avoir développé des apprentissages spécifiques et de nouvelles habiletés. La satisfaction et les perceptions de progrès rapportées par les tuteurs et les tutorés montrent le potentiel du tutorat TIC inter-ordre pour l'enseignement et l'apprentissage de l'ALS. Les commentaires des tuteurs relativement au développement de certains éléments de compétences professionnelles méritent que l'on s'intéresse de plus près au tutorat en tant que modalité de développement en formation des maîtres. Ceci renforce l'importance de « l'humain » derrière l'outil TIC et de l'instauration d'une relation pédagogique positive en contexte de tutorat à distance.

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Savoir et autonomie. Une approche philosophique de l'éducation en contexte pluraliste

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Résumé

Thème récurrent dans la pensée éducative en Occident depuis l'Antiquité grecque, la question de l'autorité des savoirs reste récurrente. Or, comment, aujourd'hui, dans un contexte pluraliste, articuler l'idée d'autorité, comprise comme véhicule du *sens* et qui est le propre de celui qui transmet, et celle de liberté, caractéristique de tout apprenant et suppose une appropriation créatrice des savoirs transmis. La thèse soutenue dans cet article est que cette problématique, de nature philosophique, appelle une solution adaptée, tant à rebours du moralisme que de la liberté sans règles. Elle renvoie à une réflexion plus approfondie sur le développement de la personne, son autonomie et sa capacité de jugement au sein d'un espace public commun réactualisé et éthiquement fondé. Une telle approche permet de transcender les clivages idéologiques et de repenser à neuf la tâche de l'éducation comme la quête inachevée d'un *sens* de références partagées.

Mots clés
Autorité – Liberté – Conférer sens au savoir – Espace public commun – Penser par soi-même.

1. Introduction

Le mouvement d'émancipation de l'individu qu'on peut faire remonter à la Renaissance et aux Lumières s'est déployé sur deux plans : une réflexion sur les conditions matérielles et sociales de l'existence, ainsi que la promotion d'un idéal d'éducation. L'éducation, « atelier de l'humanité », selon Comenius[58], a contribué à l'orientation globale de l'humanisme moderne; elle en est même, avec la morale et la politique, la force motrice, celle qui doit former, par les savoirs et la culture, des individus autonomes et responsables[59].

L'objectif visé par cette réflexion est de montrer qu'il y a dans les savoirs que les élèves s'approprient en vue de leur autonomie un principe d'autorité. La dialectique de la liberté et de l'autorité n'est pas le dernier mot de l'éducation. Mais elle est un thème récurrent dans la pensée éducative en Occident, depuis Socrate et Platon jusqu'à Dewey et Arendt, en passant par Érasme, Rousseau,

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[58.] *La grande didactique*, Paris, Klincksieck, 1992.
[59.] N'ignorons pas cependant la différence entre la conception, littéraire, de l'éducation à la Renaissance et celle, citoyenne, à partir des Lumières.

Kant, Condorcet, Hegel, Montessori, pour ne citer que ceux-là[60]. Or, la question cruciale qui se pose au pédagogue contemporain est de savoir comment, en contexte pluraliste, articuler la notion d'autorité, comprise comme véhicule du sens et qui est le propre de celui qui transmet, et celle de liberté, caractéristique de tout apprenant avec son potentiel créateur et ne saurait donc se réduire à un processus technique. En clair, comment, dans l'acte de transmettre, poser une exigence morale et universelle aux cotés de réalités, de pratiques et d'expressions de soi dont les déploiements, bien que relatifs, doivent être pris en compte dans le cadre d'une éducation humaniste ?

Cette question qui taraude le métier d'enseignant relève, mais non exclusivement, du domaine de la philosophie en tant qu'espace critique permettant de mieux appréhender certaines idées reçues. Ce secteur est souvent relégué au second plan par les experts de la pédagogie, davantage centrés sur les moyens par lesquels il faut transmettre que sur le savoir lui-même, un savoir réflexif[61]. Ce secteur possède cependant son importance dans le cadre d'une réflexion approfondie sur le développement de la personne et sa capacité de jugement au sein d'un espace public commun réactualisé et éthiquement fondé.

Eu égard à la question du sens induite par un tel questionnement, et sans lequel – comme le suggère la vie et le destin de Socrate – toute connaissance, si fondamentale soit-elle, n'est que sécheresse d'âme[62], la problématique évoquée ici appelle une solution adaptée, tant à rebours du moralisme que de la liberté sans règles[63]. L'œuvre éducative nécessite patience et finesse. « Tout le secret de l'éducateur est de passer entre les deux écueils de l'autoritarisme et du relâchement »[64].

Une telle approche permet de transcender les clivages idéologiques qui divisent les partisans de l'école traditionnelle et les défenseurs de l'école nouvelle et de repenser à neuf la tâche de l'éducation, qui est au demeurant politique au meilleur sens du terme, voire transpolitique, car si éduquer est un enracinement dans une communauté de valeurs, c'est aussi un arrachement menant à des questions existentielles[65] : Qu'est-ce que l'homme ? Pourquoi y a-t-il de l'être plutôt que rien ? Quelle est la valeur de l'existence ?

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[60] La *Convention internationale relative aux droits de l'enfant* (1989) n'échappe pas à ce dilemme. Alain Renaut, *La fin de l'autorité*, Flammarion, 2004, et Philippe Meirieu, *Le pédagogue et les droits de l'enfant*, Tricorne/Korczack, 2002.
[61] Hannah Arendt, « La crise de l'éducation », dans *La crise de la culture*, Paris, Gallimard, 1972.
[62] Allusion également à Martin Heidegger, *Qu'appelle-t-on penser ?*, 1999, p. 26, au sujet de cette « science qui ne pense pas ».
63. C'est la thèse d'A. Renaut, *op.cit.*.
[64] Emmanuel Mounier, *Traité du caractère*, 1974, p. 102.
[65] Jean-Marie Domenach, *Ce qu'il faut enseigner*, 1989.

Proceedings 2nd Paris International Conference on Education, Economy and Society – 2010

2. Faut-il parler d'une autorité des savoirs ?

Grand débat donc que celui de l'autorité des savoirs, puisque débat qui renvoie à la fonction même de l'école, qui va de l'éducation à l'enfance jusqu'aux études supérieures, sans oublier la formation continue et celle dispensée aux adultes. Durant ce parcours, on côtoie des situations de vie, une formation intellectuelle, une profession technique, un parcours professionnel, etc.

Or, toutes les formations ne se valent pas, dit-on, en termes de développement des intelligences. Sur ce plan, partisans de l'éducation traditionnelle et promoteurs de la pédagogie nouvelle s'entendent, bien que ce ne soit pas pour les mêmes raisons. Pour les partisans de la tradition et de la culture classique[66], un bon système d'éducation doit permettre d'acquérir une culture apte à pouvoir penser et agir de manière autonome et ouverte sur le monde. Sans nier le rôle de l'éducation dans la formation citoyenne, les partisans de l'éducation nouvelle[67] estiment pour leur part que notre système éducatif affaiblit les activités constructives d'intelligence et enferme l'apprenant dans un savoir académique ayant une faible emprise sur le monde. Au final cependant, tous admettent la nécessité d'une réflexion critique pour une méthode de travail et d'apprentissage adaptée au potentiel de développement des uns et des autres permettant de réaliser délibérément sa destination. Car une méthode n'est rien sans la finalité et la philosophie qui l'habitent et orientent son pilotage[68].

Certes, dans la question de l'autorité des savoirs, il y a un danger réel et considérable qui serait de limiter le débat sur la question à un examen de type quantitatif : Quels sont les vrais savoirs ? Lesquels transmettre ? Pourquoi en privilégier certains plutôt que d'autres ? Non pas que cet exercice ne soit utile dans certaines circonstances. Seulement, quantifier les savoirs peut aussi vouloir dire faire l'impasse sur la nature des normes de transposition didactique, qui, une fois qu'ont été déterminés les savoirs à enseigner en vue d'un programme d'études, interviennent dans l'écart entre les savoirs savants (durs) et les savoirs enseignés (modelés). Cette critique est sérieuse. Elle appelle une série de questions : Peut-on parler de savoirs légitimes sur la base de procédés de transpositions didactiques opérées par l'État, l'institution et l'enseignant lui-même ? Sur quels critères ou fondements ces transpositions reposent-t-elles ? Sur les coutumes, la tradition, les besoins identitaires d'une société ?

Force est d'admettre que toute norme, tout savoir, si objectif soit-il, est porteur de valeurs et de préjugés, implicites ou non, à dimension éthique et culturelle, qui ont à leur tour des implications éthiques et culturelles[69]. Si éduquer, enseigner, transmettre sont un éveil humain au monde et à la totalité, il n'est

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[66.] dont Érasme peut être considéré comme le guide spirituel : *De l'éducation des enfants*, Paris, Klincksieck, 1990. Du reste, l'« éducation *traditionnelle* » est un héritage des pensées grecque, romaine et chrétienne. Tandis que l'« éducation *classique* » se rapporte à la révolution pédagogique opérée à la Renaissance et à l'époque des Lumières.
[67.] Avec Rousseau et son *Émile*, John Dewey est en le principal ancêtre : *Démocratie et éducation*, Paris, Armand Colin, 1975.
[68.] Michel Huber, *Inventer des pratiques de formation*, Paris, Chroniques Sociales, 2009.
[69.] Odette Bassis, *Se construire dans le savoir*, Paris, ESF, 1998.

guère facile d'apprendre à voir et à choisir sans réduire la volonté de celui qu'on veut éveiller.

Est-ce à dire pour autant que, parce que tout savoir est social, relatif, culturel, transmis par l'éducation[70] et que, incapables que nous sommes d'accéder aux « choses en soi » (noumènes), pour parler comme Kant[71], nous serions captifs de nos propres représentations empiriques des phénomènes ? Ce serait faire la part trop belle aux partisans du constructivisme et du relativisme moral que de ne pas insister sur le fait que, bien que laissés à nos propres critères de jugement, nous ne devons pas moins admettre que nous sommes toujours guidés par un absolu, bien que celui-ci ne soit pas de l'ordre de la démonstration[72]. Si l'être est inconnaissable, toute connaissance morale et fondée en liberté suppose de penser l'universalité de l'être[73].

De reine des sciences qu'elle était dans l'Antiquité au statut, somme toute, relatif de nos jours, en dehors des cercles académiques, la philosophie n'a jamais esquivé ce dilemme de légitimité des savoirs. On peut même dire qu'à partir de Socrate – figure légendaire qui suffit à décrire l'acte de philosopher – elle y répond d'une manière tout à fait originale et exemplaire : par une réflexion riche et stimulante sur le sens, et comme tel sur l'utilité, pour l'apprenant, des savoirs qu'on lui transmet. D'un point de vue pédagogique, disons que le savoir socratique consiste en une dialectique incessante d'un centrement sur soi, en vue de conquérir progressivement son autonomie contre tout paternalisme, et d'un décentrement par rapport à soi[74] au profit de la totalité dont le rapport au réel, loin d'être abstrait, n'est jamais oublié – le sage agissant toujours autant par science que par vertu.

En clair, ce que je veux montrer en recourant à la philosophie, et spécialement à celle d'inspiration socratique qui a influencé considérablement la pensée occidentale, c'est que le savoir se noue dans une interaction où se trouvent impliqués l'objet du savoir et l'intelligence qui le construit ; interaction qui génère de nouvelles significations, de nouveaux horizons.

3. Socrate ou le savoir comme conscience de soi et ouverture sur la transcendance

Déjà en son temps, Socrate s'est heurté aux sophistes de la dernière génération au sujet d'une connaissance transcendante des lois qui s'appellerait Sagesse,

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[70.] Émile Durkheim, *Les règles de la méthode sociologique*, Paris, PUF, 2007.

[71.] « Appendice : Critique du 4ᵉ paralogisme », *Critique de la raison pure*, 1980.

[72.] E. Kant, « Première Partie, Livre 2, Chapitre 2, § 5 et 6 », et « Deuxième partie : Conclusion », *Critique de la raison pratique*, 1985.

[73.] D'où l'affirmation de Kant : « Préface à la Deuxième édition », *op.cit.*, 1980, p. 748 : « Je devais donc supprimer le savoir, pour trouver une place pour la foi ». Gérard Guillot, *Quelles valeurs pour l'école du XXIe siècle ?*, Paris, L'Harmattan, 2000.

[74.] Ce couple *centrement/décentrement* fera école dans la pensée occidentale. Nicolas Piqué, « L'école et le décentrement (…) », http://www.congresintaref.org/actes_pdf/AREF2007_Nicolas_PIQUE_362.pdf.

Vertu, Justice, et qu'il faut connaître, selon lui, afin de bien se comporter dans la vie privée comme dans la vie publique.

C'est dans La République[75] et le Gorgias[76] que Socrate prend un malin plaisir à confronter Thrasymaque et Calliclès, lesquels font l'apologie de la force et de l'injustice comme expression d'une vie authentique. Ce qui est en jeu, c'est le rapport entre la Nature (Physis) et la Loi (Nomos). Que veut leur enseigner Socrate sinon que leur inversion du rapport de la Nature et de la Loi, qu'ils jugent arbitraire et conventionnelle, et l'interprétation qui en ressort sous la forme d'une rupture entre les deux termes au profit du premier, la Nature – à savoir la raison au service des désirs et des passions –, ne résiste pas à l'examen.

Socrate est en partie d'accord avec les sophistes quant à l'idée qu'il existe une nature humaine douée de raison[77] et par conséquent désireuse de connaître par-delà l'ordre et les lois établies. Ce sentiment est commun à tous les hommes et il est en soi une forme de vertu, de courage et d'amour pour la connaissance. Cependant, contrairement aux sophistes, il évite de tomber dans le piège du relativisme moral et des inclinations et tente de montrer que lois positives dépassent l'interprétation et la connaissance qu'on peut en avoir. Ainsi, Socrate ne valorise pas l'homme parce que les dieux n'existent pas, mais parce que les limites de l'homme relativement au divin imposent que l'on s'occupe de cultiver nos facultés dans les bornes de ce qui nous est donné. Tout en valorisant l'esprit critique, Socrate invite dans le même temps à faire un examen de conscience de soi-même et de sa place dans la cité, en s'appuyant sur le fait que, d'après lui, les lois sont comme une sorte de seconde nature. Elles sont certes de pâles reflets de la Vérité, mais ce sont les seuls repères dont nous disposons pour y accéder.

Tout comme dans le Charmide, le Protagoras, l'Hippias mineur, ou encore dans le Clitophon, Socrate distingue la technique et la sagesse. Pour lui, rêver d'une science au service de l'individualisme, comme celle revendiquée par Charmide[78], capable de reconnaître à tout individu compétences et pouvoirs, et ainsi lui assigner une place dans la société afin qu'il puisse concourir au bonheur de celle-ci, est futile et illusoire. Pourquoi ? Ce que Socrate refuse aux Sophistes dans leur réappropriation du « Connais-toi toi-même », c'est une prétention à l'individualisme et au commandement : soit la croyance qu'un savoir-faire permet d'atteindre une fin déterminée, d'acquérir un objet ou d'obtenir un résultat. Pour lui, le « Connais-toi toi-même » est d'abord une invitation à réfléchir, non pas à la puissance de l'individu, mais sur le mystère de la personne humaine. La technique est incapable de nous indiquer la fin dernière de notre condition ; seule la philosophie peut nous en rapprocher en nous invitant à

[75.] Platon, *La République*, 336b *sq.*, 1950.
[76.] Platon, *Gorgias*, 481b *sq.*, 1950.
[77.] Il s'agit du *noũs* (raison) chez Platon et Aristote, faculté qui distingue l'homme de l'animal. Platon, *La République*, 500b-d, 613a-b, *Théétète*, 176b *sq.*, 1950 ; Aristote, *Éthique à Nicomaque*, 1177b 34 - 1178a 7, 1992.
[78.] passages 162 à 174, 1950.

réfléchir. « Une science, ou une technique, ne peuvent nous donner qu'une puissance utilisable (…) dans certains cas, mais non absolument utile »[79].

Dès lors, on comprend mieux pourquoi, aux yeux de Socrate, c'est une erreur de contrevenir aux lois de la cité. « Mieux vaut subir l'injustice que de la commettre»[80].

Or, si l'on a, dans cette maxime socratique – à rapprocher d'une autre : « nul n'est méchant volontairement »[81] –, le souci d'une conformité aux lois communes, si imparfaites soient-elles, cela ne signifie nullement soumission aveugle ou renoncement à la Vérité de la part de Socrate. À cet égard, certains passages de l'Apologie et du Phédon, ainsi que du Criton[82] relativement à la prosopopée des lois, sont particulièrement éclairants. Socrate a su le montrer dans la façon dont il a accepté la sentence de mort par les juges athéniens et par le refus qu'il a opposé à ses amis qui le lui proposaient sur un plateau en or de s'évader de prison. Le paradoxe tient à la complexité de la condition humaine représentée ici par Socrate. Il consiste en ceci : choisir, comme l'a fait Socrate, l'obéissance aux lois de la cité, et donc la conformité à l'ordre social et positif, tout en se vengeant contre les juges en leur léguant son corps, sa propre mort[83]. C'est ce qui permet de dire que Socrate fut en accord avec lui-même et avec la Cité. Mais on peut aussi y voir, dans le Criton, une manière de dire qu'on ne peut réformer les lois (injustes) que de l'intérieur.

Que nous enseigne réellement cette expérience historique ? Non pas que le savoir soit d'une évidence indiscutable de la même manière que 2 + 2 = 4. C'est d'abord que la fondation de tout savoir – entendons, à l'instar de l'Euthydème[84] et du Lysis[85], un savoir capable de produire et de bénéficier de ce qu'il produit – repose sur une conquête difficile, empruntant des sentiers sinueux et escarpés. Pour Socrate, le savoir vient d'une conquête sur le doute, le flou, l'impossible, et même des contre-évidences se revendiquant du sens commun et du bon sens. Né de l'incertitude, il doit de surcroît affronter l'incompréhension de l'opinion, voire le rejet et l'illégitimité. Ainsi, il ne suffit pas d'affirmer qu'il existe une Idée de la justice – sur ce point Socrate est d'accord avec ses détracteurs sophistes ; il faut aller jusqu'à sa source. Mais cela suppose dans le même temps de sortir du pragmatisme, d'aller au-delà des caricatures, sachant par ailleurs que le chemin qui nous y conduit est plutôt long[86]. Autant s'y faire et accepter que la quête du savoir, posée moins en son résultat qu'en sa raison d'être, est une sagesse irréductible à tout psychologisme et aux évidences trompeuses.

[79.] J. Moreau dans Jean Brun, *Platon et l'Académie*, 1991, p. 32-33, 37.

[80.] *Gorgias*, 469b-c, 473a, 474b *sq*, 526c-527, 1950.

[81.] Platon, *Protagoras*, 345d *sq*., 1950.

[82.] passages 50 à 54, 1950.

[83.] V. Jankélévitch, dans J. Brun, *op.cit*., p. 37

[84.] 277e-278a, 279e-280b, 290d, 1950.

[85.] 210b *sq*., 1950.

[86.] Platon, *La République*, 621d, 1950.

4. Conférer un sens au savoir

Quel rapport demandera-t-on avec la problématique qui me retient ?

À défaut d'être l'unique clé de la solution, une partie de la réponse au dilemme de légitimité des savoirs trouve sa source dans l'excellence pédagogique[87], dans ce que le philosophe-pédagogue de Platon, Socrate, propose comme « conversion » philosophique en vue de se libérer des passions et de devenir souverain : apprendre à tourner l'œil intérieur de l'âme dans la direction convenable[88]. Or, vu sous cet angle, ce n'est plus la seule question, si contestée et contestable pour certains[89], de l'autorité qui doit être revisitée et débattue ; c'est plutôt le sens impliqué par l'acte de transmettre le savoir. Mais se pose alors aussitôt une autre question cruciale : Comment, pour l'enseignant, conférer sens au savoir ? Comment créer, entretenir et apprendre à partager la métaphysique du sens résultant d'un savoir ?

Si l'on considère que la philosophie ne se borne pas à la pédagogie[90], brassée qu'elle est par des questions essentielles auxquelles elle tente de répondre par un travail toujours à renouveler, d'aucuns admettront que, tout autant que le philosophe enseignant qui en a la responsabilité, la question du sens n'interpelle pas moins au premier chef les apprenants eux-mêmes, notamment dans leur construction de problématiques conceptuelles qu'ils ont à mettre en œuvre et à formuler. Et pour cause.

Comment ignorer, depuis Socrate, ce que le savoir et la culture doivent aux défis d'ignorance et de fatalité ? Comment oublier que c'est parce que la quête des savoirs a su relever ces défis pour une bonne part que l'acte d'éduquer peut encore avoir une fonction émancipatrice, pour parler comme Dewey et Maria Montessori[91], en plaçant l'apprenant dans une situation où c'est lui qui impulse, questionne, agit, construit, de concert avec les autres ; bref, développe ses propres capacités à traduire le savoir de telle manière qu'il ne se pose plus négativement comme un obstacle, une ordonnance ou comme un fardeau toujours plus lourd à assumer, mais comme un questionnement permanent sur ce qui fonde son humanité et ses valeurs ? À cette condition seulement, il peut y avoir transposition didactique des savoirs qui ne soit pas falsification, mise en boîte de la pensée de celui qu'on éduque au point de rendre ce dernier dans une dépendance qui n'a d'égale, aux yeux d'un homme éclairé comme Kant[92], que l'ignorance et l'esclavage.

Conférer sens au savoir, c'est donc effectivement lui restituer sa dimension éthique et culturelle et considérer cette dimension non pas comme une simple valeur ajoutée mais comme une donnée constitutive des conditions d'émergence de tout savoir – et sans doute aussi d'une autorité comprise comme exemple, ou

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[87.] Peter S. Temes, *Against School Reform*, Ivan R. Dee Publisher, Chicago, 2002.
[88.] Platon, *op.cit.*, 518c-d, 1950.
[89.] Stanley Milgram, *Soumission à l'autorité*, Paris, Calmann-Lévy, 1994.
[90.] J.-M. Domenach, *op.cit.*
[91.] *Étapes de l'éducation*, Paris, Desclée de Brouwer, 2007.
[92.] *Qu'est-ce que les Lumières ?*, 1985, p. 209.

encore à la manière d'un principe ou d'une maxime librement choisie et acceptée[93].

Comme j'ai pu le dire auparavant, tout le travail du philosophe-pédagogue consiste, par un questionnement incessant, à combler la dette du sens – les questions étant souvent plus riches que les réponses[94]. Parce que porteuse de significations nouvelles, toute question philosophique est susceptible de ramener à ce qui, pour l'apprenant, est en voie de faire sens, à la fois avec et en rupture avec son propre univers mental. En quelque sorte, à travers la quête du sens dont est porteuse la philosophie, sont mises en synergie et font écho entre elles, dans le maillage où sont impliquées raison et imagination, les forces créatrices, historiques et spirituelles de l'humanité qui ont produit tel ou tel savoir et celles des apprenants eux-mêmes en voie de développement et d'émancipation. Mais s'y ajoute naturellement, dans cette recherche fondamentale du sens, cette autre dimension importante, celle que j'évoquais auparavant en citant Kant sur le respect et la dignité de la personne et qu'on trouve exprimée chez Descartes[95] : penser ne se peut sous le joug de quiconque. La vérité n'est pas une évidence incontestable.

5. Repenser l'éducation par-delà les clivages idéologiques

Penser par soi-même[96], et non pas pour soi-même – confusion dommageable dans la pensée éthique occidentale qui a pour effet de réduire tout le trajet des Moderne au culte de l'individualisme[97] –, reste donc toujours possible.

Tel que le suggère Socrate, pour mener à bien une pensée riche et autonome, il faut l'affrontement avec les doutes et les contradictions de soi-même et des autres. Non pas pour supplanter quiconque, seulement pour apprendre collectivement davantage, dans la résolution non violente des conflits et des points de vue opposés – idéal de fraternité cher à Dewey, Montessori[98] et Janusz Korczack[99] –, comment écouter, argumenter, décider, ne pas lâcher prise au savoir qui se construit au même moment que viennent s'y heurter de multiples résistances. C'est seulement ainsi, par et à travers le dialogue et l'échange, que peut émerger un sens qui soit à la fois véhicule de valeurs pour sa propre existence et ouverture sur la transcendance.

Il me semble que c'est cette même quête socratique du sens qui est présente dans « l'auto-socio-construction du savoir »[100], tant défendue par l'éducation

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[93.] Karl Jaspers, « Liberté et autorité », *Diogène*, Paris, PUF, 2005.
[94.] K. Jaspers, *Introduction à la philosophie*, 1965, p. 11, 24 et 25.
[95.] « Première » et « Deuxième partie », *Discours de la méthode*, p. 128 *sq.*, ainsi que « Première partie : ¶ 1 », *Les principes de la philosophie*, p. 571, 1953.
[96.] que Kant, *Critique de la faculté du juger*, ¶ 40, 1985, traduit par « une faculté de juger qui dans sa réflexion tient compte, lorsqu'elle pense (*a priori*), du mode de représentation de tous les autres êtres humains afin d'étayer son jugement ».
[97.] Alain Renaut, *L'ère de l'individu*, Paris, Gallimard, 1989.
[98.] *L'éducation et la paix*, Paris, Desclée de Brouwer, 1996.
[99.] *Comment aimer un enfant*, Paris, Laffont, 2006.
[100.] *http://www.gren-ch.org/Pratiquesautosocio-const_EVellas.html*.

nouvelle et les sciences de l'éducation, et qui donne à cette démarche pédagogique une dimension formatrice à la culture et à la démocratie dans un contexte pluraliste. Car si la démarche en question requiert une transformation de l'acte d'apprendre et si, pour ce faire, l'apprendre nécessite à son tour une transformation de l'acte d'enseigner, ses promoteurs reconnaissent aussi que l'opératoire n'est pas encore le concept et qu'il y a par conséquent des limites à une pédagogie qui réduit le comprendre (le pourquoi) au projet (le comment).

Ainsi, à tous ceux qui estiment que le corpus d'enseignement traditionnel et classique est moribond; que sa prétention à l'universel ne saurait recouvrir totalement d'un point de vue moral ce qui fonde et constitue notre condition humaine ; et qu'il doit pour cette raison céder sa place à un humanisme qui convienne à notre temps, et que sais-je encore, il faut répondre que c'est une chose que les défenseurs de l'école classique eux-mêmes peuvent concéder. À vrai dire, cette critique ne résiste pas un seul instant à l'examen. C'est un procès d'intention, ou plutôt une contrevérité qui cache un nouveau dogmatisme agissant sous le couvert d'un savoir se voulant démocratique.

S'agissant du sens, pas moins que l'enseignement classique, la pédagogie nouvelle tout comme les sciences de l'éducation[101] n'échappent à cette mise à l'index. Elles ne peuvent revendiquer pour elles seules le monopole d'une question de cette ampleur qui touche le fondement même de notre humanité et de notre vie commune. Tout simplement parce qu'il n'existe aucune certitude relativement à une telle question dont la pédagogie et la pensée éducative contemporaines seraient détentrices ou dépositaires.

C'est qu'en fait, renoncer à la prétention de régler l'enseignement sur un idéal type, ne signifie nullement faire abstraction de toute norme, de toute valeur. Bien que notre modernité politique et éducative repose sur un pluralisme alimenté par un relativisme culturel qui fait abstraction de toute forme d'autorité et de transcendance imposées du dehors, elle nous enseigne dans le même temps qu'il est bien difficile, pour ne pas dire impossible, de concevoir un autre modèle de culture et de société sans rétablir une certaine hiérarchie de savoirs, de valeurs et de goûts.

6. Conclusion

Sans prétendre comme Platon que tout projet éducatif doive être essentiellement philosophique, reste que la dimension métahistorique et universelle du sens se doit d'accompagner le métier d'enseignant, dont la vocation ne saurait se limiter à la sphère étroite de la spécialité.

Or, curieusement, si le sens, en tant que criticisme de la vérité, transcende la spécialité et les objectifs immédiats, il ne se laisse pourtant jamais aussi facilement écarter de quelque considération pratique que ce soit sur l'éducation.

[101.] Ne jamais omettre toutefois les différences, voire même les oppositions sur bien des points entre la pédagogie *nouvelle* et les sciences de l'éducation. Cf. *http://lelien.org/* ; *http://www.gben.be*.

Conscient cependant que le philosophe n'est pas à l'abri de l'erreur et de l'illusion[102] et que, par ailleurs, l'éducation est aujourd'hui indissociable de l'interpellation de la sphère socio-économique, du droit, de l'histoire, de la politique, de la psychologie, de l'anthropologie, seule une approche multidisciplinaire est susceptible d'orienter et de nourrir la réflexion sur l'éducation et de permettre, tant bien que mal, d'acquérir au final quelque assurance dans la confrontation de questions spécifiques propres au métier d'enseignant en tant que pourvoyeur de sens.

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Caught at the Policies Crossroad: Beginning Mathematics Teachers and Educational Policies in New York City[103]

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Abstract

This paper reports on how beginning mathematics teachers, who are participating in the New York City Teaching Fellows (NYCTF) program, the largest Alternative Certification program in the U.S, view and are affected by current national and state educational policies. We will share our findings by presenting a case study of one teacher. We point to how the New York City and State educational policies pertaining to curriculum standards and teacher preparation were viewed by beginning teachers. We also describe how specific instructional practices like lesson planning using technology and error handling were seen as affected by the policy context. Data confirmed what we call "policies dissonance" phenomenon and how high stake testing is narrowing the mathematics curriculum. The role that the school context plays in shaping how beginning teachers receive, implement, filter and get impacted by educational policies is highlighted.

Keywords: Education Policy - Alternative Certification - New York City - Mathematics Teachers

1. Introduction

"In terms of school policy, schools do look at the obvious: the test scores, they are also trying to impress the outsiders for their quality review. Sometimes I feel that we are teaching just for the State exam, or just for some school project to look good for quality review…We need to start teaching according to student needs and not to impress others." (Paulina (a pseudonym), Personal Interview, February, 2010).

The teacher above, like other new teachers in New York City finds herself at the crossroads of policy and practice. In this paper we present Paulina's case in an attempt to better understand how beginning teachers receive, implement, filter and get impacted by educational policies.

1.1. Entering the Profession: the Case of Paulina

After eight years in investment banking, Paulina–a first generation American to immigrant parents–joined the New York City Teaching Fellows (NYCTF) program for a career change to teach mathematics in the NYC public schools. As part of the program's requirement, Paulina had to take six weeks of pre-service preparation during the summer of 2006, after which she received a transitional license and began teaching full-time in the fall of the same year. She spent the next two years taking graduate coursework in the evenings at a local partner university while teaching mathematics full-time to complete state requirements for permanent certification.

When she decided to go into teaching, what attracted her to the NYCTF program was the fact that she would get a full-time job all while working toward obtaining her master's. Paulina grew up in New York City and wanted to teach in the city where she feels that she relates to the students' experiences and identifies with some similarities with her own experience as a student: "My parents came from another country where they were raised in the villages with limited access to education. They never went to college."

Paulina doesn't think she got much out of the graduate courses. She admits that she needed her master's to become certified but didn't have time to put extra time or effort and felt a disconnect between most of the courses and her immediate teaching needs.

For her first teaching year, Paulina got a job in a middle school in a working class neighborhood in New York City. According to the NYC Department of Education (2008), the school population is comprised of 3% Black, 71% Hispanic, 20% White and 6% Asian students. The student body includes 11% English language learners and 7% special education students. The school was recognized as part of numerous reform initiatives like America's Choice School Design reform model and iTeach/iLearn schools of NYC, which are schools committed to using instructional and informational technology to close the achievement gap.

In preparing for her first teaching appointment Paulina lived a state of anxiety, everything seemed unknown: her students, her lesson planning skills, her ability to manage the class:

"I've been working on my lesson plans for the next two weeks of school. I probably won't sleep the night before. I'm thinking about what kind of students I'm going to have. Are they going to give me a hard time? Are they going to understand the way I'm teaching or are they going to be like, "What is this woman telling me?"

Paulina survived her first year. She overcame many obstacles and developed a good rapport with her students: "So I guess what I expected in the beginning didn't happen but I saw some major changes in my students that I was proud of."Her 7th graders were generally weak mathematically. They lacked the basic skills; many of them didn't even know their multiplication facts. "They were totally lost with long division or fractions."

Many of Paulina's students came from poor families. The school is in receipt of Title 1 funding with 71% eligibility; in American schools, "Title I is a federal program that provides assistance to schools and districts serving in areas with high concentrations of low-income students. Under the program, the federal government awards grants through state education agencies to school districts serving low-income students. Districts in turn distribute Title I funds to schools based on their concentrations of students in poverty" (US Department of Education, 2010). Paulina noted that many of her students "didn't even live with their parents. Their grandparents were raising them. I remember one of the students came up to me and told me how she hasn't seen her mother in two years, and her father lives somewhere else and her grandmother was raising her." In describing one of the students who she thought she failed to reach, Paulina remembered how she heard at the end of the year that he was involved with a street gang. "I felt like there were more cultural differences because a lot of the students came from a broken home. During advisory I had one girl telling me how her grandfather was smoking pot. I've never heard of that. Like how can your grandfather smoke pot in front of you? The school psychologist would act like oh, it's such a normal thing in this neighborhood. I was in shock."

Despite reporting the cultural and academic challenges of her students and the overwhelming demands of being a full-time beginning teacher and a full-time graduate student, Paulina considered her survival year as a success and still holds to this day a positive feedback about the support she got at the school. We will see how this year influenced her practice.

In her first-year school, Paulina was part of well-enacted school support system (Foote et al., forthcoming) which echo best practices recommended by the current reform trends in teachers' professional development (Liebermann & Miller, 2001; Villegas-Reimers, 2003); they are site-based, of an on-going duration, and grounded in teachers' practices and peer collaboration. This influence that Paulina had from the school context confirms what other researchers are finding:

"By contrast, in other schools that served similar populations of students, we found alternative certification teachers who were equally exhausted, but positive about their teaching and their decision to pursue an alternative route. These teachers pointed to the help they received from the school leadership and their colleagues, and to the overall school climate. In these schools, the principal presented a clear vision for the school, books and materials were ample, the building was clean and well maintained even if old, and the interactions between teachers were positive and friendly. (Humphrey et al., 2008, p. 36) "

1.2. Changing Schools

However for her second year of teaching, Paulina still moved to another school closer to where she lived, a reason reported among the five first very important or extremely important factors in teachers' decision to move to another school

according to Marvel, et al. (2006). The new school was located in another diverse NYC diverse neighborhood. According to the Furman report (2008), the two neighborhoods are demographically and socioeconomically similar, however Paulina didn't experience the cultural differences that she did at the first school:

"So the students now at this school, it might be similar to my background but I think that the parents are a little more educated than my parents were. Because sometimes I'll call parents and I'll tell them your son took had a quiz on the greatest common factor and the least common multiple and, got a 75. "So the mother's like, oh but I went over everything with him. You had a question on blank." My parents wouldn't be able to understand a GCF and LCM. "

Paulina's teaching goals for the second year were still in the realm of "survival skills," (Kagan,1992) such as student discipline and motivation, individualizing instruction, assessment, and dealing with parents. "So this year I'm really focusing on my lessons and I want to find a way to have the students be more engaged. I want to work more in differentiating. I still find that to be so difficult. I don't know where to begin."

2. Background

This case study report is part of the MetroMath study, a large, multi-layered research of teachers who have been recruited and trained to teach mathematics in hard-to-staff middle and secondary schools by the NYCTF Program. The macro level uses large-scale surveys of the 2006 and 2007 cohorts (approximately 300 each year). The primary data sources for the micro study including Paulina's case study are regular interviews with eight Fellows and video observations of their teaching (about ten times per school year). The observation data is supplemented by post-observation reflections on the class written by the Fellows and post-observation interviews conducted by a researcher with the Fellows. The larger research examines a wide range of issues such as the supports for NYCTFs; implementation of "standards-based" policies for instruction; the nature of mathematics instruction in the classrooms of NYCTFs (e.g. response to student mathematical errors) social background differences between NYCTFs and their students.

Founded in 2000 to address "the most severe teacher shortage in New York's public school system in decades" (NYCTF, 2008) and "in response to changes in New York regulations regarding certification of teachers" (Boyd et al., 2008), the New York City Teaching Fellows (NYCTF) program provides teachers in NYC an alternative certification route.

According to the program's design, Teaching Fellows take six weeks of pre-service preparation during the summer, after which they receive transitional licenses and begin teaching full-time in the fall. They spend the next two years taking graduate coursework in the evenings at local partner universities while teaching in their certification area full-time to complete state requirements for permanent certification.

The program's scope and impact have grown tremendously since its inception. At this point, the NYCTF program prepares more than a third of all new teachers for New York City schools; in 2006-07 approximately ten percent of all New York City teachers had begun their careers as Teaching Fellows (Boyd et al., 2008). The scope is even greater in the case of mathematics teachers; in 2005, the program alone provided over 60% of all new math teachers entering the NYC public school system.

3. Policy and Practice

In this section we look deeper on how NYCTFs, like Paulina, react to and get impacted by educational policies at two levels: school based policy (teaching with technology); and city based policy (workshop model).

3.1. School based policy: wiring teacher practice with technology

As mentioned above Paulina's first school was part of an initiative committed to using instructional and informational technology to close the achievement gap. Paulina expressed that she was very impressed with the school because it was very high tech. "When I went to public school I didn't even have air conditioning. This school has central AC, all teachers use SMART Boards, each kid gets a laptop."

With time Paulina became more comfortable teaching with the technology: "Well, I do like technology a lot better. More students are getting engaged in the lessons. Before my lessons were more boring just using chart paper." She experienced how she could use the technology to expand her teaching tools and make her lessons more interactive. "With the SMART Board I can make it more interactive, like I did a lesson today where I rolled a die. We're teaching functions, so I wanted to show them what happens when you roll a die, what happens to the output value. And all the kids are like, 'Oh, that's so cool.'"

She also noticed that this might not be best for every student, such as in her lower functioning class. "A lot of them liked it better when I was using the chart paper. They've actually told me, 'Oh, why do you have to use the SMART Board all the time?'"

Technology was not the shortcut for less work, according to Paulina. "You always have to have a plan B. Like what if the internet is out? There's more chances of things going wrong with technology, whereas if I just had my lesson planned on chart paper, what's gonna go wrong?" Other shortcomings came from the use of laptops by each student. Paulina didn't like the fact that some of the students didn't have flash drives or computers at home to refer to notes at home. She also felt that some students may learn better by writing: "Sometimes with the laptops, I feel like they're too slow in typing."

Paulina got the necessary support at school and a constructive message emphasizing the technology as a tool for learning, and this resonates with her

observation above. In one of her weekly evaluation meetings with the assistant principal, he told her while commenting on a lesson of hers that he observed, "You are observer of learners looking for opportunities to advance their learning. You are missing some equipment and training on how to use the laptops…" He continued: "You forget about the laptops during the warm up [the introductory part of the lesson]." He then gives her some example from one colleague's instruction using the laptops and websites. At the end of her first year, Paulina became more comfortable and skilled at teaching with technology but still identified some of the skills that she wanted to develop, like the use of Geometer Sketchpad software and advanced features of the SMART Board.

This teaching practice with technology turns to influence Paulina in the way she views teaching in urban context. When asked about the characteristics of effective math teachers in high-needs urban schools technology was her first answer: "They [urban teachers] definitely need to have some knowledge of technology because they get through to more students. They can differentiate more. You have different types of learners. The only way to get through to them is by incorporating technology."

Now after two years teaching at the second school, which is not part of the same technology initiative, students there don't have their individual laptops but Paulina has a SMART Board and uses it all the time. This modality of teaching became a permanent feature of her practice. She reflects: "Funny thing is, I don't think I can teach without it. I have become so dependent on it now."

Paulina's teaching with technology experience is powerful example of how a school policy effects beginning teachers' beliefs and practice. The gap in her experiences between the two schools also suggests how the school context affects the professional development and advancement of teachers with specific practices. The initiative in the first school provided the favorable conditions for alternatively certified placement stated by Humphrey (2008), specifically, a clear vision for the school, and ample materials.

3.2. City-based policy: workshop one way

At the time of the study, teachers in New York City were mandated to use the workshop instructional model in all subjects since 2003-04 (Traub, 2003). The model was initially designed to promote interactive pedagogy and creative student learning and move away from didactic pedagogy, which is "organized through a set pattern of lecture, recitation, and seat work" (Gamoran, Secada, and Marrett, 2000).

Our survey data (Table 1) shows that in 2006 and 2007 almost seventy percent of the NYCTF reported using the workshop model consistently in more than half of their lessons.

Percentage of lessons	76 to 100	51 to 75	26 to 50	10 to 25	Less than 10	Blank
You followed workshop model	35.32 %	32.33%	11.37%	10.17%	10.17%	0.59%

Table 1. Survey Question: What is the approximate percentage of lessons in which you followed the workshop model?

Paulina is one of the teachers who admitted in her first year interview that she believed in the workshop model as an effective model of mathematics instruction, and after one year she maintained this belief but with some reservations as we will show below; she still used it consistently because her schools mandated its implementation and monitored the implementation through their teacher evaluation systems. The way NYCTFs experienced pressure from their school administrations to implement the model varied is shown in Table 2.

	(a) The workshop model is an effective model of math instruction	(b) Your administration makes sure you teach with the workshop model	(c) Your administration makes sure students work in groups
Strongly Agree	11.97 %	22.75%	20.95%
Agree	34.73%	31.73%	43.11%
Neither Nor	24.55%	17.96%	17.96%
Disagree	17.36	13.17%	10.17%
StronglyDisagree	11.37	14.37%	7.78%
Blank	0 %	0%	0%

Table 2. Teaching with the workshop model

In reflecting on her first year of teaching, Paulina noticed difficulties in engaging her lower levels classes in group work: "They're just not interested. It is very hard to get their attention because they just hate math. Maybe it's better to have them in a more traditional classroom set-up." She follows immediately by affirming, "I do believe in the workshop model. Because even when I went to grad school it helped me a lot. You have to teach different kids in different ways. I don't think the workshop model maybe works for everyone."

Paulina's novice experiences with the workshop model, along with her deep reflection on her practice, are guiding her to think about what can be described as "hybrid pedagogies" (Bernstein, 1990).

"I don't know if the workshop model should be done every single day. Ideally I think that when students are first introduced to a lesson, I think it should be more independent work. Students do need that extra practice on their own to see if they got it. Sometimes they don't feel like they're accountable for things because they might be part of a group but they don't do much. "

Paulina's pedagogical observation won't get enacted into any structural modification in her classroom, at least not during her first years and as long as the school put high stakes on the implementation of the model. She believes she is restricted in a way as teacher by the school's policies and structures. "I mean you got to follow the workshop model. You can't really do whatever you like. Every teacher is restricted."

It is also interesting to see that the way the administration enforce the implementation of the model shaped the teacher's understanding of the model and the way she enacts it in her classroom. "They [administration] are looking

for those three things. Student work in the classroom. Your agenda. And level of questioning."

This is not to suggest that the policy's effects are negative but to more to describe the dynamics of teachers' experience with policy implementation within the confines and the context of a school. In fact, we found elsewhere (Haydar, Vatuk & Angulo, 2009) that the influence of the workshop model at the school affected other classroom practices like Paulina's response to her students mathematical errors and in her case this resulted in a shift from teacher ownership to including more students in the correction process. The participatory nature and structure of the workshop model helped some of the teachers, especially in the schools where the model was systemically emphasized, to delegate some of the correction role to students.

4. Discussion

This paper confirmed the importance of support for new alternatively certified teachers in urban areas. The support is seen as an essential factor affecting the retention of new teachers especially in high need areas. Like Darling-Hammond wrote: "with 30% of new teachers leaving within 5 years (and more in urban area), the revolving door cannot be slowed until beginning teachers are better supported" (p.218)

In examining the crossroad of policy and practice in the case of Paulina and other NYCTFs we examined how policies at different levels interplay with teachers' classroom practices and how the support or lack of herein affect teachers' educational views and practice.

More specifically, by comparing Paulina's experience within two different school settings we were able to point out to the clear role that the school context plays in shaping teachers' professional views, practice and professional development. Paulina's case is an example of how "a good school context is the most pervasive contributor to positive outcomes for teachers. Thus, an effective alternative certification program should make the placement of its participants a primary focus." (Humphrey, 2008, p. 36) It was clear in her case that the school context played the decisive role in how she reacted to the phenomenon of "policies dissonance" (Haydar, 2008)

This paper was limited to the analyses in examples of school-based and city wide policies, more studies that contrast this with effects of federal policies will help better understand the experiences of beginning alternatively certified teachers.

In conclusion, we agree with Rice (2008) that policy makers need to "identify and invest in policies, practices, and resources that will attract well-prepared teachers, make them more effective in their teaching assignments, and retain them in those positions over time. These policies may require substantial investments in professional development, strong leadership, and supportive working conditions." (p.162)

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Formation of School as a Learning Organization in the Context of Contemporary Education in Latvia

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Abstract

The research problem is set in the context of Latvia as a post-Soviet country, and is expressed in a contradiction between the educational demands of a student within democratic society and the professional competence of teachers that was developed within an authoritarian educational system. The study consists of two parts. Firstly, the implications of authoritarian values in education (Popper, Arendt) are investigated to present the situation in Latvia describing the results of an analysis of narrative interviews with teachers. Secondly, the idea of organizational learning (Argyris & Schon, Dixon, Lave & Wenger) as a contributing approach for tackling a problem is explored by a case study in one particular school. Qualitative data analysis of observations, diaries, reports, questionnaires and transcripts of interviews and discussions is supplemented by quantitative data analysis of classroom observations to look for relations between teacher's professional activity, formation of student's learning experience and institutional factors.

Keywords: organizational learning – learning organization – authoritarianism

1. Introduction

Since the collapse of the Soviet Union, education reform has been carried out in all post-Soviet countries. Although educational aims are reformed, the people who implement the reforms in schools act in a manner consistent with their previous understandings. Contemporary society demands that students are prepared for participation in the processes of democracy (NDP, 2006; Jensen & Walker, 2008; OECD, 2005) that requires adequate schooling. This creates a serious challenge for schools characterized by acceptance of totalitarian values and rather high authoritarianism indicators among teachers (Austers et al, 2007; Rubene et al, 2008, 2009). The current study is (1) an attempt to untangle problematic issues concerning the situation in schools and (2) to advance the idea of organizational learning as a balancing perspective between the two fundamental goals of democratic education: autonomy and ability to function as a members of the society. At the same time it is recognized that participation and collaboration in this sense have not only the social aim to ensure equality or social justice, but is also the individual's own tool for development.

Relations between the individual and collective in Latvia have developed in a complex manner. On the one hand, the traditions of collectivism engrained during the Soviet years have taken deep root in the school culture. On the other hand, since regaining independence, individuals, including teachers, have treated

Soviet school values with great caution, if not dismissively. Nevertheless, the idea and understanding of collectivity in contemporary society and education has changed, differentiating it from the idea of forced collectivity employed by Soviet ideology in schools and from the radical individualism derived from the new economics that after re-independence of Latvia in 1991 made competitiveness as a major educational goal.

Starting with a description of the context of contemporary education in Latvia by focusing on implications of totalitarian values in education, the research deals with the interpretation of organizational learning and learning organization in school settings, conceptualizing it as progressing gradually from externally organized through self-determined and then to self-organizing learning. Such an approach to reasoning allows consideration of the idea of organizational learning as supporting current reforms in order to overcome contradictory aspects in schools related to fast changing educational goals and values.

2. Contemporary Education in Latvia

The society of Latvia lived in a totalitarian regime for 50 years. All major socio-political and economic activities were strictly controlled, all types of mass media were censored and everyone followed a given ideology and a way of thinking. Latvia and Latvians are now learning to adjust to democracy that supports and promotes a diversity of opinions and participation in the decision-making process. Thus, until now the society of Latvia has been characterized by a strong desire for strict control, reliance upon the state and superior institutions as providers of one's welfare, mistrust in the model of democratic relations both in politics and everyday life, as well as civic passivity (Catlaks, Ikstens, 2003). One of the reasons for that situation is an inability to assess social processes critically, creating a feeling of powerlessness and leading to disappointment in the ideals of democracy.

2.1. Effects of educational reforms in Latvia after re-independence

Educational reforms reorientated Latvia towards decentralization and liberalization of education. The implementation of democratic principles and independence from the control of the past ideology have been carried out during the last two decades. This shift started with the withdrawal of propaganda doctrines of Soviet ideology, the elaboration of a new curriculum and textbooks, and the development of networks with sponsors and partners from Western countries, for instance, the Soros Foundation, the British Council, the EU Phare programme. However, many well intended, but frequently uncoordinated foreign initiatives and pilot projects stimulated the reforms, but at the same time indirectly promoted the lack of coordination for educational reforms (OECD, 2000).

Assessing the educational policy in Latvia in 2000 it was concluded that during the first years of the reform the initiative actually came "bottom-up", but the "shock" created by the liberalization of education gradually turned education

back to the authoritarian principle "top-down". Undoubtedly this situation fundamentally encumbered the democratization processes. Moreover, the non-implementation of changes in schools and classrooms has become like a symbol of peace and stability. Most frequently teachers are tired of reforms without technical provision. They do not believe that their main task is introducing innovations, but rather retaining such old-fashioned values as discipline, textbooks and the timetable in the hive of unpredictable changes (OECD, 2000).

Although teachers agree that culture, tolerance, cooperation and respectfulness are essential for the pedagogical process, frequent discipline is identified as the most important value in school (Austers et al, 2007). This has raised questions about the impact of the values integrated by the previous ideological system upon the formation of a modern educational policy as well as questions about the value orientation of teachers, who studied under the totalitarian ideology and their influence on the implementation of the reforms.

2.2. Implications of totalitarian values in education

Aiming to identify the implications of totalitarian values in the implementation and introduction of the reforms in the post-Soviet educational space and to analyze the transformation of the educational system by focusing on pedagogical, political and social contexts nowadays, in 2007 the research project was initiated at the University of Latvia. A group of researchers, representing the areas of pedagogy, theology and philosophy, commenced a comparative research using the theoretical framework developed from Popper's and Arendt's ideas about totalitarian society (Popper, 1945; Arendt, 1958). The study included questionnaires and narrative interviews with teachers.

Within the framework of the research 46 narrative interviews with teachers at various educational levels and age groups from Latvian and Russian schools, representing both Riga, capital of Latvia, and also regions, were analyzed using content analysis by examining respondents' opinions about their professional experience that outlines a comparison of the Soviet and post-Soviet situation of educational practice in Latvia.

In 10 interviews of 46 teachers, it was stated that the independent Latvia lacks a unified, clear and sustainable system in education. Teachers' views in relation to Criteria and Indicators of Totalitarian Values (Rubene et al, 2009) brings evidence about: (1) lack of changes – strict control and state monopoly; (2) indoctrination in one truth – freedom creates chaos and disorder; (3), polarization in thinking – "Ours" and "Theirs", lack of tolerance in society, defined hostile groups, life is a struggle; (4) collective responsibility – focus on "the average person/student", no individual/personal responsibility.

The reformation of the educational system only partially influences teachers' professional action within a classroom, because it does not change a teacher's perception of learning in the sense of "construction and reconstruction of experience" (Dewey, 1938). Sustainable change take time. These factors are influenced by school culture, structures, management strategies, and,

furthermore, how all these factors are related to each other and a teacher's everyday professional experience. This is at the core of the following analysis of school as a learning organization.

3. School as a Learning Organization

There are different definitions and different perspectives of the concepts of learning organization (LO) and organizational learning (OL), whose use is mainly determined by either the organization's or the researcher's intention. The current study defines LO as an ideal organizational form that is characterized by the fact that individual and collective learning are key. OL is characterized as the activity and the process by which organizations eventually reach this ideal of LO, and exposes OL as a transformational process of an organization. This distinguishes OL as a means and LO as an ends (Finger & Brand, 1999).

In order to describe and analyze the processes of OL in different layers and from different perspectives, two additional elements are introduced: OL strategy as an activity that include widespread generation, integration and collective interpretation of information, and responsible action (Dixon, 1999); and OL competence of an individual that reflects the ability of individual to skillfully use OL strategies.

From the OL perspective, a school as an organization is characterized by the OL capacity that is in some way built on OL competences of members, but is more (or less) than the sum of individual OL competences, being based on the potential for expression of the OL competence of individuals, and dependent on school culture and other organizational factors.

3.1. Conceptual perspective on learning organization and organizational learning in school

OL is considered as a factor that promotes, on the one hand, the development the socio-cultural environment and management of a school, expressed through communication and collaboration, forming rules, norms, habits, beliefs, controlling mechanisms and atmosphere; and on the other hand the development of teacher's learning experience within school from externally to self-organizing learning. Though they are two different perspectives, they do not develop separately – these are perspectives of an organization and an individual closely related both as processes and as outcomes, and cannot be distinguished in school's real life.

Basically it is possible to sketch two directions: OL as a managerial tool and OL as a social phenomenon. While the idea of school is by its nature both social and managerial, neither of these perspectives separately can fully illuminate the concept of OL, and therefore the pragmatist research tradition, that accepts the usage of different standpoints for analysis (Elkjaer, 2009), is taken for the study. The study looks for the most appropriate approach to each aspect selected for

the investigation, sequentially following the trajectory of the study and answering guiding questions arising during the process.

The idea of the formation of school as a LO, therefore, is assumed by taking the concept of LO rather as a hallmark not as a standard that could be measured against strong yes/no criteria, and is analyzed by looking for OL as a process, being both an outcome for school as an organization and a tool for teachers as an acquired experience, that, by the way they conduct their classes, influences the formation of students' OL experience, gradually expanding learning environment for students and teachers.

Usually the concepts of OL and LO are considered as a means for school improvement, teacher professional development or leadership strategies, but not in the classroom perspective. This is probably because the aims of learning within a classroom are strongly individual. Nevertheless, these concepts have a deep value also in classroom settings. By overcoming the idea of collaboration as a merely teaching/learning strategy, OL strives to create a learning culture in a classroom that manifests itself in an ability of students to perceive views and support of others as a resource for their learning and to contribute to overall learning and development by embedding interdependent learning habits in their everyday learning experience.

3.2. Case study in a school

The result of OL in a school are both specific administrative regulations as institutionalized routine, as well as developed internal learning culture, that can be better described as interpretations by students and teachers than by recording the facts. Thus in its essence the study is an interpretive case study. The main idea of the study is to explore how OL in school contributes to improving educational practice in all layers of the school: from institutional to classroom practices.

3.2.1. Sample: a small secondary school in Riga

The sample for investigation is a private secondary school in Riga, founded in 1994 as one of the first private schools after re-independence of Latvia. During the research period (2006-2010) there were about 180 students (7 to 19 years old) and about 25 teachers. The sample could not be considered as a representative case for describing the situation in schools of Latvia. It was chosen for the reasons of (1) readiness for involvement in educational innovations and collaborative practice of teachers; (2) high expectations for the effectiveness of the school; and (3) accessibility.

3.2.2. Methodology and methods

Generally researchers do not measure OL itself, but instead look for how learning is perceived by members of an organization and the extent of the presence of

factors that facilitate OL. Nancy Dixon (1999) proposed the possibility of a causal link between the factors contributing to changes in the organizational knowledge and new or improved organizational performance. However, given the nature of pedagogy, learning itself becomes problematic, if information, knowledge and daily experience are unified. Therefore the clues about OL in the school processes reflected in data are taken for the qualitative content analysis of different kinds of interviews with teachers and students (27 interviews), group discussions (5), diaries (3), teachers' annual reports (20), classroom observations (24) and two kind of questionnaires. The conclusions about the relations between OL strategies used and formation of student OL experience are based on quantitative analysis of 150 classroom observations in 14 different classes (12 age groups).

For induction to the idea of school as a LO and scanning teachers' beliefs about learning and their relation to school as an organization, Lave and Wenger's (Lave & Wenger, 1991; Wenger, 1998) theory of learning as participation in a community of practice, and research of OL in schools involving school culture aspect, was taken as a tool for analysis (Leithwood et al, 1998, Collinson & Cook, 2007).

The next stage of the study explored distinguishing two perspectives: practice based and action perspective. The first one, reflection on existing practice as it is "taking place" (Gherardi, 2009) was analyzed by collaboratively reconstructing the model of four processes – intuiting, interpreting, integrating, institutionalizing (Crossan et al, 1999). The second one – taking an action position the implementation of OL principles and the OL cycle was analyzed by looking for OL as intentional use of OL strategies at the individual, group and system level. The aim of this stage of the study was to take an action perspective to analyze the implementation of OL principles and the OL cycle in the school intervention. Dixon's model of generating, integrating, interpreting information and action (Dixon, 1999), and Argyris and Schon's theory, defining OL as a process of detection and correction of error, and distinguishing between 'single-loop learning' – detecting an error without questioning an underlying situation, and 'double-loop learning' – involving questioning and changing conditions in order to achieve desired results were used (Argyris and Schon, 1996). Action research and OL cycles are conceptually and contextually closely linked, considering that the OL cycle, used in this case, is based on Kolb's experiential learning model (Kolb, 1984) that is derived from Kurt Lewin's idea of action research. They have coherent components and both are oriented to obtaining new knowledge in organizations.

The next stage of the study combined the OL perspective following from the previous stages with the school didactics perspective (Uljens, 1997). The classroom-specific assumptions regarding the teacher's OL strategies used in classroom were hypothesized: externally organized, self-organized and mutual learning. The assessment methodology was created during the study, and accordingly the OL process in classroom was observed in five categories, distinguished from didactic point of view: action, communication, motivation, responsibility, collaboration, and three kind of OL strategies before mentioned from both teacher and students perspective.

Because the results indicated significant differences of one class against the others in relation to the self-organizing learning strategies used by students during observed lessons (identified by ANOVA), the study also explored learning narratives of students and narratives of professional experience of their teachers obtained during group interviews.

3.2.3. Results from the case study: effects of organizational learning in school

The case study data showed that OL in school is multilayered and complex, that could be illuminated rather by tensions than by any strong causality. Nevertheless, they explicitly reflect the processes, beliefs and defensive aspects in school practices that, interpreted in LO terms, bring several important conclusions related to the research problem:

1. Changes formally imposed by educational reforms are often misunderstood and erroneously implemented by teachers in their daily practice and raise serious resistance. Contradictions and conflicts in school are usually smoothed down and rarely are skillfully applied for obtaining a new experience and learning.

2. The factors that mostly affect the dynamics of OL at school, equally important are: (1) mutual learning experience among teachers, which fosters development of common terminology, the ability to reach a dialogue, and to communicate; (2) effective practice of cooperation according to personal experience; (3) fostering sense of belonging, which expands the zone of integration; (4) effective administration of internal competition and responsibility; and (5) continuity of OL flow in relation to all layers and all levels of school, from individual to institutional.

3. OL competence of an individual, both student and teacher, and OL capacity of school as an organization could be viewed as phenomena that progress gradually from externally organized to self-determined and then to self-organizing learning with a cumulative character. For a teacher this means that it is important to evaluate the level of OL capacity of a class and to use appropriate strategies for facilitating the development of students' OL competence considering that level. For school as an organization it means that if OL in school at teachers' level does not go beyond learning organized by management, remaining at the level of externally organized learning, it can facilitate the growth of professional competence of the individual and the improvement of collaboration between teachers, but it does not increase teachers' readiness for self-organizing learning and action.

4. While knowledge and learning is less and less limited within school settings, and therefore the significance of a school goes beyond systematic acquisition of knowledge, replacing an emphasis from "what" to "how", students do not so much learn subjects, they learn from teachers. The formation of interdependent learning habits of students is a condition for mutual learning, and they are mostly related to interdependent thinking and personal involvement of teachers in the creation of a learning environment supporting sense making and

development of students. A relationship that is successfully progressing or that has been skillfully developed within a class are the most stimulating aspects that support students' learning, putting the social learning aspect at the top of the educational tools in school.

4. Discussion

Although during last two decades the educational system in Latvia has reformed and various new initiatives are undertaken within the field, the changes in school still are fragmented, and many teachers follow instructions rather than collaborate and often use new approaches as mere teaching methods, rarely reaching interdependent thinking and learning within their practice.

OL in school emphasizes an idea that learning by following prescriptions does not make sustainable and valuable changes in organizations (Argyris & Schön, 1996), and also positions OL as complementing learning from impersonal training programs.

It is also consistent with the idea of "preparing employees to act on their perception of problematic situations by creating room for voices and actions based on their direct experiences from their work practices" (Elkjaer, 2000), developing teachers' accountability (McNiff, 2000, 2009) and a shift of pedagogy and educational knowledge from being located mainly as normative knowledge in governing institutions to schools. In order to adopt interdependence both as a condition for working well and as a means of personal development, teachers need to attain new understanding of formation of knowledge, ideas and habits in school, including understanding of a community and a team as a form of collective action.

The findings from this study could be considered as supporting the OL-promoting effects on school practices and as consistent with the results obtained using other methods. (Marks & Louis, 1999; Mulford et al, 2004; Goh et al, 2006) They also contribute to current need for schools in Latvia to deal with the gap between students' educational needs and teachers' professional experience.

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Succès et échecs en première année d'université : où en est-on ? Une étude sur une université de lettres sciences humaines

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Résumé

Cette communication poursuit un double objectif : en premier lieu, présenter une synthèse de l'état des connaissances en ce qui concerne les variables qui sont associées à l'échec en première année d'université, en second lieu évaluer l'impact plus spécifique sur cet échec de facteurs ayant trait aux conditions pédagogiques, en particulier les taux d'encadrement des étudiants. Les travaux de Duru-Bellat et Mingat (1988) et de Vincens et Krupa (1994) constituent le cadre de référence de ce travail. Une étude a été menée sur trois cohortes d'étudiants de première année d'une université de Lettres/Sciences humaines du sud de la France. A partir des caractéristiques individuelles des étudiants et des données sur les taux d'encadrement des différentes filières, une régression logistique a été conduite afin d'estimer la part de la variance de la réussite expliquée par l'ensemble des variables considérées. Les résultats obtenus confirment ceux des travaux antérieurs en particulier l'impact prépondérant de la série du baccalauréat. Contre toute attente, les taux d'encadrement, ne semblent pas constituer un facteur explicatif de l'échec. L'hypothèse avancée pour interpréter ce résultat se réfère aux caractéristiques des publics de première année des universités, qui résultent de la place de ces dernières dans le système d'enseignement supérieur.

Mots-clés : université – échec – pédagogie

1. Introduction

Avec une remarquable stabilité depuis une vingtaine d'années, environ la moitié des étudiants qui s'inscrivent pour la première fois à l'université a l'issue du baccalauréat ne parviennent pas à passer en seconde année. Les causes de cette situation ont été largement identifiées. Elles tiennent à la mécanique de l'orientation qui prévaut dans le second degré et dans le système de l'enseignement supérieur au sein duquel l'université est la variable d'ajustement. Pour certains étudiants en résulte une inadéquation manifeste entre le stock de capital humain dont ils sont porteurs et les pré-requis indispensables au succès dans les études universitaires. Les bacheliers technologiques et professionnels sont particulièrement concernés par ce problème. Dans la mesure où les universités continuent d'accueillir environ la moitié des flux de nouveaux bacheliers, cette situation est porteuse de gaspillages de ressources tant matérielles qu'humaines. La responsabilité de cette situation a fréquemment été rejetée sur les techniques pédagogiques prévalant dans les universités, qui seraient inadaptées à certains publics plus fragiles d'un point de vue académique, du fait de leurs parcours scolaires. Il est donc important de savoir si, à côté des variables de demande traditionnellement identifiées comme étant

déterminantes dans la réussite des étudiants, certaines variables d'offre qui ont un impact sur les techniques pédagogiques mises en œuvre dans les universités peuvent elles aussi être a l'origine des échecs en première année. Cette communication se propose dans un premier temps de procéder à un bilan des travaux les plus marquants concernant la question de l'échec en première année d'université. Dans un deuxième temps, seront présentés les résultats d'une étude consacrée à trois cohortes successives de première année d'une université de lettres/sciences humaines, où sera évalué le poids respectif de certaines variables dans la réussite des étudiants de première année.

2. L'échec en première année d'université : un état des lieux

2.1 Réussite et échec en première année d'université : de quoi parle-t-on ?

2.1.1 La définition problématique de la notion d'échec

Avant toute chose, il est nécessaire de préciser ce que peut l'on entend par « échec », ce terme pouvant qualifier des situations variées qui n'ont évidemment pas la même portée. Ce flou sémantique tient en partie a la place particulière qu'occupe l'université dans les trajectoires étudiantes, du fait de son statut dans le système d'enseignement supérieur, et qui a pour conséquence que les cohortes de nouveaux inscrits en première année résultent d'une agrégation de publics hétérogènes aux itinéraires variés et aux motivations qui le sont tout autant. De ce fait, « être en échec » n'a pas la même signification du point de vue des intéressés et de l'institution, si l'on tient compte des motivations et des stratégies étudiantes. Stricto sensu, pour l'institution et pour le sens commun, être en échec signifie fréquemment ne pas parvenir à valider une première année, a l'issue d'une primo inscription dans une filière donnée. En tous cas, les données qui sont le plus souvent avancées pour dénoncer l'immense gâchis financier et humain que recouvre cette situation, correspondent à cette définition très extensive de la notion d'échec. Mais les choses apparaissent nettement plus complexes des lors que l'on s'interroge sur les stratégies étudiantes et sur la logique des parcours. On peut rappeler ici les situations les plus typiques qui peuvent être observées en première année d'université et qui montrent à quel point le terme « échec » peut avoir un caractère polysémique.
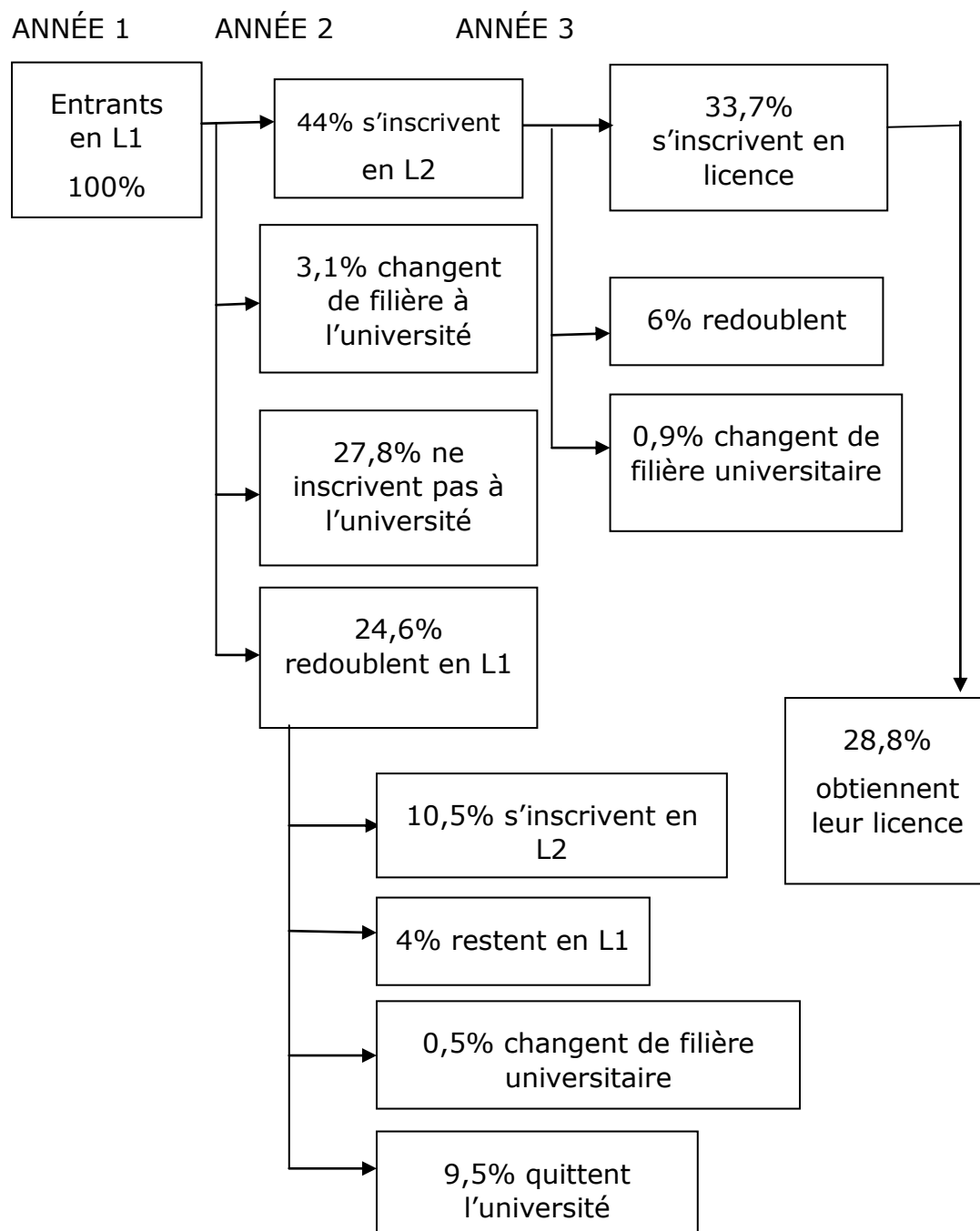
Ne pas accéder à la seconde année après une première tentative est répertorié comme une situation d'échec par les universités, dans les statistiques qu'elles transmettent à l'autorité de tutelle, mais cela peut fort bien pour un certain nombre d'étudiants, à l'issue d'un redoublement, ouvrir la voie à un cursus universitaire honorable. De même, les changements de filières en première année, peuvent être vus comme des échecs dans la mesure où ils se traduisent par du temps perdu par l'étudiant, un allongement corrélatif de la durée des études et un gaspillage de fonds publics. Mais cela peut aussi être envisagé comme faisant partie du processus d'orientation pour certains étudiants qui « se cherchent » et qui peuvent très bien réussir dans la filière qu'ils ont intégrée à

l'issue de leur réorientation. Ce cas de figure est probablement assez répandu dans les publics de première année d'université, en particulier pour des étudiants qui n'ont pas de projet d'études bien défini – et encore moins de projet professionnel – et qui ont choisi une filière qui s'inscrit de leur point de vue dans la continuité des études secondaires. Ces étudiants n'ont pas forcément pour objectif de poursuivre dans la même voie l'année suivante, il s'agit d'une *navigation à vue*, ce qui ne les empêche pas d'être assidus, de participer aux examens et de chercher à valider certaines matières. Certains d'entre eux se réorienteront sans avoir validé une première année en totalité, d'autres redoubleront dans la même filière, mais dans les deux cas, leur perspective est de se donner les moyens de réussir leurs études a l'université. Situation bien différente de celle dans laquelle s'installent certains étudiants qui s'inscrivent en première année en vue de bénéficier de certaines prestations sociales, qui ne participent ni aux cours ni aux travaux dirigés et qui nourrissent l'espoir d'intégrer l'année suivante une filière à *numerus clausus* à laquelle ils n'ont pu accéder directement à l'issue du baccalauréat. Bien évidemment, selon la définition que l'on retient de l'échec le phénomène a une ampleur variable. Cependant, quoiqu'il en soit, cette situation pose problème dans l'optique de pilotage du système d'enseignement supérieur et d'allocation des fonds publics car même si une partie des étudiants qui échouent a l'issue de leur première tentative parvient à décrocher un diplôme, cela contribue à un allongement de la durée des cursus. Il y a donc un intérêt évident à effectuer des études quantitatives sur cette question dans une optique plus opérationnelle, voire normative. En effet, quelle que soit la diversité des situations concrètes que recouvre le terme d'échec, le phénomène se traduit par un gaspillage de fonds publics et tout ce qui peut éclairer sur les causes du phénomène a un intérêt certain.

2.1.2 Un phénomène de grande ampleur

La définition retenue par le Ministère de l'éducation nationale du succès en première année est le rapport entre le nombre d'étudiants primo inscrits en Licence première année (L1) admis en deuxième année (L2) et l'effectif total des primo inscrits. Au regard de cet indicateur le taux moyen de réussite en première année d'université est compris entre 40 et 45% en moyenne avec une très forte dispersion suivant la discipline : dans certaines filières, telles l'AES ou la psychologie, les chiffres peuvent descendre jusqu'à 20% voire encore moins pour certaines catégories d'étudiants. Le schéma suivant donne une indication de l'ampleur de certaines des situations qui ont été évoquées dans le paragraphe précédent :

Schéma 1

Parcours des primo inscrits a l'université en 2004 sur les trois premières années suivant leur inscription

ANNÉE 1   ANNÉE 2   ANNÉE 3

Entrants en L1 100%

44% s'inscrivent en L2

33,7% s'inscrivent en licence

3,1% changent de filière à l'université

6% redoublent

0,9% changent de filière universitaire

27,8% ne inscrivent pas à l'université

24,6% redoublent en L1

10,5% s'inscrivent en L2

4% restent en L1

0,5% changent de filière universitaire

9,5% quittent l'université

28,8% obtiennent leur licence

Source : Ministère de l'Education nationale, DEPP, note d'information n°09-23, novembre 2009.

On peut constater à quel point la variabilité des chiffres est importante en fonction de la définition plus ou moins extensive que l'on retient de la notion d'échec en première année. Si l'on s'en tient aux deux premières années des cursus, il est en effet possible de retenir le chiffre de 56% (ceux qui à l'issue de

l'année de L1 ne s'inscrivent pas en L2) ou de 27,8% en considérant que les doublants ne peuvent pas être vus pour la totalité d'entre eux comme étant en situation d'échec définitif et que les 3,1% qui changent de filière sont dans la même situation. On peut même aller plus loin et considérer que les 27,8% qui quittent définitivement l'université vont peut être réussir ailleurs et obtenir un diplôme d'enseignement supérieur. Dans cette perspective, seuls ceux qui dans cette dernière catégorie, renoncent définitivement a poursuivre des études supérieures pourraient être considères comme étant en situation d'échec, au sens le plus restrictif du terme (Charlot, 1988).

La prise en compte des trajectoires en troisième année (L3) peut conduire à d'autres évaluations de l'ampleur de l'échec en première année. Dans la perspective la plus extensive, si l'on rapporte la proportion des étudiants obtenant une licence aux inscrits en première année, le taux d'échec est de 71,2% puisque les étudiants concernés n'ont obtenu aucun diplôme universitaire trois ans après leur inscription (c'est-à-dire dans des délais normaux). Mais la encore, il est possible de considérer que certains doublants inscrits en L2 obtiendront leur licence en quatre ans (voire davantage si l'on prend en compte les 4% qui restent en L1 pour une troisième tentative). Il en est de même pour ceux qui parmi les étudiants de L3 n'ont pas obtenu leur diplôme et qui pour une large part redoubleront, sans compter comme précédemment ceux qui poursuivent des études dans d'autres filières de l'enseignement supérieur.

2.2 Une polarisation de la recherche sur les facteurs de demande

La question de l'échec en première année d'université a commencé à se poser dans les années quatre-vingt avec la massification de l'enseignement supérieur. Pour une large part, l'absorption des flux croissants de bacheliers a incombé aux universités, les autres types d'établissements ayant la possibilité de réguler leurs flux d'entrée. La plupart des études menées depuis lors ont avant tout porté sur les facteurs de demande. En bref, ces travaux tentent d'identifier les caractéristiques individuelles qui influencent la réussite à l'entrée de l'université. Les travaux pionniers de Bienaymé (1998), Duru-Bellat (1995) et Mingat (1976) et Duru-Bellat & Mingat (1988), Charlot (1988), ou encore Krupa & Vincens (1994) ont permis d'éclairer les processus a l'œuvre dans la mécanique de l'orientation et des trajectoires a l'université. Rappelons les principaux enseignements de ces travaux. La question de l'échec en première année d'université est indissociable de l'orientation, non seulement celle qui s'effectue à l'entrée de l'enseignement supérieur, mais aussi celle qui s'opère en amont au cours de la scolarité secondaire. La réussite dans les études supérieures ne peut être comprise que si l'on prend en compte le fait que le profil des étudiants qui entrent en première année dépend largement de leur cursus au lycée, en particulier de la filière qu'ils ont fréquente. Toutes les études ont effet montré une forte corrélation entre les filières du bac et l'échec en première année d'université. Cela tient au fait que les filières du second degré structurent la population lycéenne en fonction des compétences scolaires selon une hiérarchie qui place au sommet les séries générales, suivies des filières technologiques puis des filières professionnelles. En « triant » les élèves, elles conditionnent leurs probabilités objectives et subjectives de réussite dans une filière donnée de

l'enseignement supérieur. L'observation d'une influence significative d'autres caractéristiques comme l'origine sociale ou l'âge tient a ce que la serie du bac est étroitement associe à ces caractéristiques.

Dans ces travaux, le processus d'orientation à l'issue du bac est envisagé comme le résultat d'un choix plus ou moins contraint mais néanmoins rationnel. Porteurs d'un certain stock de capital humain, les bacheliers vont procéder à des choix qui relèvent a la fois de la sélection qui s'est opérée au cours des études secondaires et a l'entrée des établissements supérieurs à numerus clausus, mais aussi d'un processus d'auto-sélection. En conséquence, les choix d'orientation résultent d'une procédure de sélection par le système éducatif et d'auto-sélection par une évaluation subjective des chances de succès dans une filière donnée eu égard aux ressources mobilisables par l'étudiant.

L'analyse de ce processus d'orientation permet ainsi de comprendre comment se constituent les populations de première année des universités, du fait de la place et du statut de ces dernières au sein du système d'enseignement supérieur. Et, la structure de ces populations a une très forte valeur prédictive des probabilités d'échec. La propension à l'effort est liée en partie à la motivation. Alors que pour avoir des chances de réussir, les étudiants porteurs des caractéristiques individuelles les moins propices à la réussite – comme par exemple la détention d'un bac technologique ou professionnel – devraient être ceux qui fournissent l'effort le plus important, ce sont eux qui au contraire sont le moins enclins a consentir cet effort. C'est ce qui caractérise toute cette fraction de la population étudiante de première année qui déclare s'est inscrite par défaut lors des enquêtes. Les résultats fournis par ces travaux apparaissent très robustes. Leur valeur prédictive en matière de succès ou d'échec s'est avérée très élevée. Cependant, ces travaux se sont polarisés sur la demande, et il n'est pas possible d'ignorer qu'il existe des facteurs d'échec (ou de réussite) qui incombent au système d'enseignement lui-même, et en particulier a sa composante supérieure (cf. infra).

En conséquence, si l'on veut avoir une vision globale des variables qui influencent la réussite ou l'échec a l'entrée de l'enseignement supérieur, il est nécessaire de prendre en compte l'action des facteurs « institutionnels » (schéma 2). Ces derniers jouent d'abord en amont du système d'enseignement supérieur dans la mesure où ils structurent la demande : ils font partie intégrante du processus d'auto-sélection et de sélection, dans le secondaire et a l'issue du baccalauréat. En façonnant la perception des élèves quant à la difficulté d'accès et d'études prévalant dans les différentes filières, ils conditionnent l'évaluation que font ces élèves de leurs propres chances d'accès et de succès dans un type d'études donne. Par ailleurs, là ou il existe une file d'attente a l'entrée comme dans les classes préparatoires aux grandes écoles, les facteurs institutionnels sont un élément clef du processus de tri et de répartition des bacheliers dans les différentes composantes du système d'enseignement supérieur. En aval, tout comme cela a été mis en lumière dans primaire et le secondaire il est probable que les « facteurs d'offre » ont également un effet sur la réussite ou l'échec des étudiants ne serait-ce que parce que les conditions d'enseignement – pour n'évoquer que cet élément – diffèrent fortement d'une filière à l'autre, ainsi que les taux d'échec. Il est par exemple fréquemment

avancé que les conditions d'études en première année d'université sont un facteur d'échec important. Cela expliquerait que certains bacheliers préfèrent s'orienter vers des filières courtes (type Section de Technicien Supérieur/Institut Universitaire de Technologie) quitte à rejoindre l'université en L3 une fois le diplôme le BTS ou le DUT obtenus.

Schéma 2
Panorama des facteurs influencent la réussite en Première année d'enseignement supérieur
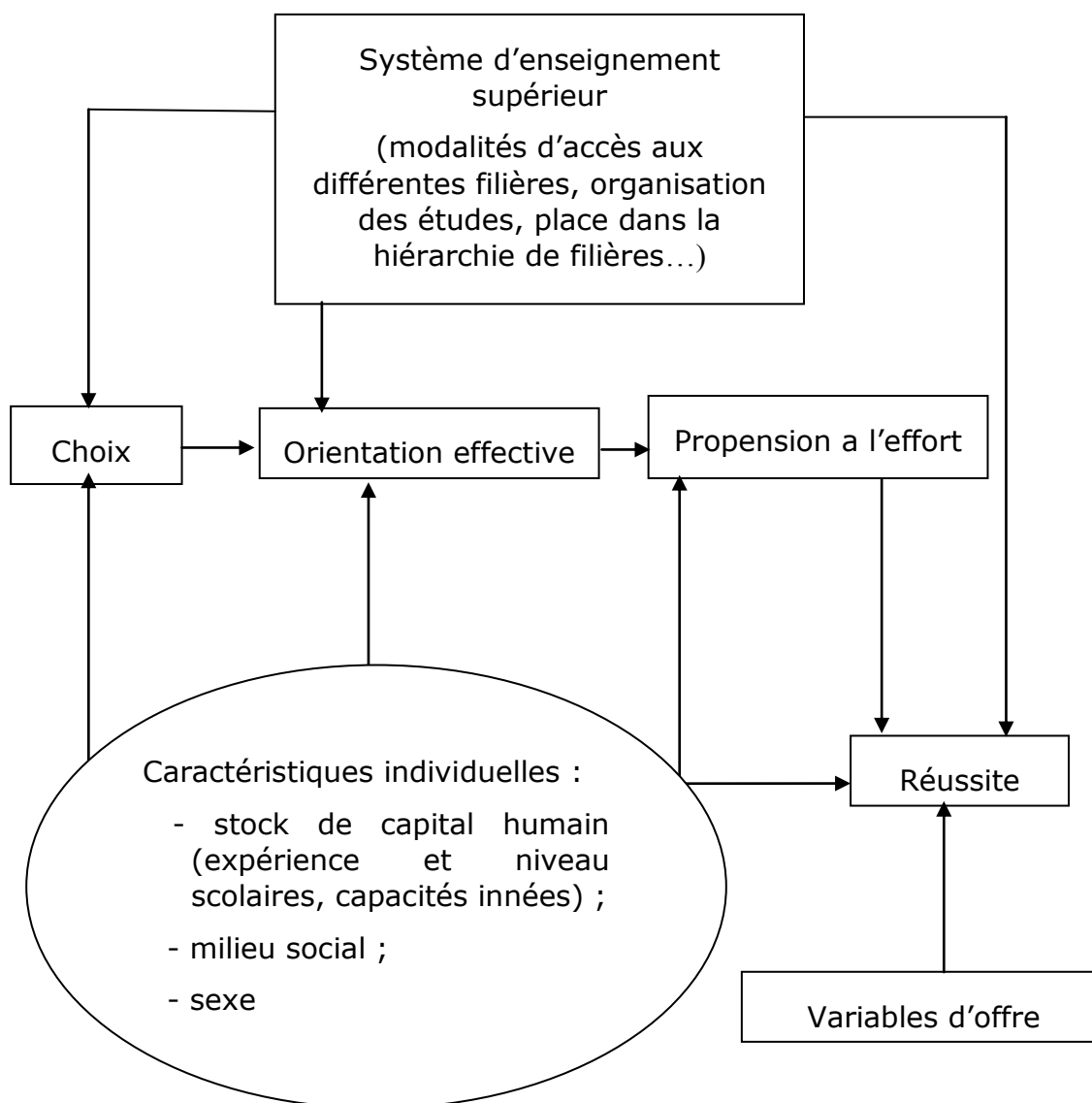
D'ailleurs, certains travaux, ont mis en lumière l'existence d'« effets d'établissement » parmi les universités. Ainsi, le ministère de l'éducation nationale (MEN) publie-t-il régulièrement un classement des établissements en fonction de leur « valeur ajoutée[104]» c'est-à-dire des taux de réussite de leurs

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[104] Différence entre le taux de réussite observe et le taux de réussite simule qui correspond a la réussite qu'on pourrait observer pour l'université si celle des différentes catégories d'étudiants entrant en licence était

étudiants de première année, en éliminant les effets de structure, c'est-à-dire en prenant en compte des caractéristiques de ces populations qui sont variables d'une université a l'autre pour une même filière. D'une manière générale, ces études font le constat qu'il existe des différences significatives entre les établissements – des effets de contexte – sans que soient toujours identifiées les variables à l'origine de cette situation. Cela tient probablement au fait qu'il est difficile d'évaluer statistiquement l'impact de certaines de ces variables sur la réussite des étudiants. Par exemple, comment mesurer la qualité de l'information, de l'accueil…? On présume que ces facteurs sont importants. En effet, ce que l'on qualifie d'échec en première année correspond schématiquement à deux situations distinctes : celle d'étudiants « assidus » qui ont suivi les cours et les TD mais dont le niveau était insuffisant et celle d'étudiants qui ont abandonné pour des raisons diverses. Dans les deux cas, même si cela est certainement plus difficile dans le second, les conditions d'études (type de pédagogie, suivi…) peuvent constituer des obstacles importants à la réussite des étudiants les plus fragiles.

2.3 Facteurs d'offre et réussite étudiante

2.3.1 L'établissement comme cadre structurant

La question de la « qualité » de l'input éducatif sur l'output a été aborde par le biais d'une série de travaux réalisés essentiellement par des sociologues qui ont mis en lumière dans le premier et le second degrés des *effets maître* ou *d'établissement*. Ces études ont montré l'existence d'un différentiel de rendement interne toutes choses égales par ailleurs des inputs éducatifs qui pouvaient être attribues a des caractéristiques pédagogiques. Les travaux des économistes relatifs a cette question ont surtout été consacrés au rendement externe de l'input éducatif, c'est-à-dire aux effets de la qualité de l'éducation sur les gains futurs des diplômes (Card & Krueger, 1992)

Chaque université peut être vue comme une composante particulière du système d'enseignement supérieur. De ce fait, les relations qui s'instaurent entre chacune des universités et leurs étudiants respectifs sont toujours spécifiques. Certes, les établissements d'enseignement supérieur sont tenus de mettre en œuvre une politique décidée par l'Etat qui finance pour une très large part l'offre de formation. Mais, si conformément a la théorie de l'agence, on conçoit que l'Etat est le *principal* qui confie a des *agents* (les universités) le soin de réaliser un objectif donné, on sait que du fait de l'imperfection de l'information l'agent a la possibilité de maximiser sa propre fonction d'utilité qui peut être différente de celle du principal. De fait, les établissements disposent de marges de manœuvres importantes dans les modalités de mise en œuvre de la politique de l'Etat et peuvent dans certaines limites mettre en œuvre des

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identique a la réussite nationale pour ces mêmes catégories définies par : le sexe, l'origine sociale des étudiants, la série du baccalauréat, l'âge d'obtention du bac, le groupe d'inscription disciplinaire en L1 (Source : Ministère de l'Education nationale).

stratégies visant a servir leurs propres inserts. On peut concevoir par exemple que bien que n'étant pas des établissements a but lucratif, les universités cherchent a maximiser leur solde budgétaire (différence entre les recettes et les coûts qu'elles supportent), de manière à bénéficier de marges de manœuvre pour financer des actions de recherche ou améliorer les conditions de travail des étudiants et/ou des enseignants. Cette manne éventuelle leur permet également, dans une certaine mesure, de s'affranchir de la tutelle financière de l'Etat. Il s'agit donc pour les universités de trouver un équilibre entre des objectifs qui peuvent s'avérer contradictoires. Il faut rappeler que les dotations ministérielles demeurent largement fonction du nombre d'inscrits et que pour les universités de Lettres/sciences humaines elles constituent, avec les droits d'inscription l'essentiel de leurs ressources. Les établissements sont donc soucieux de ne pas voir leurs effectifs baisser de manière importante. Si l'on admet que les conditions d'études ont un impact sur la réussite des étudiants, les universités sont confrontées au dilemme suivant : soit elles privilégient l'amélioration des conditions pédagogiques – par exemple en permettant le dédoublement des cours à gros effectifs – auquel cas les coûts de production de leur output vont augmenter et peser sur leur budget, soit elles cherchent à ménager leur budget quitte à ce que les taux d'échec demeurent élevés (Gary Bobo & Trannoy, 1998).

Ainsi, les conditions d'offre locales résultent a la fois de facteurs institutionnels sur lesquels les établissements ont peu de prise, comme le contenu des formations qui demeure national, mais aussi de facteurs qui découlent de la décision des instances dirigeantes de chaque université, en fonction des équilibres internes et de leurs situation dans le système d'enseignement supérieur. Tous ces éléments ne sont pas sans conséquences sur les conditions générales d'études qui prévalent au sein des différents établissements. En témoignent les différences notables de valeur ajoutée (cf. supra) observées entre les universités. Mais, il faut garder à l'esprit que l'université est aussi un ensemble de disciplines qui ont leur propre « culture » (qui peut être plutôt « académique » ou « professionnelle »), leurs propres pratiques (en matière de sélection par exemple) et leur propre public (plus ou moins homogène).

2.3.2 La filière comme lieu de production du capital humain

Le cadre à l'intérieur duquel s'exercent les interactions entre l'offre et la demande n'est pas l'université à proprement parler mais chacune de ses composantes, à savoir les filières d'enseignement. En d'autres termes, les relations entre les étudiants et l'université sont médiatisées par ces instances. Les filières universitaires ont en commun d'être, pour beaucoup d'entre elles, ouvertes (absence de sélection à l'entrée). De ce fait, elles sont soumises à des contraintes de même nature et doivent toutes procéder à des arbitrages. Cependant, les équilibres auxquels elles parviennent peuvent être différents du fait de la grande diversité des situations. De ce fait, l'accumulation de capital humain par l'étudiant va s'opérer dans le cadre particulier de la filière qui a sa propre fonction de production.

Dans les filières ouvertes, où la seule détention du baccalauréat suffit pour s'inscrire et où la délivrance de diplômes n'est pas limitée en nombre, il n'est pas possible de connaître *a priori* les caractéristiques des étudiants qui s'inscrivent en première année. De leur côté, les étudiants qui n'ont jamais été inscrits dans une université subissent des coûts d'entrée, ne disposant que d'une information partielle concernant les compétences indispensables pour avoir des chances de succès dans les études. Le contexte informationnel est donc caractérisé par une sélection adverse bilatérale. Pour les filières universitaires, il s'agit de mettre en place un processus de sélection qui élimine les étudiants qui n'ont pas la capacité à poursuivre des études dans la filière où ils se sont engagés et ceux qui ayant ces capacités ne sont pas prêts à fournir l'effort nécessaire parce qu'ils se sont inscrits a l'université par défaut. A la différence des filières fermées où l'effet de signal en direction du marché du travail résulte de la sélectivité de l'accès à la formation, les filières ouvertes se doivent de garantir la qualité des étudiants par une sélection continue au cours des cursus de formation. Formellement, la première année n'a pas la même fonction dans certaines filières fermées et dans les filières ouvertes.

Dans les filières à numerus clausus*,* elle assure une sélection « officielle » des étudiants qui, une fois passé ce cap sont quasiment assurés d'obtenir le diplôme qu'ils convoitent (cas de la Médecine). Pour les étudiants concernés, l'essentiel de l'effort doit donc être concentré en début de cursus. Dans les filières ouvertes, théoriquement, la première année n'a aucune fonction spécifique, au sens où la sélection est supposée s'exercer tout au long de la formation et où, en conséquence, réussir en première année n'augure en rien de la probabilité de succès dans la suite des études. Cependant, les taux d'échec en première année sont sans commune mesure avec ceux qui sont observés par la suite. Et surtout, les « échecs » débouchant sur un arrêt des études sont infiniment plus rares une fois la première année obtenue. En outre, il n'est pas contestable que la première année participe d'un processus de sélection officieux – au sens ou il n'existe pas un nombre limite de places en deuxième année – parce que les universités souhaitent s'assurer que les étudiants qu'elles vont former possèdent un stock de capital humain en adéquation avec le type de cursus dans lequel ils s'engagent. S'assurer de la qualité des étudiants de première année, c'est aussi garantir une certaine qualité de l'output final et contribuer a la réputation de la formation sur le marché du travail. En ce sens, la sélectivité en première année d'université, pour officieuse qu'elle soit, n'en constitue pas moins un signal à destination des bacheliers ne possédant pas les caractéristiques requises (que ce soit en termes de compétences scolaires ou de propension a l'effort) de renoncer à s'inscrire dans des filières dans lesquelles ils ont une forte probabilité d'échec, mais dans certaines limites.

Il faut donc simultanément préserver la réputation des diplômes délivrés en affichant une certaine sélectivité des études et en même temps ne pas décourager un trop grand nombre de bacheliers de s'inscrire. En même temps, le signal émis par des procédures de sélection drastiques – s'il peut inciter les étudiants ayant une forte propension a l'effort et/ou ayant des capacités élevées et valoriser par-là même la formation sur le marché du travail – peut avoir un effet déprimant sur la demande et donc sur les recettes attendues, en l'absence de possibilité de compensation par une augmentation des droits d'inscription.

2.3.3 Comment certains facteurs d'offre peuvent-ils agir sur la réussite ?

Les facteurs d'offre sont susceptibles d'avoir un effet sur la réussite des étudiants par deux canaux : en agissant sur la propension à l'effort des étudiants (leur motivation) et pour une propension à l'effort donnée d'optimiser la production de capital de manière à ce qu'elle atteigne au minimum le niveau requis pour garantir la qualité de la formation. Interviennent ici des facteurs humains et matériels. A l'échelle d'une université, il est légitime de considérer que les conditions matérielles d'études (équipements informatiques, salles de travail, ressources documentaires, cours mis en ligne…) sont à peu près équivalentes dans toutes les filières. En revanche, les ressources humaines peuvent être très différentes d'un département à l'autre. C'est pour cette raison que nous nous intéresserons exclusivement à la question de l'impact des moyens humains mis en œuvre sur la réussite des étudiants.

Les deux questions qui doivent être posées ici sont les suivantes : d'une part, celle de la « qualité » des enseignants-chercheurs et d'autre part celle des techniques pédagogiques mises en œuvre. Que recouvrent ces termes ? Pour ce qui concerne les enseignants-chercheurs, il n'est pas évident que les qualités associées à ces deux fonctions se superposent systématiquement surtout en ce qui concerne le cycle de licence. Les qualités pédagogiques dépendent de la capacité à transmettre les connaissances et de l'effort consenti pour la préparation des cours. Si l'on considère que les enseignants-chercheurs s'impliquent dans la préparation de leurs cours, la variable discriminante qui va distinguer le « bon » et le « mauvais » pédagogue est la capacité à communiquer, à prendre en compte les difficultés des étudiants et à être à leur écoute. Un bon chercheur est celui qui a un bon dossier scientifique. On peut considérer qu'être un « bon enseignant » en M2 et *a fortiori* en cycle doctoral requiert un haut niveau scientifique que seule une expérience de recherche de qualité peut procurer. De surcroît, les étudiants parvenus à ce stade d'études sont moins sensibles à la dimension strictement pédagogique des enseignements qui leur sont dispensés. En revanche, il n'est guerre contestable qu'en licence et tout spécialement en première année, les qualités pédagogiques au sens étroit du terme sont probablement importantes, en particulier pour ce qui concerne les cours à gros effectifs. En d'autres termes, à ce niveau, un bon pédagogue qui serait un chercheur médiocre serait préférable du point de vue de la réussite des étudiants à un enseignant ayant les caractéristiques inverses. Cela étant, on peut faire l'hypothèse que les différents « profils » d'enseignants sont répartis de manière équivalente entre les différentes filières et donc qu'en moyenne la « qualité » des enseignants est la même d'une filière à l'autre (ce qui n'exclut nullement une certaine dispersion par rapport a cette moyenne à l'intérieur d'une filière donnée). Tant que les procédures d'évaluation des enseignements par les étudiants n'auront été systématisées, il sera difficile d'en dire plus sur cette question. La qualité des enseignants ne devrait donc pas constituer un facteur discriminant en ce qui concerne les taux d'échec des différentes filières. On peut également supposer que les enseignants ne cherchent pas a sélectionner de manière a obtenir un certain quota de collés par rapport aux inscrits mais s'impliquent au contraire dans une démarche de réussite, tout en se conformant

à ce qu'ils estiment être le degré normal d'exigence de niveau dans la filière.

Parmi les facteurs dont on peut supposer qu'ils ont une influence sur la réussite des étudiants, il y bien évidemment le taux d'encadrement qui a une incidence sur les techniques pédagogiques mises en œuvre. Celui-ci peut-être mesuré de plusieurs manières. On retiendra ici la définition la plus courante, c'est-à-dire le nombre moyen d'étudiants par enseignant. Plusieurs précisions doivent être faites à propos du taux d'encadrement. Tout d'abord, le niveau de ces taux dépend en premier des dotations ministérielles en moyens humains alloués aux universités et répartis par elles dans les différentes filières. Ces dernières ne maîtrisent donc pas le volume de leurs ressources humaines. Cependant, les UFR disposent d'un budget propre qui leur permet, dans certaines limites, de procéder à des recrutements de chargés de cours ou de travaux dirigés, lesquels influent sur les taux d'encadrement. Par ailleurs, la fluctuation conjoncturelle des effectifs étudiants d'une année sur l'autre a un effet mécanique sur le taux d'encadrement, l'ajustement des moyens humains ne se faisant qu'avec décalage, tout au moins pour ce qui concerne le personnel statutaire. Enfin, il est nécessaire de distinguer le taux théorique (rapport étudiants inscrits / enseignants) et le taux effectif (rapport étudiants effectivement présents aux cours et travaux dirigés / enseignants) qui tient compte de la très forte évaporation des effectifs au cours de la première année (cf. infra note de bas de page n°2).

Pour en revenir au problème de l'effet des taux d'encadrement sur la réussite des étudiants, la question qui est ici posée est celle des techniques de production du capital humain dans les universités. Cette question fait référence à l'existence éventuelle d'économies d'échelle dans l'enseignement supérieur. Ce thème a déjà été abordé dans la littérature, et les résultats obtenus ne semblent guère probants, au sens où aucune réponse claire n'a été fournie (Leprince, 2008). Du point de vue des universités, si la réussite des étudiants importe peu, ou si les universités considèrent que la réussite ne dépend pas des conditions pédagogiques, elles ont intérêt à généraliser les cours magistraux à gros effectifs et à limiter la part des TD au minimum légal requis, ce qui leur permet de maximiser leur solde budgétaire.

Si par contre, les universités estiment – du fait de la pression de l'autorité de tutelle par exemple – qu'elles doivent se préoccuper de la réussite des étudiants et que celle-ci dépend du type de pédagogie pratiquée, alors elles doivent chercher a maximiser leur solde budgétaire sous contrainte d'un certain niveau de réussite des étudiants – qui pourrait être par exemple celui atteint par les établissements ayant la plus forte « valeur ajoutée » au sens qui a été donné a cet indicateur (cf. supra). Pour une efficacité pédagogique donnée, l'hypothèse peut être faite qu'il existe des effets de seuil qui font qu'au-delà d'une certaine limite cette efficacité ne peut être maintenue qu'à condition d'engager des moyens supplémentaires. Par exemple, on peut considérer que les cours interactifs (comme cela est pratiqué en travaux dirigés) conservent le même degré d'efficacité pour un effectif maximal d'une quarantaine d'étudiants (comme dans les lycées). Au-delà, si l'on veut maintenir ce degré d'efficacité, il est impératif d'ouvrir des groupes supplémentaires. Par contre l'existence d'économies d'échelle dans la limite des seuils, conduit les universités à remplir

au maximum les cours de manière à maximiser le surplus (différence entre la recette totale et les coûts totaux) sous contrainte d'efficacité pédagogique. Il est probable que les seuils sont variables d'une matière à l'autre et bien évidemment d'une année d'étude à l'autre.

Le taux d'encadrement peut également jouer de manière indirecte sur la réussite des étudiants. En effet, dans les filières où la part des travaux dirigés est importante dans l'horaire global, il est fréquent que ceux-ci aient un poids relativement important dans la note finale. Dans la mesure où les notes obtenues par les étudiants sont en règle générale meilleures en TD (contrôle continu) qu'a l'examen final, cet élément pourrait expliquer une part de la variance observée entre les filières.

3. Variables de demande et variables d'offre : une évaluation de leur rôle respectif dans la réussite des étudiants de première année

L'étude qui va être présentée a comme objectif d'évaluer dans quelle mesure le taux d'encadrement a un impact sur la réussite des étudiants de première année, à côté des variables liées aux caractéristiques individuelles des étudiants et qui sont traditionnellement identifiées comme prédictives de cette réussite. Il s'agit ensuite de tirer des résultats obtenus, des conclusions en termes de politique publique.

3.1 Présentation de l'étude

3.1.1 Méthodologie de l'étude

La population qui a été étudiée est celle de trois cohortes successives (2006-2009) d'étudiants de Lettres/Sciences humaines de l'université Paul Valery de Montpellier. Neuf filières ont été retenues qui rassemblent un peu plus de 80% des étudiants de première année pour chacune des cohortes étudiées : Administration Economique et Sociale (AES), Anglais, Arts du spectacle, Histoire, Langues étrangères appliquées (LEA), Lettres Modernes, Médiation culturelle, Psychologie, Sociologie. L'effectif total de l'échantillon est de 8210. Ce chiffre correspond au nombre d'étudiants primo inscrits dans les neuf filières pour les trois années universitaires considérées. Les données individuelles ont été recueillies à partir fichier du APOGEE qui récapitule les données personnelles des étudiants ainsi que leurs résultats aux deux sessions d'examen. Les données relatives aux taux d'encadrement ont été obtenues auprès de l'Observatoire de la vie étudiante (OVE) de l'établissement.

La variable expliquée est le résultat de l'étudiant à l'issue de la première année quelle que soit la session d'examen ; la codification est de 1 en cas de succès et de 0 en cas d'échec. Six variables explicatives ont été retenues : cinq variables qualitatives et une variable quantitative. Les variables qualitatives ont été codées de la manière suivante :

- le sexe : codifie 1 pour masculin et 0 pour féminin ;
- âge au baccalauréat : codifiée 1 pour 18 ans ou moins, 0 pour 19 ans et au-delà ;
- PCS parents : codifiée 1 pour les catégories « supérieures » (catégories 2 et 3 dans la nomenclature PCS) et 0 pour les autres ;
- série du baccalauréat : codifiée 1 pour bac général et 0 pour les autres y compris le Diplôme d'Accès aux Etudes Universitaires (DAEU) et les diplômes étrangers ;
- date de première inscription a l'université : codifiée 1 pour l'année d'inscription dans la filière, 0 dans les autres cas ;

La variable quantitative qui a été retenue est l'inverse du taux d'encadrement[105], un chiffre élevé correspondant a un taux d'encadrement favorable (alors que c'est l'inverse dans les données qui nous ont été fournies). Il faut mentionner que les fichiers d'où sont extraites les données ne renseignent pas sur l'éventuelle obtention d'une mention au baccalauréat, dont on sait qu'elle a un impact sur les parcours dans l'enseignement supérieur.

Il a été procédé, a l'aide du logiciel XLSTAT, à une régression multivariée de type logistique (modèle LOGIT) pour évaluer d'une part la réussite expliquée par l'ensemble des variables explicatives dans le modèle et d'autre part chiffrer l'effet respectif de chacune d'elles sur la réussite, les autres étant constantes. Dans un premier temps, nous allons présenter les principaux enseignements tirés des statistiques descriptives.

3.1.2 Statistiques descriptives : quelques enseignements

Les taux de réussite moyens observés ne varient pratiquement pas pour les deux premières cohortes (environ 1/3 de reçus) et augmente significativement en 2008-2009. Il s'agit probablement d'un accident conjoncturel lié au mouvement de grève des personnels qui a perturbé le déroulement du second semestre et conduit à une évaluation plus « indulgente » des étudiants. La dispersion autour de ce taux moyen est forte (écart-type autour de 9 sur les trois années considérées). La hiérarchie des taux se modifie légèrement d'une année sur l'autre, mais pas de manière significative : le taux le plus faible est systématiquement observe en AES, alors que les Arts du spectacle, la médiation culturelle, et la sociologie sont toujours dans le groupe de tête.

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[105] Rapport entre le nombre d'étudiants inscrits administrativement et le volume horaire global rapporte au volume horaire statutaire annuel des enseignants-chercheurs (192h) intervenant en première année. L'indicateur de taux d'encadrement peut être source de biais dans l'interprétation des résultats du fait de la distorsion inévitable entre les taux théoriques et les taux effectifs. Cette objection peut être levée si l'on considère que ce qui est important ici n'est pas le niveau absolu de cet indicateur mais plutôt le différentiel entre les filières. Et, dans la mesure où les taux d'évaporation sont sensiblement les mêmes dans toutes les filières observées, la hiérarchie des taux d'encadrement est conservée.

Les étudiants reçus sont, en grande majorité, titulaires d'un bac général. Il faut cependant mentionner que dans certaines filières (Anglais et Lettres modernes) la part des bacs technologiques et professionnels est très faible et donc la série du bac ne peut être analysée comme un facteur discriminant de la réussite. Les écarts, en terme de réussite varient du simple au double dans une majorité de filières, voire bien davantage en AES (du simple au quadruple, tableau 1) :

Tableau 1
Probabilité de réussite par série du baccalauréat et par filière (%)

	AES	Anglais	Arts du spectacle	Histoire	L.E.A.	Lettres Modernes	Médiation culturelle	Psycho.	Socio.
Bac général	43,1	35,0	55,1	32,9	45,6	41,5	60,5	49,4	53,8
Autres bacs et DAEU	10,7	12,1	27,5	29,2	17,4	16,7	24,6	27,8	34,3
Ensemble	23,5	31,4	49,4	30,4	39,2	39,2	48,9	41,1	47,5

Sans surprise pour des filières de Lettres/sciences humaines, les femmes ont une probabilité de succès systématiquement supérieure a celle des hommes (tableau 2). Ce résultat ne tient pas à un effet de structure qui serait lie à une plus grande fréquence de bacheliers technologiques et professionnels parmi la population masculine. En effet, le taux de réussite des étudiantes titulaires de baccalauréats technologiques/professionnels est de 23,5%, alors que celui de leurs homologues masculins n'est que de 15,4% (toutes filières confondues). Il existe donc bien un « effet genre » qui a un impact sur la réussite en première année, dans les filières considérées.

Tableau 2
Probabilité de réussite par sexe et par filière (%)

	AES	Anglais	Arts du spectacle	Histoire	LEA	Lettres modernes	Médiation culturelle	Psycho.	Socio.
Hommes	17,7	31,2	40,5	26,3	24,2	25,0	42,8	32,5	40,3
Femmes	27,1	31,5	57,1	34,7	48,9	42,6	51,1	43,0	50,7

Enfin, l'impact de la PCS sur la probabilité de réussite est nettement plus aléatoire et ne semble jouer que pour deux filières : AES et médiation culturelle (tableau 3). On peut rappeler ici que les études citées précédemment ont montré qu'il existait un biais social qui se traduisait par le fait que la série du baccalauréat était fortement corrélée à d'autres variables individuelles comme le milieu d'origine. Or, la filière de prédilection des bons élèves (et des moyens) issus de milieux favorisés est la série scientifique, très peu représentée dans la population étudiée (moins de 5% de l'effectif total). Il est donc possible de faire l'hypothèse que dans cette population, les bacheliers issus de milieux « favorisés », ne sont pas les meilleurs qui soient, même s'ils sont titulaires d'un baccalauréat général. A l'appui de cet argument, il n'est pas inutile de rappeler que les meilleurs littéraires (terme générique pour les matières générales non scientifiques ou techniques) ont opté pour les classes préparatoires.

Tableau 3
Probabilité de réussite par PCS regroupées et par filière (%)

	AES	Anglais	Arts du spectacle	Histoire	LEA	Lettres modernes	Médiation culturelle	Psycho.	Socio.
PCS sup.	32,0	29,7	50,5	30,5	35,3	38,6	57,1	41,7	41,1
Autres PCS	21,1	32,3	48,5	30,4	41,3	39,6	45,1	40,9	50,3

3.2 Résultats et enseignements de la régression logistique

3.2.1. Les résultats

Les principaux résultats de la régression sont présentés dans les tableaux ci-dessous. Les paramètres du modèle sont donnés dans le tableau 4 :

Tableau 4
Paramètres du modèle de régression logistique

	Valeur	Ecart-type	Stat. de Wald	P
CONSTANTE	-1,826	0,083	487,023	<0,0001
TAUX ENCAD.	-0,048	0,042	1,311	0,252
SEXE MASC.	0,000	0,000		
SEXE FEM.	0,356	0,053	44,912	<0,0001
PCS NON SUP.	0,000	0,000		
PCS SUP.	-0,004	0,051	0,007	0,936
BAC AUTRE GENE.	0,000	0,000		
BAC GENE.	0,989	0,060	269,917	<0,0001
AGE BAC NON NORM.	0,000	0,000		
AGE BAC NORM .	0,414	0,051	64,654	<0,0001
NON PREM INSC UNIV	0,000	0,000		
PREM. INSC UNIV	0,179	0,063	8,179	0,004

Les tests (non reportés ici) montrent que la contribution des variables à la qualité du modèle est satisfaisante.

Les résultats de la régression confirment ce qui a pu être pressenti à propos des statistiques descriptives. Il apparaît en effet – comme cela a pu être mis en évidence dans plusieurs études - que les variables qui influencent le plus la probabilité de réussite en première année d'université sont : la série du bac (la détention d'un bac général a un impact positif sur la probabilité de réussite) ; l'âge (le fait d'obtenir le baccalauréat à l'âge normal ou avant a également un effet positif sur les chances de succès) et le genre (toutes choses égales par ailleurs, la variable « femme » est associée positivement a la probabilité de réussite). On peut également mentionner l'absence d'effet du milieu social, conformément a ce qui avait été observé dans les statistiques descriptives. Enfin, une première inscription a l'université a un effet légèrement positif mais peu significatif sur la probabilité de réussite.

Reste un résultat qui peut paraître surprenant, voire contre-intuitif, à savoir celui concernant l'effet du taux d'encadrement. Surprenant parce que non significatif et contre-intuitif parce que de signe contraire a celui auquel on pourrait s'attendre. Faut-il en conclure que les moyens humains mis en œuvre n'ont pas d'impact sur la réussite des étudiants ? Cette assertion nous paraît quelque peu hâtive car il est nécessaire de prendre en compte l'hétérogénéité des populations de première année à l'université.

3.2.2 Principaux enseignements de l'étude

Schématiquement trois groupes d'étudiants peuplent les premières années d'université de Lettres/Sciences humaines. Un premier groupe – très minoritaire dans la population de l'étude – est constitué de ceux qui sont d'un bon niveau (atteste par l'obtention d'un bac général à l'âge normal ou moins). Ces étudiants auraient pu s'orienter différemment, leur profil scolaire leur offrant une large possibilité de choix. On peut faire l'hypothèse qu'il s'agit d'étudiants motivés pour les études qu'ils entreprennent, sans quoi ils auraient opté pour une autre voie. Il est probable que les conditions d'études affectent très peu la réussite des étudiants ayant ces caractéristiques.

Un second groupe rassemble les étudiants dont le profil est parfaitement symétrique de celui du groupe précédent (bac technologique ou professionnel, en retard en termes d'âge au baccalauréat…). Ces étudiants sont peu préparés a des études longues de type universitaire qui requièrent de l'autonomie et des pré-requis dont ils sont fréquemment dépourvus. Par ailleurs, c'est dans ce groupe que l'on trouve le plus d'étudiants parmi les moins motivés. Une enquête de l'Observatoire de la vie étudiante (2010) de l'université où a été réalisée notre étude fournit à cet égard des résultats très éclairants. On peut en effet constater que près de 40% des inscrits en première année à l'université ont fait ce choix « par défaut », c'est-à-dire faute d'avoir été acceptés dans un autre type d'établissement. Dans certaines filières où le taux d'échec est très élevé, la proportion dépasse 50% des inscrits. C'est le cas en AES. L'enquête montre par ailleurs, que ce type d'orientation concerne (toutes filières confondues) sans surprise avant tout les bacheliers professionnels (dont 55,6% ont déclaré s'être orientés par défaut), suivis de près par les bacheliers technologiques (55,2%). Une très large part de ces étudiants n'assistent pas aux cours, et ne préparent pas les examens. Pour ces étudiants, les conditions d'études ont très certainement un impact extrêmement faible sur la réussite, puisque leur propension à l'effort dans la filière d'inscription est quasi-nulle. Il peut donc y avoir là une des explications (partielle) du peu d'impact du taux d'encadrement sur les taux de réussite.

Reste un dernier groupe constitué pour une part d'étudiants moyens dont la motivation est variable, certains pouvant appartenir au groupe des inscrits par défaut qui n'est pas constitué que de bacheliers technologiques ou professionnels (36% des bacheliers ES entrant dans cette catégorie lors de l'enquête) et pour une autre part d'étudiants faibles mais motivés. Les étudiants moyens et motivés ont très probablement des chances de succès relativement élevées lesquelles doivent être assez peu sensibles aux techniques pédagogiques. Pour les autres

appartenant à ce groupe, si l'on considère que la propension à l'effort et les compétences scolaires sont des substituts (imparfaits), les étudiants moyens peu motivés et ceux d'un niveau faible mais motives doivent avoir des chances de succès assez proches. Pour ce groupe, les conditions d'études influencent certainement les chances de succès puisqu'il s'agit dans un cas de susciter la motivation et dans l'autre d'accompagner des étudiants motives mais éprouvant des difficultés. La pratique du cours magistral, la grande distance qu'elle impose entre les enseignants et les enseignés (avec comme corollaire l'absence d'interactivité) n'est pas favorable a l'identification les étudiants en difficulté et à la motivation de ceux qui ne le sont pas. De même, les effectifs des groupes de travaux dirigés pléthoriques ne favorisent certainement pas la participation et l'implication des étudiants. Il est difficile d'évaluer la part de ce groupe d'étudiants dans l'effectif total, mais elle doit être relativement importante.

Si l'on rapproche ces quelques éléments de réflexion des résultats de l'étude, il est possible d'avancer quelques éléments d'analyse. Dans les filières où la part des étudiants ayant un « bon » profil est importante, les taux d'encadrement – mêmes faibles – n'ont que peu d'impact sur les taux de réussite, le capital scolaire compensant des conditions d'études peu favorables. Symétriquement, dans d'autres filières ou le taux d'encadrement est élevé mais ou la proportion d'étudiants au profil défavorable est forte, les conditions d'enseignement n'ont pas non plus beaucoup d'impact sur le taux de réussite. Reste enfin le cas des filières (minoritaires dans notre échantillon) ou l'on observe un lien entre le taux d'encadrement et la réussite des étudiants, comme en AES. Ces filières cumulent les facteurs d'échec : elles accueillent une majorité d'étudiants ayant un profil peu favorable à la réussite et offrent des conditions d'études médiocres. Ici la faiblesse des taux d'encadrement est probablement un obstacle à la réussite d'étudiants moyens ou faibles mais motivés qui pourraient s'en sortir dans un autre environnement d'études. Au total, il n'est donc pas surprenant de constater l'absence d'impact des taux d'encadrement sur la réussite des étudiants des étudiants de première année.

4. Conclusion

L'étude qui a été présentée ici confirme les résultats qui ont été mis en lumière dans des travaux antérieurs, à savoir l'impact fondamental du profil scolaire sur la probabilité de la réussite en première année d'université. Il a par ailleurs été constaté que les moyens humains mesurés par les taux d'encadrement ne semblaient pas influer sur la probabilité de succès des étudiants. Ce résultat ne doit pas conduire a l'idée que dans un contexte de tension sur les finances publiques, il faille relâcher l'effort financier récent qui a été entrepris en faveur des universités car il peut néanmoins contribuer a améliorer le niveau de réussite de certains étudiants démissionnaires mais dont le profil aurait pu augurer de chances de succès.

Reste le problème de fond qui est celui de l'orientation a la sortie du second degré et de la place de l'université dans l'enseignement supérieur. Aussi longtemps que celle-ci demeurera la variable d'ajustement du système, accueillant une population très nombreuse de bacheliers en « déshérence » et

totalement démotives, l'amélioration des conditions matérielles d'études ne pourra avoir qu'un impact limité sur les taux d'échec. Mais on touche là une question éminemment « politique » puisqu'elle fait référence aux conditions d'accès aux études universitaires et à son corollaire, à savoir la sélection à l'entrée des établissements.

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Antisocial behavior in precocious and late adolescence in Rio de Janeiro, Brazil

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Abstract

The present paper addresses socio-cultural aspects of adolescence in contemporary society, focusing on two extremes: precocious adolescence, and protracted adolescence. In the former, prepubertal children are driven to adopt adolescent and proto-adult appearance and habits; in the latter, "kid adults," sometimes even parents themselves, remain adolescent beyond limits that, in the 1980s, were considered to mark the entrance into adulthood. On the basis of observations carried out in clinical, legal, and school contexts in Rio de Janeiro, Brazil, this paper explores the consequences of the emergence of these two extremes in social spaces such as the family, the school, and peer groups. We shall discuss in particular aggression and destructiveness, that is, behaviors Winnicott called "antisocial." We also examine some factors that may be contributing to the development of such behaviors among contemporary adolescents, in particular the breakdown of hierarchies, as well as of parental and social authority, and its repercussions in the process of teaching and learning.

Keywords: adolescence - failure of the social pact - antisocial behavior - Winnicott - failure in the process of teaching and learning.

1. What does it mean being an adolescent in the 21st century?

Being an adolescent nowadays means being and not being a great deal of things. If in the past it was easy to tell when adolescence began as well as when it finished, today a much more complex situation is presented, which generates different sort of conflicts meaning that the adolescent transgression and other traits of this period were only mentioned in books up to the eighties.

Adolescence is a period during one's development that only came up late in time, a social cultural concept which hadn't been mentioned before the 19th Century. A consequence of city growth and women entering the workplace in the after-war period, as well as the need for workers in the industries, the concept of adolescence was built and established as was the concept of infancy. Therefore, adolescence is not only a period of development, but also a style of life in the urban modern occidental world.

Until the seventies, to have been considered an adolescent, the youngster would have to have reached puberty. During the eighties puberty and adolescence intertwined, meaning puberty not necessarily had to be reached for adolescence to happen, but they both happened close in time. From the nineties on to today, adolescence, i.e., adolescent behavior, is considered to come before puberty. (Birman, 2006; Coutinho, 2009; Calligaris, 2000; Outeiral, 2009).

The World Health Organization(2009, p.1) defines "adolescents" as individuals in the 10-19 years age group, but takes into consideration that more adolescents currently are reaching puberty earlier and marrying later. We can consider that currently adolescents are those aged from 8/9 years old on, in the sense of adolescent behavior. Therefore former children show an early interest in sexuality because of an early eroticism – adults fulfill their fantasies with the early eroticism of childhood and adolescence. To be an adolescent is to have behaviors such as conflicting conduct, high impulsiveness, low tolerance of frustration, low symbolic organization, lack of boundaries, all which generates anti-social behaviors, not having the intermediation of thought between impulse and action. (Maia, 2009).

Early adolescence is accepted by many scholars (Birman, 2006; Elkind, 2004) as well as by parents and teachers. By the age of 8/9, in many countries, though in this paper South and Southeast Brazil are specifically studied, it is considered normal when children polish their fingernails, go to the gym, take weight-loss pills, growth hormones pills, hyperactivity and attention deficit medicine. Great consumers of clothing, electronic toys and medicine, stirred by their parents, early adolescents compete with each other for popularity and for the most fashionable appearance. Some of these children-adolescents experience loneliness and, sitting at the back of the classroom, they chat with their friends. When talking and not paying attention in class, what is settled in the school is the existence of a generalized attention deficit hyperactivity disorder. Most of these disorders have been treated medically. However, what is more surely found is parental attention deficit towards children with an adult agenda, with a view towards them as if they were adolescents, having forgotten the fact that they are children with children needs, namely, having time to be able to play or not having to be anything else just yet.

The word "play", among various meanings, comes from the Latin word "bond", that is, through playing, bonds are originated; if that does not happen, though, communication happens through violence and aggression. Nowadays, for many children, the pleasure is found in buying a toy, afterwards there comes boredom and abandonment of the new – it quickly loses its newness – after that, logically, another toy comes up or is bought for this child…

On the other hand, adolescence has been stretched out until approximately 27 years old, originating the so-called "adultscence", which causes an eternal non-decision of spaces, and non-autonomy in life. If there is a lack of structural identifications, it is not possible for a person to grow out of adolescence. Therefore, if being an adult means the possibility of building new forms of relationship depending less on parents, recognizing them in a more real way, it is noticeable that, nowadays, such passage rarely happens, or it poorly happens: out of this come the kid-adults, young people who give up on the prerogative of adulthood and end up dressing as children and behaving with irresponsibility just as children do. These kid-adults draw away from intimate relationships with lasting bonds preferring superficial and temporary relations. (Birman, 2006, Maia 2007, Pessanha, 2001; Outeiral, 2008).

In the face of this modern occidental scene we see that childhood as well as the latency stage described by Freud (1980 [1905]) are vanishing; playing is disappearing and adulthood takes a long time to happen, when it actually happens. The adult with characteristics of adulthood itself is being extinguished; the same is happening to being a child and having a childhood – because these two are not synonyms – it is possible to have been a child without having had the right to have a childhood.

We work with parents with adolescent behavior, with children with adult behavior which is validated by their parents, children with businessmen agendas, without time to breathe: they are "adolescents" out of time. We work with parents who are not able to perform their parental duties and, therefore, treat their children as equal, making the familiar relations horizontal, which ends up leading to horizontal social relations as well. If in addition we have a society where law does not have equity, a society where what people have is important rather than what people are – what they are does not echo with meaning, a society of appearance, esthetics and evanescence, we will find a complex scenario, which in part can make us understand why, nowadays, we have an explosion of social violence each day more evident and early in children/adolescents, making the lack of boundaries in late adolescents more noticeable, in addition to expressive learning difficulties. (Maia, 2007; Maia, 2009).

In these times, where everything is relative or liquid, quoting Bauman (2001), other facts become acceptable whereas, in another social pattern, they would not be, namely: lying, theft, destructiveness, apathy, lack of boundaries and learning difficulties.

The present paper intends to discuss aggression and failure of symbolization space as symptoms of the adolescent's process of dispossession of his/her identification standards. Looking at an eternal adolescence, if we add the fact that the age of this stage is today 8 /9 up to 27 years old, we have many sociability and subjectivity issues that arise day after day in the city of Rio de Janeiro. How can these children allow themselves to think if they were not given room to be able to create their own toy? How can these children recognize their right for authorship in thinking and creating? It is from differentiation that comes the possibility for symbolization and separation. If parents and children are but shadows of one another, how can the symbolization space happen without being, in a way, crippled or incomplete?

I make use of Winnicott's theory to answer these questions. For Winnicott (1984, 1987, 1982) there are violent, destructive young people who show anti-social behaviors. They are the recipients of a violence to which they equally respond with aggression. What is this violence which Winnicott speaks of? Violence that comes from abandonment, loss of reliance, loss of trustworthiness which these youngsters formerly had. They do not go wild without a reason. They do not destroy schools, desks, or are apathetic towards the knowledge they receive in the school without having a reason. The anti-social actions of these young people assert, according to Winnicott's theory, an attempt to communicate in another structure different from the symbolic.

Most times these young people do not have an internally built playing space, therefore they are not able to learn or engage in an institution. According to Calligaris (1996), this social engagement and citizenship can only be achieved by the person through his/her actions. For that reason, when the social bonds that are offered are inconsistent, the action must give symbolic meaning for it to gain, in its actual doing, some effect: that is, some value must be given, setting a place for this child or young person. Aggression and school failure are often trials of affiliation or visualization in the social scenery where this youngster belongs, even if the trial points out to its negative value. The barrenness that builds the anti-social youngster is the symbolic barrenness, the emptiness of meaning.

2. What does it mean to be adolescent in Rio de Janeiro in the 21st Century?

Rio de Janeiro: forty degrees Celsius. That's how this city is known. In it children and teenagers grow up.

Rio de Janeiro, a wonderful city, beautiful in its concept but also known as city of slums with a need to be tamed; city of samba and joy, but equally city of violence, displayed in the newspapers of not only Brazil but also Europe and USA. How do the adolescents live and are shaped in this urban territory, as learning people? Nowadays, as mentioned before, being an adolescent is complex. In the face of a lack of social references, the possibility for social visibility for many youngsters is the anti-social behavior.

Our city lives in ghettos. The public arena, formerly a reference for networking and learning, now is nearly extinguished. The private space dominates and structures all the other spaces, which means that every network is closed, monitored or locked. That way violence will remain outside as well as the bad young people.

Condos, shopping centers, cameras – all of for the sake of "our safety" – protection fences and security guards for those who can afford it. For those who do not have access to safe areas, what is left over are the street and its challenges. The school shuts itself as well with high walls, gates, full time school with a whole world of possibilities and options for kids; if there are none of these, violence ends up making its way into the school without asking for permission.

Pacheco (2009) speaks of environmental racism and tells us that the Work Group Against Environmental Racism, which is connected to the Brazilian Environmental Justice Network, defines it this way: "environmental racism is the social and environmental injustices which fall upon ethnical groups that are vulnerable or made vulnerable (i.e., made vulnerable by financial assets) and other communities discriminated because of origin or race" (p.108).

In Rio de Janeiro this is the reality. In this city, in 2006, for each 100 thousand young people, 83.6 were killed. (Waiselfisz, 2008, p.61). Here, death has a color: "considering color/race age, we verify that there is an outstanding rate of

intentional violent deaths among black and brown young people" (Ramos, 2009, p.132). Here, death has its territory: "low to inexistent homicide rates in rich areas are observed whereas in poor suburbs and slums, located 30 or 40 minutes away, the rates are comparable to countries in war" (Ramos, 2009, p.133).

In the meantime, in this city, people live without building a belonging feeling, an affiliation or being territorially rooted. There is no dwelling in the city, what comes out is a movement in which the youth do not have a life history in the places where they reside or live. They pass by these places, but they do not dwell in them. They move from school to school, but do not experience school as citizens. They can also live all their life in a suburb without even knowing their street or some streets, being limited to their apartment or house. Fear inhabits the territories and segregates them as well as it segregates us.

Without having a history, without being able to belong, how can an adolescent experience his/her adolescence? How is he/she able to want to learn something that goes beyond survival strategies in this changing society, which promises social and cultural inclusion, but this inclusion and the possibility for identification are but a inexistent path? When a child is required to behave as an adolescent before even having cognitive and emotional structures to do so, how can this child allow him/herself to learn? By the time we have eternal adolescents, who will be required to be a role model and to have action-consistency?

Paiva (2009) informs us that Brazil arrived at the "year 2009 with 63 million Brazilians who did not finish elementary school, knowing – which seems to worsen the fact – that a lot of young people in this group passed through school, which settled them in this rate of dropouts and non-schooled in the level that by right is where they should have been" (p.216). If society promises and does not keep its promises, breaking the social pact, how can these youth learn, or see that in knowledge there is something of worth? If the youth expect something in return for their investment in study, what happens when this expected return does not happen, considering they were sure to have a return in this social exchange? When equity is lost, what is supposed to happen?

According to what was mentioned in the introduction, anti-social behavior is the response to these losses that were not expected nor foretold. Among common anti-social behaviors, Winnicott (1986) mentions theft and destructiveness as paradigms to understand all other sorts of anti-social behavior and, in connecting these behaviors, lying seems to be the glue that puts them together. The view of Winnicott's theory for the anti-social tendency is on dispossession, "it is not simply a need" (Winnicott, 1986, p.131).

The image Winnicott uses for theft as the dispossessed child's right is the "sugar stealing". Here we might use this Winnicottian image, widening it from sugar to candies – the candy has to be unwrapped by the child. In theft, the child basically seeks to have maternal love, which had felt lost, but the kid also looks for the wrap that supports and protects this candy/object, the paternal role. We believe that in stealing the child not only requests for his/her rights for maternal care, but also for the father's protection over the mother, and the child in

another moment. In destructiveness there is the seeking for environmental stability that gives support to the conflict of actions with environment. The child seeks for a reliable human attitude, for a larger frame still (Maia, 2007).

"Behind a child's maladjustment is always a failure of the environment to adjust to the child's absolute needs at a time of relative dependence. (Such failure is initially a failure of nurture.) Then there can be added a failure of the family to heal the effects of such failures; and then there may be added the failure of society as it takes the family's place" (Winnicott, 1984, p.246). ".. and behind all this is the confidence that the child has in the relationship between the parents; the family is a going concern." (Winnicott, 1986, p.94). In case the family (mother/father) does not function, "therefore, instead of hope leading to an SOS signal in terms of stealing, it leads to an SOS signal in terms of an outburst of aggression" (Winnicott, 1986, p.95).

Nowadays in Rio de Janeiro, as well as in many other urban territories in other countries, there are young people who, in losing their belonging places, drift away from their rights as citizens, seek in greater places than their houses or schools, or suburbs, the answer for the dispossession they are facing. The problem is that this answer is not being given to them. What would this answer be? The containment of these actions and shouts with an affection boundary, i.e., educational, structural and not only punishing (imprisonment or kicking out of school) and objectalizing (they do not have a way out, therefore either we do nothing, or we take them away from dwelling with others who apparently act as we have learnt to call 'normal').

Creating an environment that embraces, understands and contains these anti-social actions is vitally important for these moves to decrease and eventually cease. Nevertheless Winnicott (1984) emphasizes that consequences last, the dispossessed youngster will always know that there was a loss, though if this loss is quenched, they will carry on studying, playing and living a "life worth living". If the opposite happens, they will stretch their search for protection and understanding of their dispossession and boundaries until finding the bars of a prison – and we know that, at least in Rio de Janeiro, the social-educational programs are neither social nor educational.

One of the solutions given by Winnicott, and not only by him, is that there would be another place for these young people when all other environments have failed on them. This place, primarily, would be the school. Being in school, though, does not necessarily mean being included in a learning process; being in school does not necessarily mean being protected or understood; a lot of times this place repeats once again the relinquishment and exclusion experienced in the family environment.

The Brazilian Constitution says, on chapter II, Of Social Rights, sixth article, "Education, health, work, habitation, leisure, security, social security, protection of motherhood and childhood, and assistance to the destitute, are social rights, as set forth by this Constitution" (p.20), although just a few have read it or had access to it. This is not taught in school or out of school. Therefore the Law is not enforced thoroughly considering the fact that many do not know about social

rights in Brazil. In this there is a field of possibilities opened for the youth to claim their rights, which are not thoroughly accomplished.

Ignorance of the written Law leads to ignorance on how to carry out citizenship. Citizenship is, for youth with anti-social behavior, something unreal because they do not have the right of feeling as a citizen, considering we do not have an efficient health system. Often employment is inexistent for some social classes and instead there is what's called "sub-employment"; there is no real access to housing, there is no leisure because it requires external places to happen, and open spaces cannot protect us anymore and, therefore, there is no safety which is guaranteed by the greatest Law of our country. Likewise there is no protection of motherhood, of childhood nor there is any assistance to the destitute. Helplessness bursts and from it comes the feeling of broken trust and this broken trust leads us to the dark alleyways of social violence.

Quoting an interviewee of the social project "A voz e a letra do cidadão" (Citizen's voice and letter. Versiani, 2009): "How should a people know their Constitution if most of them do not know what it means to be a citizen?" (p.22). Another interviewee states, "The Constitution offers a bunch of rules which cannot be accomplished only with law enforcement, but [also] with the development of conditions for justice, equality and respect to human dignity" (p.30).

3. Conclusion

Considering what was mentioned about eternal adolescence and the age of this stage (8/9 to 27 years old), there are many subjectivity and sociability issues that burst day after day in our city, in our society. Many times we require of children that they take responsibility, which is still not intelligible for them in a cognitive sense. In many occasions we require them that they act with maturity when they do not have it. When we do that, we require of them that they develop their own identification role models: those who should be their role models are as much adolescents as the children. Thus, we are faced with unstable social bonds, since the greatest bond, namely the identification of citizenship and nationality is broken because the society does not keep social systems that maintain social bonds.

As a result, we have extremely loud noise as a response, amplified by the lack of social restriction, whether it is the family, school or the country that lacks in restriction. The destructiveness takes the place of the word, poor relationship bonds take the place of the lost continuity, and we insist on making the incomplete permanent.

Campos-Maia (2009) throws a question at us: "Is it possible that we cannot see that we continue to reap what we sow? In a society made of clay idols, where appearance is more worthy than the content, where seeming to be is usually more accepted than the pure being, we see a nostalgic paralysis of the society, in a way that complaining became a synonym of merely mental attitude, without manifesting it in the actual world. We keep on cursing, without moving towards a

change for this spurious situation in which we encounter the Brazilian society" (p.5).

In the face of these amplified anti-social behaviors, we find ourselves disoriented because we do not have, as modern adults, standards to handle all this noise. Our paradigms fade away, and now we must develop other paradigms to handle what we do not know. As says a statement on a brick wall in Quito, capital of Equador, when we knew or believed we knew all the answers, the questions changed….

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Teaching English for Academic Purposes (EAP) for International students in the UK

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Abstract

It is well understood by international students who are studying in an English speaking country that English proficiency is crucial to success, and they are expected to adapt to their new culture. Saudi students continue to encounter problems with English for Academic Purposes (EAP) and with some cultural variations in British higher education. Reference to anecdotal evidence suggests that Saudi students frequently have difficulties adapting to programmes delivered in English, and to adjusting to certain cultural differences in the English speaking context. This paper aims to support informed decision-making to improve the quality of language teaching and learning in EAP.

Key Words: EAP - Saudi students - Teaching EAP - Needs analysis.

1. Background to the study

Teaching EAP is one changing field in education; therefore, teachers of English for Academic Purposes must understand their students' needs in order to improve their teaching quality in the classroom. Teachers of English for Academic purposes in both countries, KSA and the UK have very limited knowledge about Saudi students' language needs and their culture and educational background. One possible explanation for this may be that there is a lack of information on students' language needs available to the EAP teachers. In what follows, we shall discuses the EAP, the needs analysis, as well as the education system differences.

2. What is EAP?

English for academic purposes is a relatively new trend which emerged as a branch of ESP (English for Specific Purposes). It is concerned with those communication skills in English which are required for study purposes in the formal education system (ETIC, 1975). EAP is generally defined as teaching English with the aim of facilitating a learner's study, or research, using English (Flowerdew & Peacock, 2001: 8; Jordan, 1997; Hyland and Hamp-Lyons, 2002). EAP is taught through a variety of means, which are a reflection of the number of ways instructors view the needs of their students, and therefore, how they choose to teach their class (Evers, 2007: 6). The main aim of EAP is to satisfy a student's need for quick and economical use of the English language in pursuing a course of academic study (Coffey, 1984).

Coffey (1984), claimed that EAP has two divisions: common core or subject-specific. In 1988, Blue classified these two divisions into English for Specific Academic Purposes (ESAP), and English for General Academic Purposes (EGAP). The latter could be defined as the general skills which all international students need when they commence their academic study. While ESAP can be seen as the specific language for specific subjects, for example, Chemistry English requires students to be familiar with Chemistry vocabulary and structure etc., EAP can be defined as the formal academic register and style that international and native speakers need to use in their academic studies, regardless of the discipline.

3. What is needs analysis?

Needs analysis has always been associated with English for specific purposes. This is not to say that needs analysis would not be useful for general English. Seedhouse (1995) provides a procedure of needs analysis which enables the researcher to improve the language teaching curriculum in a general English classroom. However, according to Hutchinson and Waters (1987: 53), needs analysis started mainly in the field of ESP. Nevertheless, they argue that as far as needs analysis is concerned, there should not be any difference between ESP and general English (GE). They state that: it is often argued that the needs of the general English learner, for example the schoolchild, are not specifiable. This is the weakest of all arguments, because it is always possible to specify needs, even if it is only the need to pass an exam at the end of the school year. There is always an identifiable need of some sort. It can be said that what distinguishes ESP from General English is not the existence of a need as such but rather an awareness of the need. Consequently, it seems plausible to argue that any course should be based on an NA of the learners, as this is how the procedures of ESP could be beneficial to general English. Finally, in terms of teaching material and learning, Uzpaliene and Kavaliauskiene (2003: 35) go further by describing needs analysis as a complex process which is usually followed by syllabus design, selection of course materials, teaching/learning a course, and evaluation.

4. Education system differences

The expanding number of international students in British educational institutions in the last two decades has led to a need for many academic teaching staff to be concerned about the unexpected problems encountered by international students, and for them to be informed as to how these students face English language difficulties and the cultural aspect of learning within the British academic environment. That is to say, there are huge differences between the education systems in the UK and other countries e.g. Saudi Arabia. Park (2006: 38) emphasised four areas of difficulty: presenting ideas in a new academic context, different styles in learning, different ways of developing arguments and how students approach study, all of which teaching staff and international students should be aware of.

As Marigne and Carter (2007) suggests, it should be noted that most international students do not recognise their own lack of proficiency in English and the new cultural style of learning that will be required before they actually commence their academic courses in the UK. Therefore, we believe international students should be made aware of these before leaving for the UK. The international students therefore need to be familiar with a new academic environment, including lectures and tutorials; differences noted by students also include the methods of looking for new information and presenting academic papers. For instance, as Al-Oadi (2000) noticed, Saudi students in the Saudi academic context are used to relying heavily on the lecturers or professors to provide them with everything they need, e.g. looking for information for them.

The fact that students experience problems studying at tertiary level in a language other than their native one is well established (Gajdzik, 2005; Park, 2006; and Nomnian, 2008). Considering that in the last two years Saudi students have become notable clients for British education programmes, there is a strong argument for conducting research to investigate the Saudi students' needs in order to address and solve any problems that they may encounter with English for Academic Purposes, including the impact of cultural differences when studying in the British tertiary level academic context, to ensure that delivery of English for Academic Purposes can be enhanced. Saudi students come from a different language and cultural background to that present in England. Both language proficiency and adapting to a new culture are vital for their ability to complete academic programmes successfully in Western settings. However, Saudi students are under great pressure not only to succeed in tertiary study, but also to be proficient in English in order to return home with an appropriate qualification to obtain a good job. As several researchers (Blue, 1991; Ferris and Tagg, 1996, Ferris, 1998; Park, 2006; Evans and Green, 2007; Nomnian, 2008) suggest, English for Academic Purposes is of paramount importance for studying higher education in English speaking countries. Saudi students who do not succeed at their studies lose face amongst their families and communities upon their return.

5. Methods

A mixture of methods has been used in this study (quantitative and qualitative) and three groups of participants (postgraduate students, EAP students and EAP teachers) were approached for the purpose of data collection at one of the biggest British university. The questionnaire used in this study was distributed to the students. SPSS was used for the quantitative analysis of the data. While a qualitative method has been used in this study; namely the interview and three groups of participants were approached for the purpose of data collection. The interviews were designed to identify the language needs and culture-related difficulties of the respondents. These interviews were composed of three sets: the first set was conducted with postgraduate students; the second set was conducted with students studying on the EAS programme; and the third set was conducted with teachers of the EAS programme. The data were then analysed qualitatively. All interviews were tape-recorded. The responses provided by the interviewees were recorded and then transcribed by the researcher. Qualitative

analyses of the responses of the two groups of students and the teachers showed that they were quite similar of the language needs, although the students provided more detail than did the teachers.

6. Results and discussions

The actual number of students who participated in this study was 68. Six of them were students of EAP and 62 were studying for a postgraduate degree namely master and PhD. As shown in the diagram below, 51 one of them (75%) were male and 17 (255) students were female:
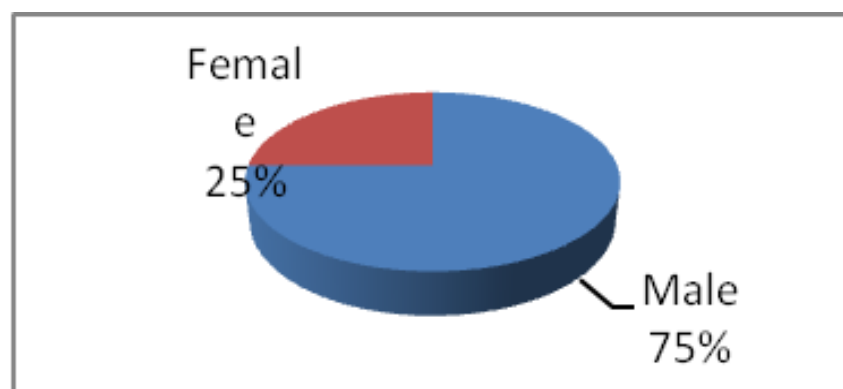

Diagram 1.1: Gender distribution of students (N=68)

While the EAP teachers sample was very difficult to include as it is thought to be important to include those who have been involved in teaching English to Saudi students for a long period of time. I then tried to search with head of language centre to find out. There has been a great opportunity to interview those who have been teaching English to Saudi students for at least three years and also those who teach them a different subject. The table below gives more information about them:

Table 1.1: EAP teachers

N0	Name	Gender	Number of years teaching Saudi students	Teaching subject
1	Ta	Female	4 years	Listening + speaking
2	Tb	Female	3 years	Writing
3	Tc	Male	3 years	Writing
4	Td	Female	5 years	Speaking
5	Te	Female	6 years	Grammar
6	Tf	Female	4 years	British culture
7	Tg	Female	5 years	Reading
8	Th	Male	5 years	Deputy director of the language centre

The survey asked the respondents whether they had attend EAP courses in the UK before commencing their studies. The outcomes obtained are described in diagram 1.2 below:
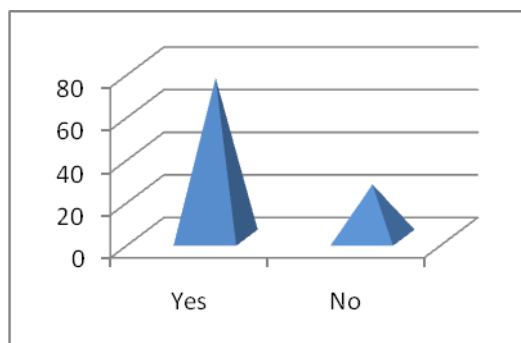

Diagram 1.2: Students who have studied EAP in the UK (N=68)

Of the total 68 respondents, more than half of them (75%) answered that they had taken an EAP course in the UK before starting their academic study. Seventeenth (25%) students responded that they had not taken any EAP courses in the UK. This is because some of the students studied their first degree in English or possibly some of them are specialists in English. This lead us to ask whether EAP is important for their study or not and the outcomes from the questionnaire presented in the diagram 1.3. below:
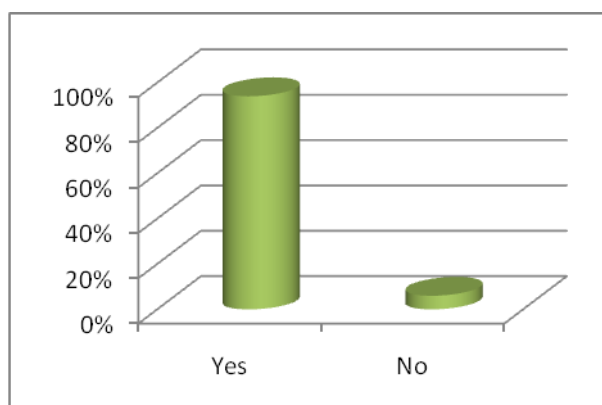

Diagram 1.3: The importance of EAP for the students' studies (N=68)

The majority of the students (94%) indicated that EAP is important for their academic field. Just six (6%) students answered that EAP is not important for their academic studies. From the outcomes obtained from the questions above it seems that most of the students realise the importance of EAP for studying in their field in general.

The interview results showed that most of the EAP teachers and students were in a favour of doing this kind of course for many reasons. For example, it helps the students to prepare them in order to cope and manage with the new education environment as the two extracts from the students below illustrate:

"Attending this program (EAP) is very crucial for us as it prepared us to commence our postgraduate level next year; I think we badly need it to learn more about the academic language and how to conduct a research etc"

Therefore, the evidence above shows that it is necessary for international students in general and Saudi students in particular to study EAP - whether in their home country or in the UK, which many students prefer. Becoming familiar with academic language is essential as it is going to help international students to be successful in their academic studies. So, teaching them EAP should meet their needs.

In terms of the students' language needs the teachers felt that students should learn about the organisation of academic articles and texts and expected them to know how to read, summarise, critically analyse, and interpret a piece of research undertaken in their field. Teachers also expressed the requirement for students to practice essay-writing, and to improve their writing and speaking skills so that they could communicate more effectively with university personnel and peers. This is probably because despite the fact that the language of instruction in all Saudi Universities is Arabic. In addition, teachers admitted that the students need to improve their general English to use linguistic forms.

Regarding students' speaking ability, students and teachers alike reported that the students lack the experience of, or confidence in, speaking; they need to improve their speaking skills for group discussion and presentations. Teachers and students were of the opinion that the four core skills of speaking, listening, reading, and writing should be integrated in the English for Academic Purposes course content. The findings of the study support the view that the students 'greatly' need to increase their general proficiency in English. A solid majority of the teachers also reported that the students need to develop their writing and reading skills in order to be able to perform in their specific subjects more effectively. Most of the students perceived that they needed to master an appropriate level of English before they studied their specialised subjects, although some expressed the opposite, particularly those studying a science subject, such as chemistry. Students also perceived that there is a gap between what they learned on the EAP course and their specialist academic subject but generally speaking most of them satisfied with the course.

The vast majority of the students in the study agreed that writing, followed by reading, speaking and listening are the most important skills needed for their academic studies. In terms of the methodology most of the students were dissatisfied with the teaching methodology used, the method of evaluation, the amount of British culture taught in the class, and the content of the textbook, whereas the, teachers reported that they were moderately satisfied with the aforementioned issues. It could thus be argued that more attention needs to be paid to course design.

Learning in another country is supposedly one of the most difficult issues that international students face. This is even more difficult for Saudi students who come from a very conservative society. This has been realised by both teachers and students as one teacher said:

" If you're coming here into the UK from a background of having had your education up to that point in Saudi, you'll find that the education, the learning and teaching sort of culture in this country is very different to the kind of culture you've experienced up to now".

Another issue which is difficult for Saudi students is working independently. However, some students do prefer to work alone and they complained about the independent class. This can be explained with regard to their socialization. They are used to teachers providing them with everything they need. Therefore, they do not need to do any kind of research. Having said this, not all the students have the same problems. Some of them expressed their positive attitude to learning independently, as another female student stated:

"I did not find it any difficult to work on my own during the independent study, as I taught myself for nearly ten years"

In terms of the teaching methods some students were unhappy claiming they were not used to the requirements of the British education system. This could include issues raised by male students who have never been taught by a female teacher and female students who have never been taught by a male teacher. This has caused a lot of problem as one female student said:

"I found it really hard to interact with male teachers. This not to say there were helpful, but rather because of my culture."

On the other hand there were some students who did not have any problems interacting with the opposite sex. A female student stated that:

"Well I knew that I was going to be taught by a female before I came to the UK because some of my family told me."

From the above it looks as though responses vary from one student to another depending on which region they come from. We assume that students understand that the relationship between them and their teachers is something that happens inside the school. There is no doubt that it is quite difficult for Saudi students to accommodate themselves to this situation as they come from a very conservative society. In large measure, this is due to their lack of experience of the British education system. Also, the process of the teaching seems from the interview the students were slow and repetitive from some EAP teachers and they have been taught each skill as it not relevant to the other skills.

One of the major problems that have been discovered here by this study is that Saudi students find it hard to cope with students leading the lesson instead of the teacher. Some students think it is bad that teachers could not handle the students inside the class. In addition to that the interview results showed that Saudi student like the teachers to direct them and give them all the information that they need without doing some research.

Both teachers and students thought that the smaller number of students in class the better the learning environment. Smaller class sizes are very helpful in terms of their language needs but also in accommodating them in their new academic environment. Teachers in this situation provide more individual attention to students whereas it is very hard for teachers to give private individual attention to the students. As an evidence of that one of the English for Academic Studies Program (EASP) student was very happy with the individual attention she received from her teacher when the number of the students was small.

7. Conclusion

The findings that emerge from this study on Saudi students show that they were inadequately equipped to start their postgraduate program without attending the EAP course. Also, in relation to English for Academic Skills, both students and teachers reported that the students' English language ability was insufficient to meet the challenge of their specialised courses. Most of the teachers were particularly dissatisfied with the students' low ability levels of writing and reading English. Therefore, the results reveal that the most important skills for them were writing and reading. However, this problem is not only associated with Saudi student but with most international students in general (see Park, 2006), with speaking and listening being their strongest skills.

In terms of teaching methods, some of the participants complained about the teacher's classroom behaviour. Consequently, EAP teachers should be aware of the students' preference of teaching because that will help them to achieve their goal. However, it is very difficult for the EAP teachers to meet the needs or preferences of every individual. The majority of the students in this study prefer that teachers should have a faster pace in the lessons. In addition, EAP teachers have to be familiar with the students' learning background, e.g., students find it difficult to work independently because they did not learn to work independently. As a result, it will be helpful if teachers work towards assisting students to overcome this problem.

Clearly, some expertise must be brought to the scene to make the EAP teaching practice more effective in meeting Saudi students' needs. Based on the results of the study, the EAP programme for Saudi students is conducted without consultation or collaboration with experts who are familiar with the needs, preferences and background of this specific group, which should be the indispensable first step in curriculum development for academic purposes. In fact, they have been taught without attention being paid to their previous levels of proficiency in English.

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The Internet and the School: practices and attitudes among Brazilian students and teachers

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Abstract

This paper presents investigations on the representations of the Internet among high-school students and their teachers in public and private schools in Rio de Janeiro, Brazil, and their Internet practices in comparison with their use of books and television. The data confirmed young people are "digital natives". In contrast, their teachers, "digital migrants", manifested a more conservative position. In the classroom, they prefer to lecture and to use printed materials. Our research shows that socio-economic class plays no role in young people's critical awareness of the limits and possibilities of Internet. Moreover, students and teachers share a positive attitude towards books and a negative one towards television. Finally, while the population of young subjects was heterogeneous from the socio-economic point of view, it was homogenous in its opinions and uses of digital media. Their teachers, while in general were more conservative, they are currently trying to assimilate this media into their teaching practices.

Keywords: ICTs & Education – youth – Internet - teacher-student relationship.

1. Introduction

The Internet today is a reality; in every region of the world, according to findings from *Internet World Stats*[106], the Internet has grown, altogether, more than 300% in recent years. Brazil, which is considered a developing nation, featured a growth of more than 1,250%. Brazil is the fifth largest country in the world, the sixth most populous, and the seventh country in Internet usage, ahead of every other country in Latin America.[107]

However, due to its geographical size, the size of its population and the huge differences in socio-economic conditions among its regions, it still needs the government to implement projects so as to guarantee that public schools will gain access to cyberculture.

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[106] The Internet World Stats statistical data are calculated based on information gathered by Nielsen//NetRatings, the International Telecommunications Union, local NICs and other trustworthy sources. The data can be found at http://www.Internetworldstats.com/stats.htm, accessed on 10/09/09.

[107] http://www.Internetworldstats.com/sa/br.htm obtained on February 12, 2010

In this regard there are two well-defined positions : on the one hand, the Brazilian government is worried to increase quantitative indices of ICT presence at schools; on the other hand, pedagogical analysts have been denouncing the dangerous gap between having and effectively incorporating ICTs into everyday activities. Among the latter, the idea which prevails is that the introduction of technology, in and of itself, does not guarantee the adoption of these gadgets by teachers, does not promote the expansion of the field of educational media among Brazilian schools, therefore are not being considered elements which engender pedagogical transformations. A great amount of young people , however, born in the heyday of the Internet, perceive it as a natural habitat.

Based on these premises, two investigations linked by the same thematic thread were developed in Rio de Janeiro by the research group Networking Young People of the Department of Education at PUC-Rio[108], Rio de Janeiro, Brazil, under my coordination: the conditions of use and the representations of the Internet experienced by senior high-school students and their teachers in public and private schools in Rio de Janeiro, Brazil.[109] The research identified their Internet practices, both in their personal lives and at school, in comparison with their use of books and television. Rio de Janeiro was chosen as the research location because, even though there are less developed regions in the country with greater needs, Rio de Janeiro`s situation is no less worrying. It is the second largest Brazilian city, but has its own poverty-stricken outskirts, where public education is in a precarious situation, as exemplified by the fact that traditional teaching prevails and is heavily dependent on lecturing by teachers. Thus, this paper critically analyzes how young people experience a new culture of media consumption and how teachers have incorporated ICTs into their lives and into their teaching practice.

2. The Research Networking Young People

'Networking young people' is actually the culmination of a series of investigations on youth and mass media which detected a strong relation between the material broadcast by these media and the construction of values and the problems pointed out by young urban people. Besides, it was proven that another kind of media process exists which advances beyond the printed newspaper and television: the Internet. It was through this thread that we arrived at the development of the research 'Networking Young People', which analyzed the conditions, the use and the representations they had towards the Internet.

We worked with the speech of senior high-school students recently accepted into college obtained through a voluntary questionnaire on their use of the Internet. 965 students from different districts of Rio de Janeiro and with significant class differences responded (N=1500).

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[108] Pontifícia Universidade Católica do Rio de Janeiro, ranked the biggest private university in Brazil.
[109] These two pieces of research were sponsored by CNPq -BRASIL (Conselho Nacional de Desenvolvimento Científico e Tecnológico - "National Counsel of Technological and Scientific Development")

The group was composed of females at 51% and males at 49%, aged 17 to 19, divided into two groups: those who entered university through a competitive exam or through ENEM[110] - hereinafter GROUP A – and those from ProUni[111]. These students were born when the commercial Internet appeared and the computer and video games were in widespread use. So, if we cannot consider them thoroughly contemporary to this era, we also cannot consider them fully alien, as some of their teachers are to a certain extent. The fact that the ProUni group is in the same age group as the others contradicts the common sense theory that young students from less favored backgrounds enter university late.

Everybody declared knowing how to use the computer ; GROUP A for over 6 years and the ProUni group for 4 to 5 years, the difference probably being due to the different financial capabilities of the groups. Thus, digital illiteracy, supposed of less favored classes, was not observed.

In GROUP A, among the radio, books, magazines, television and the computer, 46.3% preferred the computer. Television, a mass medium which is more popular, ranked below the computer (25%). Perhaps technological advances will increasingly expand hypermedia capabilities, making activities once restricted to the television much more attractive on the computer.

In the ProUni Group, the use of television prevails as entertainment (43%), seconded by the computer (18%). It was interesting to relate these data to the question of having or not having a computer at home. Indeed, in GROUP A, 97% do have a computer at home, while in the ProUni group 64% do, therefore watching more television. However, as we shall see later on, not having a computer does not stop the ProUni student browsing the Internet, having an email account, taking part in social networks, having blogs and photologs, using MSN and Skype, or even searching for information online as commonly as students in GROUP A.

Seen in its entirety, 98% browse the Internet daily or at least 2 or 3 times a week. How do the ProUni students access the Internet? From their friends` houses, school, work and in places such as cyber cafes, a lot more ubiquitous in low income communities than in more privileged urban spaces, which was confirmed by research carried out in 2008 by the Internet Management Committee in Brazil. This paper indicates that there has been a 100% increase in

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[110] The **Exame Nacional do Ensino Médio** (**Enem**) is an exam created in 1998 by the Brazilian Ministry of Education to be used as an entrance exam into Brazilian universities and as an assessment tool of the general quality of High School education in Brazil.

[111] ProUni (Programa Universidade para Todos – "University for All Program"), a federal government initiative, grants full-time scholarships to undergraduate students at private institutions geared at poorer students who attended High School at public schools.

the use of public spaces with Internet access, as well as of LAN houses[112]. The LAN houses at the time of the research were responsible for almost 50% of Brazilians`access to the world wide web, as compared to 43.39 % of access from home, 25.3% from work, 16.69% from someone else`s house, and only 18.48% from school.We can therefore say that there is not only diversity in how young students consume media, but also that a new developing culture has emerged.

Just as a majority of the students questioned prefer the computer in their free time, it is also true that they use it to search for information. This reinforces the idea that an Internet connection has become a given with computers, since it is essential to obtaining information, however, as a young fellow said – '*I can easily live without the Internet*'[113]. The data shows that they prefer to go out and meet with their friends – '*It is better to go out, to play real soccer than Playstation*'; they are interested in the media for personal use because they are allowed to prolong real relationships beyond the limitations of space and time.

The computer, meaning the Internet, television and newspapers share very close percentages. Although data shows that the students group do not read the newspaper continually, they credit the printed newspaper with a degree of legitimacy, as a grounded and trustworthy source.

Thus, young students obtain information from the TV news and complement it by resorting to the online newspaper and discuss it with their friends, colleagues and family members.

The data collected have shown that the concept of context cannot only be expressed through geographical boundaries or restricted to the school environment, thus ignoring the continuity of the educational process, which unfolds, intentionally or not, through countless relationships in other spaces, including virtual ones.

In GROUP A, we predominantly found a preference for the 'traditional textbook' as the best means to study; in the ProUni group, the favorite choice was 'Internet sites' (29%), followed by a 'textbook accompanied by audio' (23 %). The vast majority looks down on the possibility of using photocopies to study, although it is a widespread pedagogical practice.

We did not expect to find traditional textbooks to have a high acceptance. Our hypothesis is that books have a somewhat sacred appeal to students, who equate them with the '*possibility of increasing their knowledge*'; '*active wisdom*'; '*boring but necessary*'; '*the third pillow*'; '*never forgotten*'; '*seriousness*'; '*best*

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[112] LAN House is considered a powerful tool in the process of digital inclusion in Brazil, chiefly, in Rio de Janeiro and São Paulo.

[113] The speeches of members of the groups under study are written in italic.

source of knowledge',.   No one suggested the book is negative, of little educational value or harmful!

Television, however, was massively reported as being '*alienating',* '*not constructive'*, which also demonstrates the same bias (in this case, negative) towards books.   Both positions can be important points to consider when discussing how this dichotomy persists in our context.

More than half of the group learned to use the computer on their own, which reinforces the idea that the age of computers and the Internet is based on the fearless exploration of the new. Only at ProUni, 17% learned at school, possibly because they did not have a computer at home or friends with computers at home.

More than half of all young students indicated they were curious about the computers as well as a previous positive assessment in relation to the efficiency of this technology for purposes of entertainment, research, studying and obtaining information. We did not detect any pessimism in relation to their ability to handle computers. The students are very clear about the ideal conditions for the understanding of the contents of a website. Orkut and MSN, more than Facebook, are used as socializing spaces, and Google is predominantly used for searches.

Doing several things at the same time seems to be the modus operandi of today's young people. This corroborates the idea that young people are increasingly in search of hypermedia which incorporate other media, and we observed that they relate to the Internet in an integrated manner and that, many times, it represents an amplification or a continuation of other experiences lived outside cyberspace.

Data also indicated that students use the computer as an information technology which greatly helps them do their schoolwork, research and work. However, the ProUni group (25%) rarely uses the computer and 4% of these never use it. In our experience, this fact can be easily understood by the differences in earning power and the lack of opportunities which the less favored classes always face.

The most important finding of the research was, therefore, the fact that there is no difference in the attribution of meaning, the valuation, or the forms of representation and use of the Internet between young students from higher social classes and those from lower income classes. The differences found rested mostly on the socio-economic conditions of the groups, but never on a possible digital illiteracy of the less favored.

3. The research networking teachers

In contrast with the research 'Networking Young People', we have developed an investigation titled 'Networking Teachers' aimed at knowing their representations on the Internet, their goals and frequency of use, the Internet's influence on their everyday lives and its appropriation by the High

School teachers who taught the young students from the research 'Networking Young People'.

The group under study was made up of an intentional sample of over one hundred teachers, evenly distributed between the genders (56% males / 44% females), working at several different public and private high schools and teaching   several subjects: Portuguese, Literature, Mathematics, Physics, Chemistry, Biology, Sociology, Philosophy, History, Geography, Physical Education, Computer Science, English, Spanish, Religion. Many teachers (50.7%)   had been teaching for over 15 years, 83.3% of them had been using the computer for over 8 years and 59.4% of them for over 11 years.   The period during which teachers mostly embraced the Internet ranged from 1998 to 2004 (89.8%), which means they were not born in the digital age.

Also a great many of these teachers (57.2%) learned to use the computer by themselves and   30,4% f a work-related need (30.4%).   Those who already mastered using a computer amounted to 43.5%.   Reading and taking courses were not significant doors to learning about computers (17.3%). All searched teachers had at least one computer at home with broadband access to the Internet; 81.9% of them bought their computers in order to study or work, using them mostly to prepare class material. [114]

As regards their current use of the Internet, 71.7% always write emails; 93.5% always or almost always use search engines, 72.5% read content pages; 54.3% type texts, exams and documents, 27% download programs and other software. However, these teachers admitted rarely using the Internet for entertainment or cultural 'wanderings' without having a professionally-oriented goal in mind.

Although teachers affirm that they have free time and liberty to use the computer at school, they indicated that taking it to the classroom is difficult. Thus, in the schools where they teach, they still make very little use of the computer and of the Internet, no longer because they cannot use the device, but because they lack the right conditions to access it in their everyday school practice.

The teachers also pointed out that the lack of time in class, the large number of classes in a row, the need to work at several schools to make a living, among other reasons, stop them from using material available on the Internet in the classroom or in computer labs. The result of this state of things is that explanatory classes and printed material still prevail.

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[114] Of course, we are talking about teachers in Rio de Janeiro and not whose live in Brazilian poor regions.

We also researched the changes that took place in the lives of the teachers as regards work, study, access to information, communication and time optimization. A great number of them (70%) affirm that the Internet changed their lives *for the better*. In relation to issues of money and relationships, most answers indicated *no change*; a change for the worse ranked very low and time optimization reached 8%.

When asked what they usually did to occupy their free time, the teachers responded that they primarily used the computer and the Internet, followed by reading books, They are quite sure that books are not as used as before. Printed media are regarded as equal to digital media. The computer is seen as possessing versatility when used in their free time, but also as a source of information; it is a device that allows access to the Internet and to television itself. In fact, television is no longer the primary source of entertainment, since it is now much less frequently used in comparison with other activities, perhaps because teachers, as do young students, have a negative representation of television. The radio ranked very low.

Finally, with regard to the routine of these teachers, 33.3% admitted that the time dedicated to work increased after they started using digital media. The rest of their routine remained the same.

The responses about which aids teachers use in their classes were assessed at different levels. Films are the absolute winners, perceived by 64.5% of teachers as attractive and useful. Next are Internet websites at 58% and CD-ROMs at 50%. As regards films, we know that teachers have already internalized using them, especially in subjects that feature an array of DVDs and also because most schools nowadays have DVD players.

It is curious that teachers affirmed using ICTs, since it contradicts their responses to another question in the questionnaire where they indicated that ICTs are difficult to use in the classroom. Perhaps they were referring to the use of computer labs, whenever the school possessed one, or to the assignment of searches for content on the Internet outside of school, which very often made students resort to LAN houses in order to do their assignments.

Textbooks and handouts received similar evaluations (between 35% and 40%) with regard to their usefulness finally, although 50% of the people in this same group dislike the use of photocopies, 20.3% still use photocopies against their will. Considering everything the teachers pointed out, we can ratify what was said before: classes remain mostly explanatory and dependent on printed media.

It is both curious and understandable to notice that the teachers interviewed are not fond of chats, blogs, photologs, etc. This behavior confirms their condition of predominantly digital migrants.

A third point which emerged from the empirical data is that, different from previous years, nowadays curiosity and expectation remain high in relation to ICTs, except now they are based on evidence of gained knowledge.

However, there are still some teachers who barely give in to the use of computers, arguing that, nowadays, they reckon everything can only be solved by digital means.

'- *I had to learn "whether I liked it or not". You can`t do without a computer.'*
'- *I hate computers...I had to learn... I`m having a hard time!!'*

On the other hand, the idea remains, at least implicitly, that older people should be regarded as having greater knowledge than their younger peers; thus, not knowing how to deal with computers and the Internet causes fear in teachers:

- I cannot see myself as an educator as long as I cannot answer questions people make.

4. Conclusion

From the analysis of of the two pieces of research, we get the idea that ICTs are related to `youth`, that is, the tendency to hail youth and its values. The cult of the Internet seems to be from the predominantly young, `from the young to theyoung`. `It is conceived of as a kind of process of permanent revolution in which young people determine the direction of movement`(Breton p.87). The wealthy, today, are young people; the poor are older.

`*I notice that teachers who are not digital natives are having a hard time (I am digitally illiterate compared with my son) in relation to younger people.*`

To many teachers, in the established projective behavior,, information technologies often resemble witches, while books have more in common with fairies.

On the other hand, data indicated that for the searched teachers group there remains a deeply rooted idea that students are incapable of authoring anything, making it implicit that teachers must almost always be mediators. However, if students cannot exert their autonomy and have no critical judgement, wouldn`t that be precisely because school, as one of society institutions, does not prepare them for it?

It is interesting to mention here the other end of this set of assessments of the Internet, the one where the Internet is regarded as *instigating and fantastic*, therefore something forward-looking which excites people, an icon of the liquid modernity which Bauman (2001) talks about. In this case, the idea of a new world has several points in common with the current trend revolving around the Internet, which mobilizes thousands of young people and adults alike in the search for a more fraternal, peaceful, communicative society. From this perspective, the world of the Internet could be seen as `underground in its own way, the current underground, a place where the ordinary world can be escaped` (Breton, 2000 p.81).

... (the Internet) is the place where one searches for something; the student can insert and remove things, he or she searches for and provides information. Instead of goods, information is traded. The Internet makes trading possible.

... I see the Internet as polemical for those outside of it. They (young people) use the tool as a means of socializing. We tend to get a little neurotic about finding several things. Perhaps we find it polemical because we do not use it or know it enough.

...The socialization mediated by the computer is sometimes seen with prejudice, but it is a great thing...

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The Impact of Engaging Families on Mathematics Teachers' Instructional Practices

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Abstract

This paper describes an investigation concerning the ability of an eight-week professional development program to enhance seven teachers' understanding of a) how and why parents and children work together the way they do in mathematics, and b) their role in nurturing parent-child collaboration. The program's design, consisting of 1) training, 2) classroom-based family sessions, 3) teacher analysis of collected data, 4) reflective journal writing, and 5) discussion of findings with colleagues, provided the participating teachers with tasks and venues to note the ways families collaborated and the reasons behind their actions. They witnessed the parents' willingness to collaborate and the children's enjoyment in sharing their thinking with their parents. In turn, the teachers gained a deeper sense of value for parents, and gained insight about how to tailor their efforts to guide parent-child collaboration specific to the needs of their classroom families.

Keywords: Teacher Preparation – Parents – Mathematics

1. Introduction

The National Science Foundation, through its funding of curriculum projects such as Everyday Mathematics that include a parent component, demonstrates its recognition of the significance of parents in mathematics education. However, in-service professional development efforts for teachers and administrators focus primarily on understanding the curriculum's teaching and learning objectives (Ball, 1996; Nelson & Sassi, 2000). Less emphasis is placed on efforts to understand parents' viewpoints about these objectives and to develop ways to involve parents meaningfully in their child's learning of mathematics (Reymillard & Jackson, 2006).

This is true for pre-service teacher training as well. The formal training of educators to partner with parents in any form, is under-emphasized in teacher education programs (Shartrand et al. 1994; Hiatt-Michael, 2001; Witmer, 2005) despite research findings that reveal parents' input as a positive influence in developing mathematics attitudes (Kliman, 1999) and academic achievement (Bezuk, Whitehurst-Pane, & Aydelotte, 2000).

The consequences of such a gap in pre-service and in-service teacher preparation surfaced with investigations that found teachers with inadequate knowledge and skills necessary for promoting parent partnerships that support students' academic achievement (Ratcliff & Hunt, 2009). For example, Calabrese Barton et al. (2004) found teacher practices mainly consisting of just a "laundry

list that good parents do" (p.3). Others noted teachers' skills limited to reactionary "how to" strategies for dealing with situations such as "difficult parents" or parents of children with learning disabilities (Ferrara & Ferrara, 2005).

To address teachers' lack of understanding and skill concerning parental involvement, a university sponsored mathematics professional development program was designed with opportunities for teachers to investigate parent-child collaboration while working with families within their own mathematics classrooms. The term "parent-child collaboration" in mathematics refers to the manner in which a parent and child work together on mathematical tasks such as daily homework and projects.

Assessment of the effects this professional development program had on its participants was conducted to determine the answer to the following research question: Does a teacher's investigation of parent-child collaboration enhance their understanding of a) how and why parents and children work together the way they do in mathematics, and b) their role in nurturing productive parent-child collaboration?

2. Literature Review

The most basic premise of Vygotsky's theory (1978) is that a child's intellectual development relies on their social environment. Vygotsky points out that this social unit cultivates a child's higher order thinking skills when adults provide guidance within a child's zone of proximal development (a cognitive state in which the child cannot yet quite solve a problem by themselves and is responsive to social guidance).

A link between Vygotsky's view and parents' involvement in mathematics education exists; researchers find that parents, as a unit of the social environment, act as positive influences for attaining success in mathematics (Connor & Cross, 2003) when they provide assistance that reflects a scaffolding approach (Vygotsky, 1978; Wood & Middleton, 1975). A parent using such an approach is attuned to the needs of the learner, guides them within their zone of proximal development, and readjusts their assistance as the learner progresses to a new ability level. Guidance of this nature reflects what Hyde et al. (2006) term as "quality" assistance that is just as important, if not more, as the quantity of assistance.

However, many parents face the challenge of their unfamiliarity with the reformed mathematics curriculum (Burns, 1998). They in turn struggle when trying to assist their child in a manner reflective of the scaffolding approach. Epstein & Jansorn (2004) point out that those parents who were taught in a drill and practice manner and did well in reaching the expectations present during their time in school often feel uneasy about changing a learning environment that worked for them. Researchers warn that unfamiliarity and resistance can challenge reform efforts when parents choose to assist their child in ways that

only mirror their past learning environment as opposed to their child's (Remillard & Jackson, 2006).

Given the difference parents can make in children's mathematics performance, it is important for teachers to support and encourage parents to overcome the difficulties they face. Civil and Bernier (2006) advocate for better home-school relations; their research revealing parents exclusion from the discussion about mathematics education for reasons of differing learning environments, low levels of education, and/or low income status. They highlight the need to move teachers away from a "deficit model" where parents are under-utilized and devalued, to a mindset where parents are valued as "intellectual resources" regardless of their economic, cultural, and educational backgrounds.

Calabrese Barton et al. (2004) reflect this thinking within their Ecologies of Engagement Framework where they define parental engagement as "a dynamic, interactive process in which parents draw on multiple experiences and resources to define their interactions with schools and among school actors" (p. 3). This framework represents a shift from focusing primarily on what parents do to engage in their children's education, to also learning about the "hows and whys" behind their actions.

Such a shift enhances Epstein's (1987) theory of overlapping spheres of influence that identifies students as the main actors in their education, supported by others at home, at schools, and in their communities. When attention is given to Epstein's concept of multiple forms of support with a lens reflective of the deep understanding advocated by Calabrese Barton et al. (2004), it is likely that conditions will be identified and intervention tailored to benefit students, strengthen families, and improve schools.

To determine how best to structure a learning environment for teachers and also provide parents with insight into their child's learning of mathematics, an investigation of best practices for teacher education and parental involvement initiatives was conducted. During that investigation, it was noted that Situated Cognitive Theory (Choi & Hannifin, 1995; Jonassen & Rohere-Murphy, 1999) informs teacher educators that new knowledge comes from implementing and observing actual school-based teaching. Darling-Hammond & McLaughlin (1995), Lee (2005), & Sawchuck (2009), as a result of their evaluations of teacher education and professional development programs, found that continued support from teacher educators, coupled with opportunities for teachers to share feedback with their colleagues cultivates professional growth in a community of practice.

When reviewing the research on how best to support parents, findings were found that favored efforts that focus on building parents' understanding of the changes in mathematics teaching (Sheldon & Epstein, 2001), especially the use of manipulatives (moveable objects) (Author, 2004; Orman, 1993; Dauber & Epstein, 1993; Epstein, 1986). In addition, parents were found much more knowledgeable about their children's learning of mathematics at the close of a series of activities where both parents and children engaged in mathematics tasks together (Tregaskis, 1991; Lachance, 2007; Fagan, 2008). These

established learning conditions for parents as well as those described previously for teachers permeated this study's professional development program.

3. Methods and Procedures

3.1. Participants

An inner-city nonpublic school population of 147 pre-kindergarten through 8th grade students and their parents along with their seven mathematics teachers in the metropolitan area of New York agreed to participate in the professional development program. There was one teacher for both pre-kindergarten and kindergarten, one teacher for each of grades 1 through 5, and one teacher for grades 6 through 8. The 2nd grade teacher had 18 years of teaching experience, while the 1st grade teacher had three years, the pre-kindergarten/kindergarten teacher two years, and the others were first year teachers. Five teachers were state certified and two were working towards it. Four teachers were Caucasian, two were Hispanic, and one was Pacific Islander. In addition to receiving professional development credit, the teachers also received a stipend for their participation in the program.

The students' ethnic backgrounds consisted of 82% Hispanic, 14% Afro-American, 3% Caucasian, and 1% Asian. There were 75 male and 72 female students, and one class per grade level except for pre-kindergarten and kindergarten which were merged due to size restraints. All families were fluent in English and were classified as low socioeconomic status (approximately 81-90% of the children qualified for free lunch). All families in the school participated in the professional development program and received incentives for their involvement; these incentives being home instructional materials, student dress out of uniform passes, and free raffle tickets for prizes consisting of school supply store and supermarket gift cards. Dinner was also served prior to each of the family sessions.

3.2. Professional Development Program

The professional development program involved teachers in settings where they a) engaged their own students and parents in mathematics tasks, b) gathered and analyzed related data, and c) shared findings with their colleagues. For eight weeks during the first half of the school year, the teachers participated in four 2-hour teacher workshops and three 2-hour family sessions.

The family sessions were facilitated by the teachers and supervised by myself and the school principal. The mathematics teacher for grades 6 through 8 was assisted at the family sessions by two other teachers from the school, and worked in a room that accommodated her large group. Although the assisting teachers did not teach mathematics, they did participate in the teacher workshops to build familiarity with the program so as to appropriately assist.

These sessions sought to inform, engage, and promote reflection among parents and children concerning mathematics curriculum and methodology. The tangram set (seven geometric shapes, namely ; two large triangles, one medium triangle, two small triangles, one square, and one parallelogram) was the manipulative (moveable object) used at all three family sessions to provide an example of a current tool for building conceptual understanding, procedural fluency, and problem solving skill. This manipulative was a familiar tool for the teachers and their students from prior professional development conducted at their school by myself, a mathematics teacher educator who worked with these teachers for the past three years. All teacher workshop and family session guidelines as well as related hand-out materials used throughout the professional development program can be found in Teachers Engaging Parents and Children in Mathematical Learning: An Approach for Nurturing Productive Collaboration (Author, 2008).

During the teacher workshops, I instructed the teachers on how to a) facilitate the family sessions, b) collect data (surveys, field notes, work samples, and written reflections) during the family sessions, and c) analyze it. Gathered data and findings were discussed at the workshops; this served as a means for sharing existing conditions concerning the parent-child collaboration the teachers were investigating while working with their families.

3.3. Measures

The parent survey (Mistretta, 2008) consisting of 14 statements requiring 5-point Likert scale responses and one narrative response question served to investigate how the parents collaborated at home with their children in mathematics and the challenges they faced.

Work samples of assigned tasks done at home were graded with a 4-point rubric to assess the quality of work completed by the families. Written reflections served to identify student and parent feedback concerning the most enjoyable and challenging aspects of collaborating during the family sessions and at home.

To keep a written record of their observed forms of parental assistance, the questions posed to children by parents, and the verbal communication among the families, teachers took field notes. These field notes were taken a) during a question and answer segment of the first family session concerning mathematics content and methods, b) while the teachers observed the parents and children working on classroom tasks during the second family session, and c) during small and whole group discussions during the second and third family sessions when families reflected on their collaborative efforts.

A journal consisting of four entries was kept by each teacher throughout the professional development program and used by myself to assess and monitor their a) initial perspectives about parental involvement, b) findings from collected data, and c) developing perspectives about parental involvement and their role in cultivating it. The teachers used their parent surveys, field notes, work samples, and written reflections to discuss their findings concerning the forms of parental

involvement existing among their families, parental challenges, the quality of work done, and families' reactions to the collaborative settings.

Four taped <u>focus group interviews</u> were conducted during each teacher workshop using questions that reflected those of the journal entries. I transcribed notes afterwards and compared them with each teacher's corresponding journal entries to assess consistency between their journal entries and interview responses as well as clarify any unclear response in either their journal or interview.

4. Data Analysis

Each teacher analyzed the data concerning their classroom families. They tallied the parent survey Likert-scale responses and scores from their family work samples. The teachers conducted content analysis on their parent survey narrative response question, field notes, and written reflections. Survey narrative responses were coded and tallied to determine emerging themes. Field notes and written reflections were coded and tallied to note trends in both the observed parent-child interaction and the parent and child written reflections.

To assess the teachers' findings, I analyzed each teacher's data sets in the same manner and found consistency between their findings and mine. I conducted content analysis as well on the teachers' journal entries and my transcribed notes of the taped focus group interviews. This data was coded and tallied to determine and compare emerging themes.

5. Discussion of findings

After analyzing the teachers' first and second journal entries and related interview responses, it was clear that each teacher noted a paucity of discussion between parents and children about how answers are obtained. They each stated that most parents involved themselves in only checking that homework was done and reviewing for tests. Such limited and passive parental involvement may represent a consequence of the teachers themselves stifling the parents' capabilities.

For example, all of the teachers initially acknowledged the value of involving parents, yet were not confident in their parents' content knowledge. As a result, they each indicated their decision to give parents tasks they felt they could do; namely checking homework, reviewing for tests, and drilling multiplication tables. In addition, communication with parents about the mathematical learning going on in their classrooms was only done in the form of written letters concerning classroom procedures such as when homework is given and how grades are calculated.

On a more positive note, the teachers' desire to learn how to effectively involve parents in their child's learning of mathematics was evident. They all admitted that they under-utilized parents because they a) viewed their parents as not having the educational background to help their child, and b) didn't know how to

alleviate the situation, but wanted to know how to involve parents more productively. This admission of and willingness to move away from the "deficit model" previously described by Civil & Bernier (2006) provided a mindset among the teachers that was open to gaining a more accurate understanding of the reasons behind parents' actions as recommended by Calabrese Barton et al. (2004).

When analyzing the narrative responses to the parent survey question, the teachers noted that lack of content knowledge and differing prior learning environment were reasons for parents' limited mathematical discussion with their child at home. They each noted that the majority of their parents made comments reflective of "Mathematics today is taught differently than in my time. I don't want to confuse my child."

The teachers, in their third journal entry and related interview responses, noted the "benefits" of engaging families in mathematics tasks in their own classrooms. They viewed this setting as a means for building parents' content knowledge and understanding of "why we teach the way we do." They each acknowledged as well their opportunities to observe the forms of interaction and in turn offer appropriate guidance.

An encouraging moment for the teachers was when they each noted their parents transitioning from a role of telling to one of listening and guiding. Most of their parents initially took control of conversations in an explanatory manner using only one method of solution (theirs), and posing short answer questions requiring a yes/no and/or number response. Upon their intervention, each teacher witnessed parents' receptiveness to their guidance and detected more meaningful collaboration starting to occur. For example, parents began to question more and tell less by posing the prompting and probing questions offered by the teachers such as: What do we know that can help us? Can we approach this another way? Why? and How?

After analyzing the teachers' fourth journal entry and related interview responses, it was noted that each teacher found most of their families' scores on the home tasks to be 3 or 4 indicating accurate solutions and methods of obtaining them. Although the teachers did not find anything particularly noteworthy concerning the families' methods of solution, they did view these work samples as evidence that quality collaborative efforts can happen at home when the proper support is given.

Each teacher, after analyzing the written reflections about the collaborative experiences, noted that most children appreciated the opportunity to share methods of solution that were different from their parents' way of answering. Most of the children also pointed out how challenged they felt when their parents asked them how and/or why they arrived at their answers.

The teachers noted as well that most parents in each grade expressed enjoyment of witnessing their child think, and viewed their time collaborating as an opportunity to better understand each other. However, most parents viewed

listening and guiding their child's thinking as challenging since they were used to telling their children the answers and how to obtain them.

The teachers' responses in their second through fourth journal entries indicated their acknowledgement of challenges the parents faced and the specific aspects of parent-child collaboration they as teachers needed to address. The journal entries in their entirety surfaced the teachers' developing desire and skill to guide parents' efforts with instructional practices tailored specifically to their parents' needs.

6. Conclusions

This program didn't just serve as a means for the teachers to build parents' knowledge of content and methodology. It provided tasks and venues for the teachers to note the ways families collaborated and the reasons behind their actions. They witnessed the parents' willingness to collaborate and the children's enjoyment in sharing their thinking with their parents. In turn, the teachers gained a deeper sense of value for parents, and recognized the need for them to guide parent-child collaboration.

Teacher preparation as described in this paper warrants consideration. Civil & Bernier (2006) state that teachers can influence the success or failure of efforts that seek to change the ways parents participate in their child's education. If parents need to productively involve themselves in their child's learning, teacher educators need to focus their attention on preparing teachers with the knowledge and skills necessary to cultivate such involvement.

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Museum 2.0 Comes to the Uganda National Museum

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Abstract

Web 2.0 (architecture of participation) is pressing the area of Education and ICT. This is true in relation to regular education venues, and also in Western museums and their educational offerings. Museums in the Global South, with an abundance of ICT and educational challenges including a lack of sustainable technology and the expertise to employ it, often find themselves lost in an emerging virtual world of Facebook, Flickr, Second Life, Twitter, and YouTube. This paper will elaborate the current conceptualization problematic and processes of developing a Museum Web 2.0 site for the Uganda National Museum. The site plans to visually and interactively represent, from Ugandan vantage points, the museum housing art objects, Ugandan textiles, and historical Ugandan musical instruments, and will explore methodological approaches for Web 2.0 museum e-learning. The research team, comprised of six Ugandans and four Canadians, will employ de-colonizing notions in an initial Museum 2.0 development.
Keywords: Web 2.0 – museum education – participation – Global South

1. Introduction

National museums around the world struggle to present an authentic and meaningful web presence of their spaces and the artifacts they house. With the arrival of Web 2.0 (architecture of participation) technologies such as Facebook, Flickr photo sharing, Second Life, Twitter, and YouTube videos, museums now have an opportunity to interactively share and discuss their artifacts and exhibitions with audiences around the world online and offer new approaches to museum e-learning.

As the Global North advances rapidly in Web 2.0 development, it is imperative that collaborative opportunities be made available to Global South museums, also labeled developing world or Third World. The Uganda National Museum (a Global South museum in Kampala) and the Acting Commissioner of the Uganda Museums and Monuments, Ministry of Culture, invited Professor Mary Leigh Morbey of York University, Toronto, Canada, to undertake the project of Web 2.0 conceptualization and development for the museum. A research team comprised of York University and University of Toronto faculty; York University PhD students Ugandan Maureen Senoga (a Department of Art and Design Faculty member at Kyambogo University in Kampala for 13 years) and Paul Kortenaar (Ontario Science Centre, Toronto); and Ugandan web technologists working in the museum as well as the Ugandan Ambassador to France and Uganda UNESCO delegate, was formed to conceptualize and develop the project.

Working with a conceptualization developed by the Ugandans, the Web 2.0 project builds on Web 1.0 (point and click) structures and towards de-colonization in light of historical Ugandan colonization by the British and others as well as by possible Web conceptualizations and content. The Museum 2.0 project, in its beginning stages, will examine the problematic of working with the open participatory spaces of Web 2.0 alongside notions of de-colonization, and address the thorny conundrum of possible re-colonizing ideologies and processes in the more open Web 2.0 spaces. The site planning will visually and interactively represent the holdings of the museum presenting art objects, Ugandan textiles, historical and current Ugandan musical instruments, and interconnect to spaces outside the museum walls. Further, it will investigate methodological approaches for Museum Web 2.0 e-learning.

From a Ugandan vantage point, the team comprised of six Ugandans representing diverse cultural, political, technological, and arts education backgrounds will contribute to the collaborative team decision taking. This aligns with the current Uganda National Culture Policy of 2006 that addresses the challenge of the intrinsic value of culture and the importance of cultural identity as a form of capital to move its people out of poverty. The policy identifies strategies to enhance the integration of culture into development and includes advocating for culture, ensuring capacity building, ensuring research and documentation, promoting collaboration with stakeholders, and mobilizing resources for culture.

2. Theoretical framing

The conceptualization of a de-colonizing Global South Web 2.0 site for the Uganda National Museum, with local and global educational possibilities, is crucial to a global presence for the East Africa national museum. The de-colonizing notions of Mahmood Mamdani (1996, 2005) and Linda Tuhiwai Smith (1999) interliked to Web 2.0 notions of Tim O'Reilly (2006) and Henry Jenkins' (2006, 2009) participatory culture, theoretically frame the Museum Web development. Information communications technology (ICT), and particularly Web 2.0 innovations, holds the potential to change and enhance how a museum presents itself and the culture it embodies and represents (Bowers, 2000, 2001, 2006; Lessig, 2002; Marcus, 2002, 2006; Parekh, 2000). In 2010, we face the question of how a Global South national museum might envision contemporary and culturally relevant website development with a meaningful interface. This brings to the fore the importance of careful attention to ideological visioning and website conceptualization by museums for Web representation and education.

With a view towards the Global South, and the Ugandan National Museum specifically, ideological visioning from de-colonizing (Tuhiwai Smith, 1999; Mamdani, 1996, 2005) and non-cybercolonizing viewpoints (Ebo, 2001; Morbey, 2006, 2009), taking into account the "glocal," that is local and global possibilities (Robertson, 1995, 2000), is critical. The notion of de-colonization employed in this paper calls for more critical understandings of the underlying assumptions, motivations, and values that inform research practices in working with indigenous or colonized peoples (Tuhiwai Smith, 1999), asks how national

institutional inheritance plays out after colonialism (Mamdani, 2005), and recognizes the principle of a respect for the rights and self-determination of peoples – they decide their future status (United Nations, 1960). And recognition of de-cybercolonization acknowledges a de-colonizing expansion into cyberspace which is the shaping space of Web 1.0 and Web 2.0 (Morbey, 2009). These ideological considerations, guiding website conceptualization and design, artifact representation, and structural technological sustainable development, offer an approach that may provide non-Western museums with possibilities to develop what they envision important to their culture. It is imperative in emergent Global South museum website development to attend to, as urged by Mamdani (1996, 2005), Marcus (2006), and Tuhiwai Smith (1999), the underlying assumptions about ICT and de-colonizing ideas, methodological approaches, models, interactions, and appearance in website conceptualization, development, and sustainability.

The term Web 2.0 describes the current trend in World Wide Web technology and design which aims to enhance creativity, information sharing, and collaboration among users through its architecture of participation. Its development is realized in web-based communities such as the social networking sites of Facebook, Second Life, Twitter, and YouTube (Burgess & Green, 2009) as well as wikis and blogs. Also it incorporates a re-thinking about educational e-learning methodologies so noted in the Museum 2.0 website at http://museumtwo.blogspot.com. According to O'Reilly (2006), Web 2.0 is a business revolution in the computer industry led by the move to the Internet, and an attempt to understand the rules for success on the new platform with a harnessing of collective intelligence (Jenkins, 2008). It is about changes in the ways software developers and end-users adapt the Web. Jenkins (2006, 2009) theorizes about Web 2.0 engagement in his conceptualization of participatory culture, a shift from the individual to a community where the development and activities come from the community; the research approach for the website development and communal participation in the Uganda National Museum Web 2.0 site exemplifies this notion.

3. Web 2.0

Why is Web 2.0 important to museum website development and for the Uganda National Museum? Recent data analysis of four national museum website "hits" on the website alexa.com (2009) alerts us to the need for new museum website development to move beyond Web 1.0 towards Web 2.0. A sampling of the four museums studied, the State Hermitage Museum, St. Petersburg, Russia; The Louvre Museum, Paris, France; the National Gallery of Art, Washington, DC; and the Royal Ontario Museum, Toronto, indicate a global trend of declining visits to all four websites since 2006 (Morbey, 2009). This leads to a query of how a museum web presence might be better developed to bring about contemporary and meaningful interfaces with its publics.

The decline in website "hits" and traffic on the four museum websites also corresponds to the rise of Web 2.0 which more interactively engages as participants contemporary web savvy users. Current Web 2.0 development, with

an architecture of participation in which users generate, share, and curate content, may well facilitate Museum 2.0 website conceptualizations (Bayne, Ross, & Williamson, 2009; Museum 2.0, 2009; Yasko, 2007). A Web 2.0 development for the Global South also can be conceptualized to embrace the de-colonizing and de-cybercolonizing notions of Tuhiwai Smith (1999), Mamdani (2005), and Morbey (2006, 2009), as well as taking account of underlying IT assumptions (Marcus, 2006). An awareness of de-colonizing and glocalizing (Robertson, 2000) ideas in conjunction with Web 2.0 and its participatory culture (Jenkins, 2006, 2009) engaging play, performance, simulation, appropriation, collective intelligence, transmedia naviation, networking, and negotiation, offers rich possibilities for Global South museum website development. Institutionally unencumbered, the Uganda National Museum is positioned to "leap over" old and out-dated communication media philosophies that often hold back Western museums in a movement towards Web 2.0.

A strong example of a Museum Web 2.0 development, although from a North American rather than Global South context, is the New York Brooklyn Museum site[115]. The museum site embraces Web 2.0 characteristics in its Web development on the museum community network[116] engaging Facebook, Flickr, MySpace, Twitter, YouTube, and other Web 2.0 social media. An illustration of a strong Web 2.0 interactive engagement is the museum "YouTube Contest"[117] with museum "Lessons Learned" from the YouTube competition at[118] (Barazadi, 2008). A striking example of museum e-learning is the YouTube video of artist Kiki Smith illustrating and exploring her 2010 Sojourn museum exhibition[119]. The Brooklyn Museum 2.0 site illuminates key stages to successful interactive Web projects: stimulate interest, engage, guide, communicate, educate, and create, as seen in its online social networking communities and its participatory YouTube contest. Global South museums, for example the Uganda National Museum, can do this in ways culturally appropriate, technologically sustainable, and that do not re-colonize from Western vantage points what the museum is about.

The project brings to the fore the challenges it wishes to address in building on Web 1.0 a Web 2.0 participatory de-colonizing structure for the Uganda National Museum that engages the contemporary viewer. This can lead to online open spaces for public deliberation within the museum structure, for example, about public issues important to local Ugandans as well as to global communities (Simon, 2005). However, with the more open, participatory, communal understanding and space of Web 2.0 comes the thorny problematic of a possible re-colonizing by those involved in the site creation or those engaged in Web 2.0 contributions and creations, whether it be the Web theorists from Toronto, those in Uganda scripting a renewed Ugandan colonization, or possibly a Web 2.0 contributor who wishes to use their own agenda focus to dominate a component of the participatory community. The project presses to the fore the complexities of Uganda and its history of colonization, more Western Web 1.0 and 2.0

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[115] http://www.brooklynmuseum.org/

[116] http://www.brooklynmuseum.org/community/network/

[117] http://www.brooklynmuseum.org/community/wc/

[118]http://www.brooklynmuseum.org/community/blogosphere/bloggers/ 2007/11/07/video-competition-lessons-learned/

[119] http://www.youtube.com/brooklynmuseum#p/a/u/0/bWUjl7kOBCE

conceptualizations that may be less fitting to Global South and the Ugandan contexts, and possible self-serving agendas of the diverse collaborators. The project as it moves forward requires sensitive reciprocal conversations amongst all parties, recognizing local and global viewpoints, in the exploration of new meaningful spaces for museum website interfaces in light of the complex problematics present in Web 2.0 development.

4. Methodology

With an invitation from the Uganda National Museum to Web researchers at York University, Toronto, to assist in the development of a pilot website for the museum with Web 2.0 e-learning opportunities (Owston, 2009), an understanding of the global movement of Web 2.0 building on Web 1.0 in light of de-colonizing spaces that do not re-colonize is central to a timely Web conceptualization. With this goal in mind, the project methodology will include phenomenological in-depth interviewing with themed analysis (Seidman, 2006; Weiss, 1994) using Web 2.0 technologies along with follow up face-to-face interviews, when possible, to elicit the viewpoints of the Ugandans participating in the website development project. Participatory action research in the public sphere (Kemmis & McTaggart, 2005) will engage all participants to organize, plan, act, reflect, and re-plan the conceptualization and actualization, using Web 2.0 possibilities fitting to the Ugandan museum context and content. This process includes the site conceptualization, development, e-learning theorizing and implementation, and facilitates ongoing revisions as the site comes forward and the Ugandans take stronger ownership.

5. Project objectives and early beginnings

The project is guided by four objectives:

1. A Ugandan-based, de-colonizing conceptualization and realization of a contemporary pilot Web 2.0 presence for the museum and its artifacts that is sustainable;

2. The development of methodological approaches to Museum Web 2.0 education engaging locally and globally those who wish to learn more about the museum's history and its collections led by Ugandan museum educators;

3. The development of an initial Museum Web 2.0 model for Global South museums;

4. A Web 2.0 site documenting the project development, and soliciting interactive engagement and critical discussion globally through a wiki or blog forum.

Thus far the project, in its infancy stage, finds consistent movement to address the four objectives. Let us summarize what has taken place as of February 26, 2010.

The research team, comprised of six Ugandans located in Kampala, Paris, and Toronto, along with four Canadians located in Toronto, has come together in both virtual and several face-to-face meetings to create a common vision and set of objectives. Our virtual meeting places are two: a Facebook closed research group site entitled Museum Web 2.0 and a Google group for more focused and intense discussions. Our working vision is summarily conceptualized and articulated in the theoretical framing, methodology, and project objectives of this paper. A key concern is timely financing for the project for its development and sustainability within a Ugandan context, which currently is being addressed through international applications to appropriate granting agencies.

The team continues in light of de-colonizing sensibilites to brainstorm Web 2.0 possible representations of the Uganda National Museum – the oldest in East Africa – with one million specimens of which the core collection is comprised of ethnographic artifacts and fossils. A central challenge is the representation of the artifacts in an architecture of participation. One example is a YouTube video[120] of Royal Court Music in the Uganda National Museum, featuring a live concert of two Ugandans playing an ancient xylophone that is housed in the museum. Envisioned e-learning could add historical documentation and critical discussion led by a museum curator/educator in the museum Facebook or Twitter networked community encouraging an addition of relevant Ugandan visuals through Flickr photo sharing.

In conjunction with the museum building there exists the Living Museum, a village of small huts that further elaborate the history of Uganda. Again Web 2.0 technologies can facilitate a live and interactive visual exploration of the Living Museum as well as an expansion into other spaces central to the heritage of Uganda, including possible lost heritage and ways Web 2.0 might assist in reclaiming these.

Web 2.0 databases incorporating wikis and blogs can represent, illuminate, invite participation, and develop e-learning contexts for artifacts within the museum building as well the Living Museum and its expansive interactive possibilities. Additional theoretical underpinnings could enhance the Web 2.0 project development. An Open Source and Open Content approach can engage the community, local and global, in a shared endeavor to collectively build tools and knowledge. Employing the notion of participatory culture (Jenkins, 2006, 2009), the site becomes more of a process than a product. Those within the museum personnel and those interacting with the site would be free to draw on their lived experience to build the site in a creative and participatory manner. Further, the museum would become one that is not solely artifact based, or Western based, but a space and platform which is actively experienced rather than passively consumed (Pitts, 2009).

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[120] http://www.youtube.com/watch?gl=CA&hl=en&v=wEZiIqG666c

6. Conclusion

The Museum 2.0 conceptualization and development can contribute to knowledge in the areas of Global South museums, contemporary information communications technology, and museum education. In light of the museum invitation which brings Ugandans and international researchers together to utilize current Web 2.0 developments, the Museum 2.0 project is important because it assists those in the Uganda National Museum in the development of a theoretical knowledge base and production experience with Web technologies. The project is timely as Web 2.0 technologies are gaining global influence and experimentation with de-colonizing approaches is ripe for development, particularly in Global South contexts such as Uganda.

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Moral Judgment Competence Levels and Personality-Type Preferences of High-Academic Performing Students

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Abstract

Morality is not purely having right moral attitudes or knowing moral principles, but morality is a competence which needs to be developed and measured. Based on Kolberg and the dual-aspect theory of moral development, moral judgment competence is defined as the capacity to make decisions and judgment which are moral and to consistently act in accordance with such judgments. Besides, there is a growing question of whether personality would be related to an individual's morality. The question implies that personality types could somewhat account for a person's competence in moral judgment. Hence, this study investigated the relationship between these two constructs of the high-academic performing students at high school levels. Since most extraneous factors, such as age, gender, cognitive ability, and educational backgrounds, had been controlled for the internal validity and generalizability, the general conclusion could be made from the findings that personality-type preferences differentiate moral judgment competence levels.

Keywords: Morality - Moral judgment competence - Personality types – MJT - MBTI

1. Introduction

In the midst of progression of modern sciences and technologies of the present time, moral controversial issues have been enlarged and widely discussed. The discussion especially center on moral matters such as: making decisions on what is right or wrong when confronted with moral issues, questions on what norms to use in judging behaviors and actions over moral situations, role of individual conscience and social consensus in moral determination, and other related and relevant issues to morality (Arthur, 1996; Boss, 1999; Liszka, 1999; & White, 1997).

Some instances of such controversial issues on morality that our modern society is facing are: cloning and genetic engineering, organs selling, abortion, punishment and death penalty, gender differences, racism, among others. In poverty stricken many countries, moral judgment and behavior seem to have been complicated by the very situation of poverty and the struggle to survive, if not combat it. Apparently, within our complex society with high technological advances, the more progressive it has become, the more moral questions have been broadening and still the less satisfied solutions are obtained.

Consequently, in indirectly dealing with those complicated moral dilemmas and finding ways to justify disputed solutions, human behaviors and personality have

become a target of interest in studies more than ever in the recent years. There is a growing question of whether personality would be related to an individual's moral attitude, moral reasoning, moral judgment competence, and moral behavior. These questions seem to imply that personality types could somewhat account for a person's competence in moral judgment. This interest on moral behavior in fact contributed to the emergence of a new field in psychology called Moral Psychology.

In an attempt to finding an answer to the question regarding the relationship between moral judgment and personality, as many researchers have done in the past, the present study is interested in exploring some specific theories on personality and morality, and in employing some appropriate and suitable measurements that may significantly help explain the relationship as such. Interestingly, among those studies on theories of personality, Carl Jung's Theory of Psychological Types, despite current crucial controversies, remains to have given a strong impact on psychological testing and measures of personality (Cantrell, 2000). Likewise, the Kohlberg's Moral Theory is most likely to be referenced and applied in many research and studies concerning morality and moral behavior and development (Lind, 2002).

In the sphere of Jung's Theory of Psychological Types, a person's uniqueness and differentiation of way of thinking and attitudes, which is principally formed by the two basic attitudes and the four functions, depends upon the degree to which those six aspects are combined. Accordingly, an individual person proceeds and reveals moral principles, attitudes, thoughts, judgments and behaviors as part of his/her distinctive personality in different ways and circumstances (Ryckman, 1993). Hence, a question arises whether or not types of human personality preference is related to and then differentiate moral attitudes, thoughts and behaviors. If it is so, then what underlying factors would make the differences. In dealing with this question, the following related aspects, perspectives and theories on morality are examined.

From the viewpoint of modern psychology, Lind (1992), asserts that morality is a matter not only of attitudes towards moral principles but also of people's competency to utilize those principles in their moral thoughts and behavior. Along this line, Jean Piaget and Lawrence Kohlberg have revolutionized the way we are looking at moral thought, reasoning and behavior (Lind, 2000).

Kohlberg (1975) developed the Theory of Moral Development based on Piaget's moral realism and morality of cooperation. It was used to examine and assess how people made moral reasoning or judgment for their moral action. With this, moral reasoning was defined as judgment about right and wrong and defined a person's level of moral reasoning from the reasoning used to defend his/her position when faced with a moral dilemma. However, Kohlberg thought that this is more important than the actual choice made, since the choices people make in such a dilemma are not always clearly and indisputably right (Woolfolk, 2000).

Later Kohlberg's moral theory development was modified by James Rest, who constructed the famous "Defining Issues Test" (DIT), which is extensively applied to measure matters concerning moral issues in many studies and researches.

Also, several tests for measuring and assessing a person's moral reasoning ability were constructed on the bases of various moral perspectives for use in different age groups.

There was another school of thought led by Georg Lind who critiqued the classic/traditional measures of moral reasoning, asserting that they were more likely to measure only a person's moral attitude/opinion aspect and hardly applied to his/her moral behavior. Lind (2002) argued that, essentially from the concepts of Piaget and Kohlberg, morality is not, as so many had assumed, purely a matter of having right moral attitudes or knowing moral terminology/principles, but that morality is a "competence" which needs to be developed and measured, in much the same way as other competences are developed and measured.   Hence, the term moral competence was introduced in the measurement and testing sphere.

Consequently, Lind developed the "Dual-Aspect Theory of Moral Behavior and Development" as outlined by Piaget, Kohlberg and Lind. That is, for Piaget (1976) "affective and cognitive mechanisms are inseparable, although distinct: the former depends on energy, and the latter depend on structure." Accordingly, Kohlberg (1984) meant the "Stage Model of Moral Development" to be described in terms of both the affective and the cognitive aspects of moral behavior.

Further, the Dual-Aspect Theory of Moral Development states that for a comprehensive description of moral behavior both affective as well as cognitive properties need to be considered. A full description of a person involves (1) moral ideals and principles that informs it, and (2) the cognitive capacities that a person has when applying these ideas and principles in his/her decision making processes (Lind, 2000). In view of that, Lind (2000) has constructed the "Moral Judgment Test" (MJT) in 1975 to assess a person's moral judgment competence in accordance with Kohlberg's definition which states that moral judgment competence is "the capacity to make decisions and judgment which are moral (i.e., based on internal principles) and to act in accordance with such judgments" (Kohlberg, 1975).

The MJT is conversely a test of subject's ability to judge controversial arguments in a discussion about moral problems on the basis of moral principles and orientations rather than on the basis of other criteria like opinion-agreement or opinion domain. The "encounter-arguments" presented in a given moral dilemma are to measure how a person consistently make his judgment, and the C-index is used to measure and signify the degree of cognitive-structural properties of persons' moral judgment competence. Hence, the MJT is completely different from the DIT even though both have been constructed based on the six stages of moral reasoning of Kohlberg's Moral Theory.

In comparison and correlational studies of personality and morality, many researchers interestingly investigated and examined the relationship and/or the causal-effect between subjects' moral reasoning, moral attitudes or moral judgment and their personality type preferences in various groups of subjects. In their studies, most of them were more preferably to utilize the Defining Issues Test or the Moral Judgment Interview (Kohlberg, 1975), and the Myers-Briggs

Type Inventory.   Along with this, they have found such relationships in some degrees in various types and groups of the samples.

1.1. Theoretical and Conceptual Framework

Since perspectives and theories of personality and moral development in the field of psychology still vary, in an examination of the relationship between moral judgment competence and personality type preference, the underlying theories in which the two constructs (moral judgment and personality) are rooted should be clearly specified (O'Brien, 2001).   Hence, in the present study, Jung's Theory of Psychological Type and the Dual-Aspect Theory in Moral Development (based on Piaget, Kohlberg and Lind) are specifically considered and particularly made as foundation.

In the Jungian theory of psychological types, Jung focused on the two main aspects that differentiate a person's personality type: Basic Attitudes (Extroversion and Introversion) and Functions of thought (Rational and Irrational).   The combination among them form different types of personality (Ryckman, 1993).   At the same time, a person's moral judgment competence depends on the person's capacity of making decision and judgment which are moral (Kohlberg, 1975).

In addition, according to the Dual-Aspect Theory of Moral Development, such a capacity is based on the person's moral development and functioning of both affective (i.e., moral attitude) and cognitive (i.e., moral reasoning) aspects (Lind, 2000).   That is, both the functions of thought (rational and irrational) and the basic attitudes play their roles in a person's judgment and perception (Mcmahon, 1992).   The present study, thus, uses such underlying role factors of a person's decision-making as the linkage of the two theories, and using this as a point of departure to investigate the relationship between personality type preference and moral judgment.

If this relationship is established in the present study, this finding may be used as an indicator in prediction of moral judgment competence levels given particular personality type based on Jung's typology. Moreover, since this is the first study on the Dual-Aspect Theory of Moral Development and the use on the MJT correlated to the Jung's theory of personality, the findings can provide substantial reference to the study on the theories of personality and moral development to this particular measurement, the MJT.

1.2. Research Objectives and Statement of the Problems

The present study aims to explore the relationship between the moral judgment competence level (as measured by the MJT) and the Jungian personality-type preference (as measured by the MBTI) of the Ateneo high-academic performing students. Specifically, it seeks to answer the following questions:

1.) Is there a difference in moral judgment competence level between those who have the Thinking (T) and the Feeling (F) personality-type preferences?

2.) Is there a difference in moral judgment competence level between those who have the Extraversion (E) and the Introversion (I) personality-type preferences?

3.) Is there a difference in moral judgment competence level between those who have the Sensation (S) and the Intuition (N) personality-type preferences?

4.) Taken by pairs, do the combinations of these three factors: particularly, between the Basic-Attitude (Extraversion and Introversion) and the Rational-function (Thinking and Feeling); and between the Rational- function (Thinking and Feeling) and the Irrational-function (Sensation and Intuition) factors, differentiate moral judgment competence levels? And,

5.) Taken simultaneously, do the combinations of these three factors: the Basic Attitude (Extraversion and Introversion), the Rational function (Thinking and Feeling) factors, and the Irrational function (Sensation and Intuition), differentiate moral judgment competence levels?

2. Method

2.1. Participants

There are some criticisms about gender bias in the Kohlberg's Moral Theory on which the MJT is based (Woolfolk, 2000), and there are differences of adolescent cognitive development in each stage: early, middle and late (Seifert & Hoffnung, 2000). Also, with the developmental nature of moral judgment during the past twenty-five years, a good number of research revealed that moral judgment was related to some factors, such as age, levels of education, gender, religion, socio-economic status and certain life-experiences (Newburn, 1992).

So as to restrain some extraneous factors, such as, gender differences, intellectual ability of using language, educational background, stage of adolescent development, religious belief, etc., the present study is primarily interested in using a homogeneous group of subjects in order to control the probable threats to internal validity of the study as much as possible.

Hence, 181 male students in the third- and fourth-year students of the Ateneo de Naga High School, the Philippines, who are in the same middle adolescent stage (15-17 years old), who have their high-academic performance (in the honor classes), and who are Catholics, were chosen to be the subjects of the present study.

2.2. Design and Procedure

The present study is a non-experimental (descriptive and quantitative) research. The design and methodology of the study are as follows:

In examining differences in moral judgment competence levels between those who have (1) the Thinking (T) and the Feeling (F) personality-type preferences, (2) the Extraversion (E) and the Introversion (I) personality-type preferences, and (3) the Sensation (S) and the Intuition (N) personality-type preferences, Analysis of Variance for one dependent variable by one or more factors, was used.

In examining personality-type preference factors that affect the moral judgment competence levels, when taken simultaneously by pairs: between the Basic attitudes (Extraversion and Introversion) and the Rational functions (Thinking and Feeling); and between the Rational functions (Thinking and Feeling) and the Irrational functions (Sensation and Intuition), the ANOVA for one dependent variable by one or more factors was used. If the interaction effects exist in any paired-factor group, the pairwise comparison tests among groups was employed. Thereby, the first paired-factor groups are the E-T, the I-T, the E-F and the I-F; and the second paired-factor groups are the S-T, the S-F, the N-T and the N-F.

In investigating the three personality-type preference factors that affect the moral judgment competence levels, when taken simultaneously the Basic attitudes (**E**xtraversion and **I**ntroversion), the Rational functions (**T**hinking and **F**eeling), and the Irrational functions (**S**ensation and I**n**tuition), the 2×2×2 Factorial Analysis of Variance was employed in view of the fact that there are three factors (independent variables), and each factor has 2 levels.

Also, the eight groups of students' personality-type preferences: the EST, the ESF, the ENT, the ENF, the IST, the ISF, the INT and the INF were also examined in terms of their effects when taken the personality-type as an independent factor, and then compared their differences of levels of moral judgment competence.

2.3. Measures

Two types of standardized psychological test were primarily employed and administered to collect data and information as follows:

2.3.1. The Moral Judgment Test (MJT).

Essentially, the MJT assesses moral judgment competence by recording how subject deals with counter-arguments, that is, with arguments that oppose his/her position on difficult problem. The counter-arguments represent the "moral task" that the subject is confronted with two moral dilemmas and with arguments pro and contra the subject's opinion on solving each of them (Lind, 2000). The two dilemmas are the Worker's Dilemma and the Doctor's Dilemma.

There are twelve arguments in each dilemma. In the standard version of the MJT, there are then twenty-four arguments to be rated. Subjects are asked to judge arguments for their acceptability. The main score, the C-index, of the MJT measures the degree to which a subject's judgment about pro- and con-arguments are determined by moral viewpoints rather than by non-moral considerations like opinion-agreement.

Each subject will have the C-index from the MJT to indicate his moral judgment competence score which can be classified in to four categories (levels): very high (above 50), high (30-49), medium (10-29), and low (below 10) (Cohen, 1988).

2.3.2. The Myers-Briggs Type Indicator (MBTI) Form M.

The MBTI is constructed and modified based on the Jungian Psychological Type, There are four pairs of preference types: Extrovert (E)/Introvert (I), Thinking (T)/Feeling (F), Sensation (S)/Intuition (N) and but the fourth pair: Judging (J) and Perceiving (P) which the developers had added to the Jung's typology. It is a forced-item response test in which the subjects select a choice from each of the 93 items to assess their preferences, that collectively, make up their personality type. After completing and scoring the test, a type of preference is designated by four letters. Based on the MBTI, the sixteen types of personality preferences are ISTJ, ISTP, ISFJ, ISFP, ESTP, ESTJ, ESFP, ESFJ, INFJ, INFP, INTJ, INTP, ENFP, ENTP, ENFJ and ENTJ.

2.4. Data Collection

The subjects of the study (181 students) were given the MBTI, and later a couple of days, the MJT with standardized test administrations.   To control extraneous variables the tests were administered with no time limit by one female test-giver who skillfully provided clear instructions and created a good atmosphere.

3. Results

The results initially revealed that the main effects of the Rational-function (**T** & **F**) factor upon moral judgment competence (MJC) levels from the two groups: the **T**-type and **F**-type were statistically significant, $F_{(1,179)} = 8.209$, $p = .005$. It was more likely for those who preferred the Thinking type to have a mean of moral judgment competence levels higher that those who preferred the Feeling type (mean difference = 5.838, $p = .005$). There were no significant mean differences in MJC levels between the Sensors (**S**-type) and the Intuitives (**N**-type), and between the Extraverts (**E**-type) and the Introverts (**I**-type).

However, when taken by pairs, first, the Rational-function (**T** & **F**) and the Basic-attitude (**E** & **I**) factors, there were statistically significant interaction effects between these two factors, $F_{(1, 177)} = 9.851$, $p = .002$. That is, when they were considered together, they had more effects on MJC mean than when they

were considered individually. Thus, mean differences between the **T**-type and the **F**-type can be further explained when these two personality types were both extraverted (**E-T** & **E-F**), the mean MJC of the **E**xtraverted **T**hinkers (27.964) was much greater than that of the **E**xtraverted **F**eelers (15.963). On the contrary, when the Thinkers and the Feelers were both introverted (**I-T** & **I-F**), the **I**ntroverted **T**hinkers' mean MJC (18.865) was slightly less than that of the **I**ntroverted **F**eelers (19.072). Hence, there was an interaction between the two factors (Basic-attitudes and Rational-functions) on mean C-index.

Furthermore, when taken by other pairs and then all three-factors simultaneously, no other interaction effects on the MJC within other combinations of the two-different factors, or the three-factors were statistically significant. Therefore, the mean difference of MJC between **T**hinkers and **F**eelers were not affected by Irrational-functions (**S** & **N**). That is, whether they both were also either in the **S**ensing or **I**ntuitive types, their mean MJC were insignificantly different. Likewise, when the three factors (Basic-attitudes, Rational-functions and Irrational-functions) were considered together, there was still insignificantly different in mean MJC between the **T**hinkers and the **F**eelers.

Still, it was found that when these different type preferences (the **E-T**, the **E-F**, the **I-E** and the **I-F** type) were treated as one independent factor, and taken simultaneously for analysis, there were statistically significant main effects on the MJC for these four personality-type preference groups: (F (3, 177) = 6.209, p < .001). It indicated that personality-type preference factors, in this case, the four Jungian psychological types (a combination between the two Basic-attitudes and the two Rational-functions), had effects on the MJC mean. Thus, there were significantly differences in MJC mean among the students' personality type preferences of this category.

Still further, when examined by a method of pairwise comparisons among these four psychological type-preference groups, the MJC mean differences (md) of each pair were statistically significant, namely, between the **E-T** type and the **E-F** the (md=12.001, p < .001), between the **E-T** type and the **I-F** type (md=8.893, p = .003), and between the **E-T** type and the **I-T** type (md=9.099, p = .006).

Moreover, when these four Jungian psychological type preferences, which was treated as one independent factor, were taken simultaneously with the Irrational-function factor (**S** & **N**), there were no statistically significant interaction effects on the MJC mean among these four particular types with the Irrational-function factor in this analysis. Hence, the results were more likely to confirm the assumption that the MJC mean difference of the **T**-type and the **F**-type groups was due to an interaction only with the Basic-attitude factor, not with the Irrational-Function factor.

However, when four-function personality types (**S-T**, **S-F**, **N-T**, and **N-F** types) were taken together as an independent factor (a combination of the Rational functions and the Irrational functions), there were no significant effects on the MJC mean for those who preferred a different pair of these two functions across

the subjects of this study. It thus means that the students of this category of personality type preferences had no significant differences in mean MJC.

Finally, when the eight personality type personality of preference (a combination of the two basic attitudes and the four functions): the **ENT-**, the **ENF-**, the **EST-**, the **ESF-** the **INT-**, the **INF-**, the **IST-**, and the **ISF-**type, were treated as <u>one independent factor</u> and taken simultaneously for analysis, there were statistically significant main effects on the MJC means among these eight types of personality preferences, (F (7, 173) = 2.664, p = .012).

Thus, the main effects of these eight particular types of personality preferences on the moral judgment competence levels across the different type-groups clearly reveal that the MJC means of personality-type preferences are relatively similar by pairs. The MJC means of a pair of the **ENT** (28.530) and the **EST** **(**27.357) were likely much higher than that of a pair of the **ENF** (15.942) and the **ESF** (15.996), whereas a pair of the **INF** (18.505) and the **IST** (17.743) had relatively similar low means, and so did a pair of the **INT** (19.835) and the **ISF** (19.657).

4. Conclusion

Based on the significant findings in the light of Jungian psychology types and dual-aspect theory of moral development in conjunction with the previous studies and others related cognitive and moral development theories in psychology and psychometric measurements, the relationship between moral judgment competence and personality types exists.

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Preparing a professional development organisation to operate in a contestable funding environment by identifying effective facilitator practice

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Abstract

The majority of government funded professional development support for practicing teachers in New Zealand is provided through regionally based School Support Services (SSS). The present investigation, located within the largest of these SSS providers, aimed to identify collective organisational thinking about effective facilitator practice for in-service teacher professional development. This paper describes the use of a three-phase Delphi questionnaire (after Goodman, 1987) to determine expert opinion about effective facilitator practice when providing in-service teacher professional development. Analysis of the questionnaires identified a number of categories for effective facilitator practice. The findings were used to continue building organisational capacity by building new knowledge, improve service delivery, and develop a set of draft professional standards for effective facilitator practice in preparation for a market driven contestable funding environment. These findings are supported by a national research project (Ministry of Education, 2008).

Keywords
effective facilitation practice – organisational - service.

1. Introduction

Team Solutions is the professional unit within the Faculty of Education at The University of Auckland delivering the Ministry of Education's SSS professional development contract to a third of New Zealand's practicing primary and secondary schools and teachers. The Auckland based contract is the largest government funded SSS provider in New Zealand and is one of six such regional contracts.

In 2008, 160 in-service teacher education facilitators with specific professional expertise were employed by Team Solutions across a range of leadership, curriculum, and other high-priority specialist areas of education. Schools are supported in both rural and urban settings across a wide geographic area from the New Zealand's northern most school to schools 600 kilometres to the south. 'In-service' teacher education refers to ongoing professional development expected of New Zealand teachers once they have completed their teaching qualifications and hold teaching positions in schools, whereas 'pre-service' refers

to the teacher training programmes leading up to a teaching qualification prior to employment in schools.

Team Solutions support and challenge education professionals to enhance student achievement, using a learner centred and inquiry based approach. Team Solutions employ expert facilitators from various educational sectors who are knowledgeable, flexible, research informed, and adaptable to respond to the diverse needs of teachers. In the past five years there has been a focus on supporting and challenging school leaders and teachers to use evidence based practice to improve teaching and learning. Team Solutions, being part of The University of Auckland, are well placed to collaborate and to strengthen the links, networks and relationships between schools and other educational organisations necessary in a competitive educational business environment.

Historically, almost all in-service teacher professional development was funded through the SSS contract. In 2000, the organisation was restructured and rebranded to prepare for a fully contestable funding environment that was being suggested by the government of the day. Since 2000, there have been a small number of contestable teacher development contracts that have been awarded to private businesses.

The current situation sees a changing economic and political climate in New Zealand with schools increasingly being given the autonomy and funds to select from both private and government funded professional development providers. Any increased funding to schools for the purchase of professional development means there will be less government directed funding to SSS. It is within this context that Team Solutions began to refocus on ensuring that its service continued to be viewed by schools as the preferred provider of teacher professional development.

To ensure ongoing quality of service, and remain a preferred provider of teacher professional development in a totally contestable environment, it has been necessary to explicitly identify effective facilitator practice. Once effective facilitator practice has been identified, a sustainable process for maintaining and raising facilitator expertise and capabilities, to meet the needs of clients, could be instigated. It is proposed that these changes will be better positioned for the organisation to be successful in a contestable funding environment.

2. Literature

Team Solutions initially reviewed existing research of teacher professional development and effective facilitator practice. Research into teacher practice and improved outcomes for students in New Zealand has been well served with the publication of several government funded Best Evidence Synthesis documents (Aitken & Sinnema, 2008; Alton-Lee, 2003, p. 21; Biddulph, Biddulph, & Biddulph, 2003; Timperley, Wilson, Barrar, & Fung, 2007). However there was a paucity of research conducted into the way in which facilitators supported and challenged teachers to improve their practice.

In 2005, a government funded research project In-service Teacher Education Practice (ISTEP) began. In 2006 the research produced a draft framework titled 'Towards a Framework for Professional Practice' (Ministry of Education, 2006) which used an evidence based approach for improving professional practice. The project drew on current best evidence and generated, used and disseminated new knowledge about what constitutes effective facilitator practice. At the end of the first phase of the project a range of dimensions were proposed that were most likely to be evident in the practice, of ISTEs (Ministry of Education, 2006). These dimensions are shown in Figure 1 on the following page.

Figure 1: A Conceptual Framework for the Practice of Inservice Teacher Educators
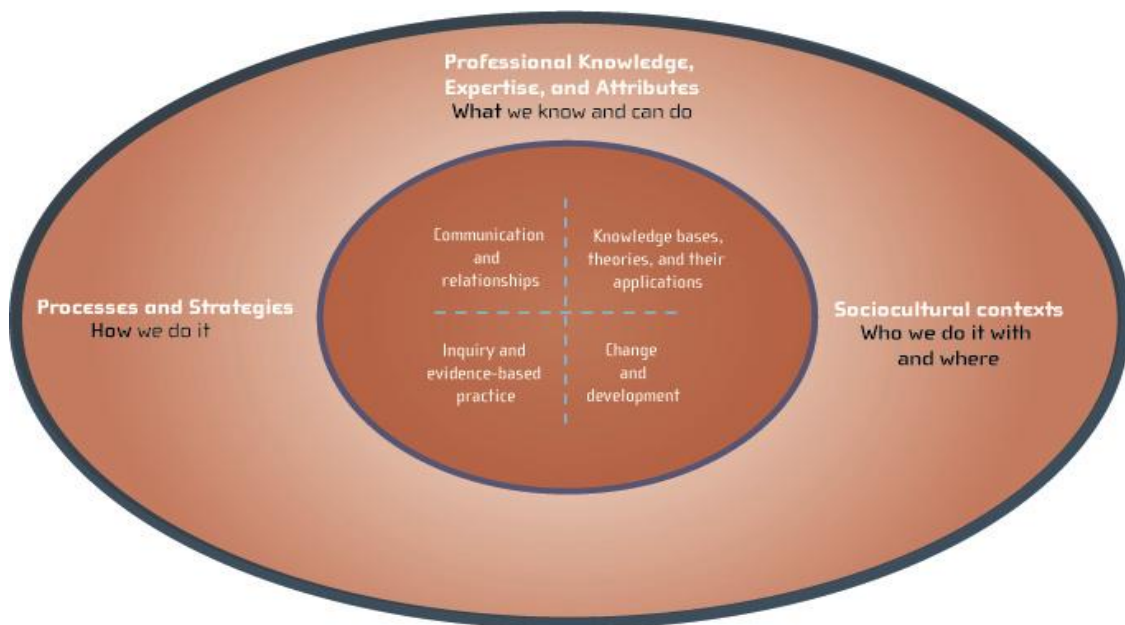
The second and third phases of the research explored the proposed dimensions in more detail through a series of smaller projects, culminating in the publication of *Ki te Aoturoa: Improving Inservice Teacher Educator Learning and Practice* (Ministry of Education, 2008).

In 2009, additional information about effective facilitator practice was also gathered from an independent evaluation of the organisation as part of the Ministry of Education's monitoring process of Team Solutions' effectiveness in delivering professional development. This evaluation was in the form of an on-line Principals' Satisfaction Survey undertaken by independent evaluators, Martin Jenkins and Associates (Dundon- Smith & Harding, 2009). The principals invited to compete the online survey were clients of Team Solutions over a number of years. The survey provided important information about facilitator effectiveness from the clients' viewpoint.

3. Research design, methods and analysis

The Team Solutions project built on the INSTEP (Ministry of Education, 2006) research and was designed to support the quality assurance work that Team Solutions undertakes to increase facilitator capacity and capability. The professional learning required of facilitators as part of their conditions of employment is a part of the Ministry of Education's SSS contract, in addition to the provision of service to teachers and schools. The project provided opportunity for all Team Solutions 160 facilitators to identify ideas about effective facilitator practice for the purpose of improving in-service professional development for teachers.

The significance of this research project for Team Solutions, as a learning organisation, was that it:

- Sought to establish an evidence based profile of effective facilitator practice;
- Provided a basis for continued development of induction and professional appraisal of facilitators;
- Contributed to an, as yet, limited body of knowledge about effective adult (teacher and school leader) education and facilitation practice;
- Contributed to a growing demand from schools and the wider education sector for a national framework for facilitator practice.

To capture the ideas of all participant facilitators anonymously, a Delphi questionnaire process was used (Goodman, 1987). It was the distinguishing characteristics of Delphi questionnaires – anonymity, iteration with controlled feedback, and expert opinion - that led to the decision to use this particular tool. Of particular importance was the anonymous nature of questionnaire which allowed facilitators to express their expert opinion without influence from external factors. A series of three iterative 'Delphi' questionnaires were used to enable each facilitator (expert) to express a degree of preference for, or dislike of, an item without having to choose any particular item at the expense of another (Goodman, 1987). The iterative questionnaires provided the process for the gathering of expert opinion, ideas, analysis and refinement of understandings about effective facilitator practice from participant facilitators.

The design of the research project was informed by INSTEP (Ministry of Education, 2008), and the *Best Evidence Synthesis: Teacher Professional Learning and Development* (Timperley et al., 2007) as both included a focus on reflection and inquiry learning to enhance effective practice.

The Delphi questionnaire is a tool 'originally conceived as an intuitive exploratory method to solicit and synthesize information from groups of experts regarding the application of carefully derived collective judgment' (Kurth-Schai, Poolpatarachewin, & Pitiyanuwat, 1991). Using a three-stage sequential questionnaire provided for the systematic collation, analysis, and modification of each subsequent questionnaire to build consensus and enhance understandings of the complexities of effective facilitator practice (Okoli & Pawlowski, 2004; Van de Ven & Delbecq, 1974). An additional advantage of the Delphi questionnaire is

that it provided opportunity for the experts to contribute to the nature and the content of the successive questionnaires. As the expert group in this research were facilitators, then content validity can be assumed (Goodman, 1987).

The project began on day one of a two-day professional development meeting with a presentation to the organisation about the purpose of the research and the anonymous nature of the process that would take place to collect the information. Information sheets were distributed prior to the participants being asked to complete the first questionnaire. Those who choose not to participate were able to leave the venue for an hour.

The Delphi questionnaire, part one, stated, "The purpose of the first part of the questionnaire is to gather your ideas regarding effective facilitation practice. Please brainstorm as many ideas as possible that you consider contribute to effective facilitator practice. Ideas do not need to be fully developed but can be expressed as one brief statement or phrase. Your ideas will be included anonymously in the part of the questionnaire." A formatted page was provided for individually written responses.

101 responses were received with most participants contributing at least ten separate ideas. A third party, not involved in the research, collected the completed responses. The researchers then grouped over a 1000 ideas into categories that aligned with the dimensions communication and relationships, knowledge bases, theories and their applications, change and development, inquiry and evidence based practice (Ministry of Education, 2006). These categories informed the structure of the second phase of the questionnaire, Where there were substantial numbers of statements these were categorised according to key phrases. A small number of statements with related intent but different wording were grouped into a broad category. Statements that were repeated by many participants remained as the intended statement. This resulted in 54 main ideas remaining for the next iteration of the questionnaire.

The categorised main ideas formed the basis of the second questionnaire iteration which was distributed on the first day of a two-day professional development meeting three months later. The participant facilitators were asked:

- To decide whether or not they considered each idea to be part of effective facilitator practice. (Yes/No)
- For those ideas you consider acceptable please record how much value you place on these practices by circling the response that most closely reflects the value you place on this practice. (Not Necessary, Useful, Important, Very Important, Critical).

Again to maintain confidentiality, a third party not involved in the research, collected the completed questionnaires. The researchers collated only those main ideas identified as 'Critical' and 'Very Important'. The 20 ideas that greatest number of facilitators identified as critical and very important became the basis for the third iteration of the questionnaire. As these 20 ideas were unevenly distributed across the dimensions headings used previously, the decision was

369

Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

made to remove the category headings as the researchers wanted facilitators to prioritise actual practices rather than global dimensions.

The third and final questionnaire was distributed to facilitators on the second day of the two-day professional development meeting. In the third iteration facilitators were asked:

- To narrow their selection of the most important features of effective facilitation practice to just ten ideas from the list of 20 below.

The completed final questionnaires were handed to an independent third party for the researchers to collate the top 10 ideas of effective facilitator practice. The results of the final questionnaire were shared with the whole organisation for final comment prior to the development of draft standards of effective facilitation practice.

Although the third and final questionnaire identified 20 ideas of effective facilitator practice, these needed to be analysed and defined in an integrated way. Any attempt to define individual characteristics or prioritise is complex. The inter-relationships of processes, skills and attitudes are inherent in effective facilitation practices, therefore facilitators were asked to select the ideas which best represented the integrated nature of facilitator practices.

4. Research results

The final phase of the Delphi questionnaire asked facilitators to identify their top ten ideas about effective facilitator practice from the list of 20. The top 10 ideas are listed below:

- To be a critical and reflective thinker about one's own practice;
- To be culturally inclusive in their practice (for example promote the value of diversity, accept or tolerate difference, have an awareness of biculturalism and multi-culturalism, take responsibility for and use cross cultural understandings and opportunities for learning;
- Have the skills to build, establish and maintain effective relationships with teachers/people in the school community (clients);
- Have specific and relevant pedagogical content knowledge;
- Support teachers to use evidence to improve students outcomes;
- Has a clear sense of purpose of the facilitation role to effect changes in teacher practice which in turn contributes to improved student outcomes;
- Can manage difficult conversations and situations in a way that progress can be made;
- Personal attributes and pro-social qualities that encourage the development of relationships (for example patience, persistence, acceptance, open and honest, remain calm, show respect, non judgemental, caring, sensitive, warm, empathetic, approachable, integrity, impartial, positive, trusting, friendly, humble, willing to be wrong);
- To have the necessary knowledge, skills and understandings to contribute to shifts in teacher practice;

- Has the skills to ask challenging questions in ways that are constructive and productive.

The second ten ideas identified were:

- Modelling best practice when working with teachers;
- To be able to guide teachers in their own teaching inquiry process;
- Have the skills of an effective listener;
- Be able to give effective feedback;
- To give collegial support to and receive the same from other Team Solutions staff members;
- Have empathy for and understanding of commitment to Maori education;
- Allow time for planning;
- Have empathy of and understanding of commitment to Pasifika education;
- To be an agent of change;
- Communicate respectfully.

5. Discussion and conclusion

It was during the analysis of the Team Solutions research data, that the final document *Ki te Aoturoa* (Ministry of Education, 2008)was released. The four dimensions from the draft INSTEP materials (Ministry of Education, 2006) were replaced with five principles of ISTE professional learning and practice that lead to:

- Improvements in teacher practice and student outcomes.
- Are underpinned by inquiry and research evidence.
- Are developed through collaborative relationships.
- Are influenced by and responsive to context and culture.
- Provide and build leadership in a range of contexts.

These principles were considered as part of the analysis of the Team Solutions research to distinguish new or additional ideas that may be important in building effective facilitator practice. The most important characteristic identified by Team Solutions facilitators was the need to reflect critically about their own practice.

"The theory of improvement that emerged from INSTEP's research (Ministry of Education, 2006) attempts to capture what's involved in the deep learning that leads to improved ISTE practice, which, in turn , can lead to deep learning for teachers and students." (Ministry of Education, 2008).

When facilitators reflect on their own practice as part of meeting the professional development needs of schools, they are more likely to be able to identify their role and its impact on the change. In addition, facilitators involved in self-inquiry are more likely to identify when and where they need to do things differently or make changes in order to maximise the required impact on teacher practice and student learning. It is expected that the learning from any facilitator self-inquiry will be utilised in future situations thus increasing facilitator knowledge, understanding and application of effective facilitation.

The second most important idea identifies the ability of facilitators to work within a range of cultural contexts particularly Maori and Pasifika students.
"A core concern of the Ministry of Education is the failure of the New Zealand education system to equitably meet the needs of Maori and Pasifika student needs" (Ministry of Education, 2007, p.20).

The identification of this idea reflects facilitators' awareness of the need to work with schools to improve learning for underachieving students from various cultural groups.
"Effective, contextually responsive decisions should lead to improvements in teacher practice and student outcomes." (Ministry of Education, 2006, p.15)

Ideas 3 to 10 reflect the variety and integration of facilitation processes and professional attributes necessary for effective facilitation. It is the ability to use and move between these ideas in response to changing context, whilst remaining focussed on the overall professional development goals of schools that describes effective facilitator practice.

Comparing the top 10 ideas, the second 10 ideas, the INSTEP dimensions (Ministry of Education, 2006) and the Principals' Satisfaction Survey reflects the alignment of thinking about effective facilitator practice as shown in Table 1. The comparison shows alignment with the majority of areas. The one characteristic that the principals' survey did not identify as important in service delivery is that of facilitator inquiry into their own practice. Self-inquiry is an important internal organisational practice that if successful will be reflected in the quality of the service that external clients receive. Therefore it is unlikely that principals would be aware or even interested in the characteristic of inquiry into facilitator practice.

Table 1. Comparison of Delphi Questionnaire and Principals' Satisfaction Survey

Ministry of Education research (2006) and phase one questionnaire categories (2008)	Phase 3 questionnaire top 10 priorities (2008)	Phase 3 questionnaire second 10 priorities (2008)	Martin Jenkins & Associates - Principals satisfaction survey (2009) – importance of service delivery
Communication and relationships	• To be culturally inclusive in their practice. • Have the skills to build, establish and maintain effective relationships with teachers/ people in the school community (clients). • Can manage difficult conversations and situations in a way that progress can be made. • Personal attributes and pro-social qualities that encourage the development of relationships.	• Have the skills of an effective listener. • Have empathy of and understanding of commitment to Pasifika education.	• Building rapport with teachers [most important]. • Building rapport with principals [very important]. • Facilitator availability [very important].
Knowledge and theories	• Have specific and relevant pedagogical content knowledge. • To have the necessary knowledge, skills and understandings to contribute to shifts in teacher practice.	• Modelling best practice when working with teachers. • To give collegial support to and receive the same from other Team Solutions staff members. • Allow time for planning. • To be an agent of change. • Communicate respectfully.	• Facilitator knowledge [most important]. • Facilitator knowledge of pedagogical tools and materials [most important]. • Facilitator knowledge of latest research [most important]. • Facilitators able to work alongside staff in the classroom with students [very important]. • Facilitator having a history with the school [least important].
Change for improvement	• Can support teachers to use evidence to improve student outcomes. • Has a clear sense of purpose of the facilitation role to effect changes in teacher practice which in turn contributes to improved student outcomes. • Have the skills to ask challenging questions in ways that are constructive and productive.	• To be able to guide teachers in their own teaching inquiry process. • Be able to give effective feedback.	• Overall quality of professional development [most important]. • Facilitator able to challenge staff [most important].
Inquiry and evidence based practice	• To be a critical and reflective thinker about one's own practice.	• Have empathy for and understanding of commitment to Maori education.	

The research results have guided and informed the development of draft standards of effective facilitator practice for Team Solutions improved service to schools. The wording of the draft standards has been taken from the 20 ideas identified through the Delphi questionnaire. In the first stage of development, these are:

- Be a critical and reflective thinker about one's own practice.
- Support and guide others to inquire into their practice.
- Be culturally inclusive in their practice by demonstrating understanding and commitment to increasing outcomes for Maori and Pasifika students.
- Have interpersonal and communication skills necessary to build, establish and maintain effective relationships within an educational community (clients).
- Have specific and relevant pedagogical content knowledge and the necessary knowledge, skills and understandings that contribute to changes or shifts in teacher and/or leader practice.
- Modelling best practice when working with teachers and/or leaders.
- Can support teachers or leaders to use evidence to inform teaching and learning that improves student outcomes.
- Can manage difficult conversations, give effective feedback, and ask challenging questions in ways that constructive progress can be made.
- Has a clear sense of purpose of the facilitation role to effect changes in teacher and/or leader practice which in turn contributes to improved student outcomes.

The development of the standards will be explored to ascertain whether there is evidence in practice that supports the expert opinion of effective facilitator practice identified in the Delphi questionnaire. Research reported in the Best Evidence Synthesis (Ministry of Education, 2007, p.xxvi) describes how improved student outcomes can result from teachers working towards a set of professional standards through their own self-inquiry processes. Similar improvements could be expected when facilitators work towards meeting a set of facilitation standards through self inquiry. Internal Team Solutions quality assurance processes will be reviewed and amended where necessary.

These standards could also contribute to wider education community thinking about a possible national framework for facilitator practice. The Team Solutions standards will initially be used to guide facilitator appraisal using an inquiry approach. Team Solutions managers will use the standards to monitor the effectiveness of service delivery to clients, and report on effectiveness to clients contracting Team Solutions for professional development support.

With the demand on the New Zealand government from a number of providers of teacher professional development to make all contract funding contestable Team Solutions will need to maintain and strengthen service delivery through continuous improvement in an increasingly competitive market. The ongoing process of building capability through effective facilitator practices positions the organisation favourably to remain the preferred provider of professional development whilst maintaining financial viability.

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Actes de la 2ème Conférence Internationale Éducation, Économie et Société – Paris 2010

Towards a model of teachers' collective responsibility for student learning

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Abstract

The research presented in this paper addresses the question: What are the conditions in a school that support the development of teachers' collective responsibility for student learning? The context for the study was four Australian schools in the state of New South Wales. This study of teachers' collective responsibility for student learning was investigated through a mixed methods methodology. Data were analysed to identify the conditions that enabled or hindered the development of teachers' collective responsibility. In this paper an emerging model for the development of collective responsibility describes five dimensions: reforming professional learning; engaging in collective struggle; forming professional communities; building trust and taking pedagogical leadership; that were found present, to varying degrees, in the four schools. Conclusions are posed about the transferability of such a model to improve teachers' work and students' learning.

Keywords: Collective responsibility – professional community – professional development – trust – leadership

1. Introduction

The development of collective responsibility is reported as building organisational capacity to improve the effectiveness of teaching and learning, growing a sense of collective efficacy and encouraging a sense of ownership for the quality of students' learning (Kruse, Louis & Bryk, 1995; Bolam, McMahon, Stoll, Thomas & Wallace, 2005). The research reported in this paper contributes to new understandings about what it means to develop teachers' collective responsibility for student learning in four Australian schools.

In this paper a five dimensional model of collective responsibility is proposed as a theoretical framework not only for understanding and evaluating the development of this phenomenon in a school but also as tool to guide further investigation. Underlying the five dimensions in the model is recognition of the complexity surrounding the development of teachers' collective responsibility. The model also provides some guidance in constructing positive environments for whole school, large scale improvements in student achievement such as how teacher learning is best collaboratively focused on what students need to know across the full spectrum of learning. In this way the findings add to the knowledge about the links between teacher learning and improved student learning outcomes.

2. Collective responsibility matters

In educational contexts it is reasonable to expect that individual teachers take responsibility for the quality of their work, are accountable for their students' learning, and make an effort to teach well (Louis, Kruse & Bryk, 1995). At an individual teacher level, taking responsibility for student learning has been acknowledged as having a positive impact on the quality of teaching and quality of students' learning (Griffiths, Gore & Ladwig, 2006; Newmann & Associates, 1996; Newmann, Marks & Gamoran, 1996; OECD, 2009). There is also evidence that the quality of the classroom teacher is the major in-school influence on student achievement (Dinham, 2008; Hattie, 2003; Hattie, 2007). External influences include the school's local community, policy decisions and professional learning structure that supports school improvement (Bolam et al, 2005).

Teachers' collective responsibility for student learning was first identified in the school restructuring research of the 1990s as a desirable characteristic of professional community (Bolam et al. 2005; Bryk, Camburn & Louis, 1999; Louis, et al, 1996). Collective responsibility has been reported to be a component of the broader concept of professional community where "teachers' actions are governed by shared norms focused on the practice and improvement of teaching and learning" (Bryk et al, 1999, p.753).

Positive results of teachers taking collective responsibility for student learning are linked to higher achievement gains and more equitable distribution of achievement in disadvantaged social groups (Lee & Smith, 1996). Collective responsibility has also been linked to other variables such as teachers' participation in professional community where participants take joint responsibility for monitoring the quality of instruction, pedagogy and student learning outcomes (Bolam et al, 2005). Furthermore, "the collective responsibility for performance may manifest itself in increased assistance between teachers' in instruction, volunteering for additional assignments, and putting forth extra effort in creating opportunities for student learning" (Kruse et al, 1995, p.27). This concept is also related to teacher-to-teacher trust (Van Maele & Van Houtte, 2009).

3. The study

The study addressed the question: What conditions support the development of teachers' collective responsibility within a school context? The research focus arises from the importance attributed in prior studies to the presence of collective responsibility in a school, its link to student achievement gains and greater equity across students' social class groupings (Bryk et al, 1999; Lee & Smith,1996; Louis, et al,1996). While it is possible to identify factors in the literature that are related to the phenomenon of collective responsibility such as professional community (Achinstein, 2002; Aubusson, Ewing & Hoban, 2009; Bolam et al, 2005; Grossman, Wineburg & Woolworth, 2000); professional development (Borko, 2004; Darling Hammond & McLaughlin, 1999) , relational trust (Bryk & Schneider, 2002; Robinson, 2007), accountability (Valli, Croninger & Waters, 2007; Wood, 2006) and efficacy (Goddard, Hoy & Hoy, 2004), to date

there has been a little research about how teachers' collective responsibility develops as a result of the interaction of these and possibly other factors.

3.1 Methods

Data were collected from teachers in four New South Wales (Australian) schools[121] - two elementary, Greengate and Tall Trees Primary Schools, and two secondary schools, Aran Heights and Jossey High Schools. All teachers were invited to complete the survey and teachers who participated in team-based professional learning invited to participate in group and/or individual interviews. A mixed methods design was employed to: (1) implement a survey, comprising constructs for professional community, satisfaction with professional development related to the school's goals, efficacy, collective responsibility and teacher to teacher trust; and (2) conduct individual and group interviews with self-identifying teachers in the four schools to explore in-depth cultural, social, and educational issues and perspectives about teachers' sense of collective responsibility. Survey data were collected from 84 respondents representing a response rate of 48%Seventy-two teachers participated in individual and/or group interviews.

A factor analysis of the survey data was conducted in SPSS using Principal axis factoring. Seven factors were identified for correlation analysis. The interview data were systematically coded and analysed to build a picture of the conditions for developing collective responsibility. Theoretically related variables of professional development, professional community, efficacy, trust and accountability, identified in educational literature, formed a coding frame to analyse the data.

3.2 Results

Survey results from the study provided clear evidence that the subscale for collective responsibility (alpha=0.86) is positively correlated to such organisational features in a school as the coherence of professional development programs to the school's learning goals (alpha=0.73, r=0.22, p=0.05), commitment to the school's goals (alpha=0.73, r=0.41, p=0.01), commitment to improve teaching (alpha=0.82, r=0.41, p=0.01), and teacher-to-teacher trust (alpha=0.83 r=0.68, p=0.01).

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[121] Schools and teachers in the study were assigned pseudonyms to protect their identity

Table 1. Correlations among variables related to collective responsibility

Variables		1.	2.	3.	4.	5.	6.
1.	PL for QT						
2.	Impact of PL	0.60**					
3.	PD consistency	0.24*	0.22*				
4.	Commitment	0.28*	0.28*	0.64**			
5.	Shared goals	0.33**	0.28*	0.50**	0.60**		
6.	Collective responsibility	0.08	0.03	0.22*	0.41**	0.53**	
7.	Trust	0.16	0.13	0.33**	0.50**	0.53**	0.68**

　　1.
** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

In addition, from analysis of the interview data I found that teachers' engagement in collective struggle to address pressing issues for teaching and learning, and pedagogical leadership, when embedded in the organisational capacity of a school, were necessary conditions for the development of collective responsibility. Taken further, these findings support the proposition that collective responsibility is a multi-dimensional phenomenon.

4. A model of teachers' collective responsibility

In light of my analysis, I argue that collective responsibility for student learning can be described as a multi-dimensional phenomenon comprising five dimensions. The five dimensions identified from data in this study are: professional development; collective struggle, professional community; relational trust and pedagogical leadership. These dimensions underpin the complex interplay of relationships, resources and organisational structures operating in a school. Drawing from evidence in the four schools each dimension is described in terms of three schematic markers: emergent, evolving and embedded which crystallise varying points along a continuum for the development of collective responsibility. Together the five dimensions and three schematic markers are conceptualised as a model for the development of collective responsibility.

The proposed model described in Table 2 below depicts "an ideological spectrum" (Achinstein, 2002, p.445) which attempts to describe beginning and later positions in the development of collective responsibility. The model suggests that traditional teaching and professional development practices where individual teachers work in isolation is consistent with the emergent position on the continuum potentially limiting the development of collective responsibility. As relational trust and teacher empowerment to determine and address teachers' professional learning needs advance, schoolwide collective responsibility evolves. At the embedded position on the continuum relational trust between teachers as well as between teachers and school leaders reduces teachers' fear described in the early stages.

Table 2: A model for the development of collective responsibility

EMERGENT	EVOLVING	EMERGENT
REFORMING PROFESSIONAL LEARNING		
Individual expertise is recognised but rarely shared Decisions about professional development are regarded as the responsibility of the principal Professional learning connected to school goals is focused on the individual	Professional learning is focused on addressing shared goals for student learning. Professional learning activities are structured within key organisational teams	School resources are organised to support collaborative structures for professional learning harnessing expertise from within and outside the school Commitment to colleagues professional growth is encouraged through creative opportunities for open sharing of ideas, practices and results
ENGAGING IN COLLECTIVE STRUGGLE		
Norms of privacy, professional independence and autonomy shield weak practice Gaps between goals, results and practice are recognised as an individual responsibility to address Consensus on espoused goals is contrived which veils the level of real commitment	Some are willing to embrace the challenge of producing better outcomes while others perceive they are victims of such goals Teachers who form small groups of co-learners act on the pedagogical challenges posed by a shared vision of high expectations for all students and hold their nerve in the face of dissent from others	Shared processes of deprivatising practice, interdependence and engaging in critical reflection that challenge taken-for-granted assumptions about teaching and schooling Recognising the need to change provides an impetus to critique current practices and restructure organisational opportunities for professional learning
FORMING PROFESSIONAL COMMUNITY		
Fear of work overload Cynicism about the potential benefits Pseudocommunity results from avoiding dissent and disagreement in the interests of maintaining harmony Norms of social cohesion reinforce traditional work practices	A language for shared norms and values emerges Teachers commit to engage in critical reflection on current practices to seek ways for collective improvement School goals and priorities support risk taking to trial alternative practices for student learning	Flexible organisation within a school support groups to self-select, change and reform to address new student learning challenges Recognition that participation in collaborative professional development is open to all and an expectation that all will participate Social cohesion transforms into professional respect into cross group collaboration
BUILDING TRUST		
Trust and vulnerability are not perceived as issues for teachers collective responsibility because an individual teacher's practice is not exposed to risk	New work relationships build deeper professional understanding of teachers' strengths and weaknesses Trust becomes relational as generalised norms of reciprocity develop for consistency in the quality of instruction and student learning experiences	Consistency in the agreed standards for teaching and willingness to critique practice against these standards Vulnerability is reduced through strong social and professional ties within the school community Relational trust is an organisational property of a school
BUILDING PEDAGOGICAL LEADERSHIP		
School decisions about school-wide pedagogy are the responsibility of the principal Leadership provides direction but does not release responsibility to teachers to make sustained changes to teaching practices	The principal is a leading learner. School leaders promote and participate in the type of professional learning that challenges low expectations for students and aligns theory and practice to achieve the school's goals for student learning	School and teacher leaders are respected as knowledgeable others who empower others to make confident decisions about their work practices. Decisions related to whole school pedagogy are transparent and centred on learning benefits for students

5. Discussion

The model represents a continuum describing what collective responsibility looks like in a school setting at various points in its development. It highlights the complex interplay of challenges and relationships present in a community of professional educators with diverse expertise, beliefs and commitment to improving the outcomes for students.

Attempting to place a school wholly at one point on the continuum would fail to acknowledge that; within a school, sub-communities change over time and at different rates in response to internal and external pressures impacting on schools. Such a representation would understate the complexity of the similarities and differences between the social and professional dynamics within school communities (Achinstein, 2002).The prevailing conception of schools is that they are highly dynamic and fluid organisations constantly reacting to internal and external pressure for change (Sharratt & Fullan, 2009). Internal changes in the dynamics of school leadership and demographic balance between experienced and early career teachers, for example, might place schools and members of that school at different points along the continuum in any one of the five dimensions. External pressures mandated by systems to implement new curriculum, pedagogy and assessment practices or participate in nationally funded programs for improvement disrupt the traditional equilibrium of schools.

At any one time different groups of teachers, faculties or teams within a school may display characteristics at multiple points along the continuum. For example the teachers interviewed at Jossey reported that many of the conditions for developing collective responsibility were embedded in their school culture. These conditions included sharing a sense of collective struggle that addressed students' disengagement and organisational realignment of school resources to support professional development to implement Year 7 and Year 8 teams. However, as Robyn, who was not a member of a Stage team reported, "I've always noticed that working on my own just makes everything harder." This is in contrast to Loretta's experience at the same school where she highlighted a sense of joint planning and consistency in instruction being embedded in the practices of her colleagues.

An advantage of conceptualising collective responsibility as a continuum is the capacity to reflect the dynamic and changing nature of schools, faculties and stage teams. When schools implement new ideas or reforms that challenge taken-for-granted norms it is likely that mainstream and prevailing beliefs and expectations are challenged. At the emergent end of the continuum of collective responsibility teachers cited fear of change, work overload and uncertainty that they had the skills required to implement new and innovative teaching practices as concerns. These concerns were illustrated by Marjorie's fear of the unknown as teams were introduced at Jossey and Margaret's sense that her colleagues at Tall Trees initially resented publicly scrutiny of the effectiveness of their literacy instruction. The safety teachers felt in faculty teams at Jossey and Aran Heights was purposely disrupted as they were expected to form cross-faculty teams to critically review their current teaching and assessment practices with teachers with whom they had no previous professional interaction. How a school community responds to such challenges determines the level and pace of change and transformation.

5.1 Limitations of the model

The identification of five dimensions in the development of collective responsibility is not intended to be a definitive set of conditions or actions that operate in a linear fashion. In labelling each dimension as a discrete entity in the development of collective responsibility it is acknowledged that the boundaries of each dimension are somewhat arbitrary. To some extent one dimension cannot develop in isolation from the other dimensions.

While the five dimensions were found to be critical to the development of collective responsibility, further exploration could investigate the proposition that while necessary these alone may not be sufficient. Further research is required to establish if other critical factors are at play in different educational settings.

The small number of case studies in my sample is also a limitation. Expanded investigation of other variables such as access to external funding, support from academic partners, the halo effect of a new principal, the composition of the leadership team or the imperative to introduce a new program with significant short term funding could be added as variables for investigation.

5.2 Implications for further research

A suggested area for future research could investigate the statistical correlations between collective responsibility and the type and impact of professional development related to the implementation of Quality Teaching [122] (NSWDET, 2003) in schools with a longer history of implementation than the case study schools. The lack of significant correlation between collective responsibility and teachers reported satisfaction with professional learning to implement Quality Teaching invites further investigation. This presents as an area for further research arising from the fact that the data for my study were collected at a time when schools were in the early stages of implementation of Quality Teaching.

To validate the model additional case studies would assist in drawing more generalised conclusions from the data. Further studies could also illuminate the theoretical construct of collective responsibility to study the impact in greater depth on student learning outcomes as suggested by Lee and Smith's (1996) research. The correlation between trust and collective responsibility in my study was significant ($r=0.68$, $p=0.01$). Trust between teachers, principals, students and parents are growing areas of research interest in terms of trust as a core resource for school improvement (Bryk & Schneider, 2002; Van Maele & Van Houtte, 2009), where a high level of trust is a resource that supports leaders to initiate and implement change (Louis, 2007) and as is a critical element in school

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[122] Quality Teaching refers to the three dimensional model used in NSW schools at the time of study to as a guide to improving pedagogy.

cultures focused on educational improvement (Ennis & McCauley, 2002; Van Houtte, 2005; Van Houtte, 2006).

The proposed model identifies the importance of teacher-to-teacher trust as a critical factor in the development of collective responsibility. The role and relative importance of other elements of trust in the development of collective responsibility could be explored further by expanding the theoretical frame of the model to include teacher-to-leader trust replicating Bryk and Schneider's (2002) scale. Finally, the findings related to the demographics of the teaching staff and experience with previous intervention programs that emerged in my study as possible factors for the development of collective responsibility could be investigated in other sites.

6. Conclusion

This paper proposes a model for the development of teachers' collective responsibility for student learning. Findings reported in this paper have significance for their contribution to models of workplace learning focused on whole school improvement and for designing collaborative professional development.

Analysis of the data collected in this study produced a five dimensional model of collective responsibility: professional development; collective struggle, professional community, teacher-to-teacher trust and pedagogical leadership. Within each dimension are conditions of school organisation that can strengthen the growth of collective responsibility. Similarly an absence of such conditions I argue inhibits the development of collective responsibility.

Where teachers had collective responsibility, they had formed strong professional bonds by participating in interdisciplinary teams, engaged in whole school collaborative professional development focused on improving the quality of instruction, and designing teaching that met the targeted learning needs of their students. In the development of collective responsibility, trust and shared problem solving around a collective struggle to improve the learning outcomes for all students were found to have critical roles. Refocusing and reforming teachers' work and professional learning involved them in reflecting on and rethinking practice in collaboration with others. These activities frequently occurred with teachers from other faculties or stages and provided more powerful benefits for teachers who participated.

The data in this study provided evidence that where professional learning was integral to the weekly teaching cycle, timetabled to accommodate purposely formed teaching teams and regular whole school professional development sessions, collective responsibility was more likely to play a critical role in the consistency of quality teaching and learning. These kinds of professional learning, when enacted across the whole school, cultivated high levels of self and collective efficacy. Teachers talked about the effort they were making to be innovative in their teaching practice.In such environments, teachers held a

positive sense of reciprocity, trusting that their colleagues would match their efforts as they explored new pedagogical practices and took pedagogical risks.

When schools incorporated each of the five dimensions to construct school-based environments for joint enquiry, connected teacher learning with practice that was shared and critiqued, and identified organisational structures that maximised student gains, they demonstrated evidence of collective responsibility. The rewards were reported as raised teacher trust in each other and in school leaders, collaborative efforts for sustained improvement, enhanced capacity for subsequent actions and increased student learning gains. These benefits encapsulate the essence of what teachers' collective responsibility means for student learning.

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The Competition in Higher Education Sector and Influence on the Efficiency and Economic Growth

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Abstract

The structure of higher education market differs in different countries. Institutions of higher education rival among themselves to attract finance, students and research. According to the neoclassical economic theory, competition among producers ensures a more rapid development of industry and requires a more efficient functioning of the producers. According to the endogenous growth theories (Romer, 1986 a.o.), the development of intellectual capital is a crucial factor for economic growth. However, the higher education sector as the main producer of intellectual capital is not a classical market. The aim of the research is to examine if the intensity of competition in higher education sector has any effect on the sector's efficiency and economic growth. The level of competition in the higher education has been determined by calculating the Concentration ratio and Herfindahl-Hirschman index using data on the number of students of 1 048 higher education institutions in 14 countries. The data show a significant correlation between themselves however there are no relations with indicators of efficiency and economic growth. An alternative measuring tool has been created adapting the Model of Five forces (Porter, 1979). 126 experts' assessments from 18 countries were used. The competition index values show significant correlation with several indicators of the sector's efficiency and economic growth.

Keywords: competition measurement – higher education.

1. Introduction

The institutions of higher education in each country, regardless of their financing - public or private, aspire to acquire a better position and higher evaluation, thereby rivalling among themselves to attract more not only finance, but also students, teaching staff and financed research. Some of the largest universities hold a well-established leader's position in their respective countries, while the structure of the market is more balanced in other countries. Which is better? Which of these approaches is more prospective? Does the intensity of competition among higher education institutions have any effect on the advancement of the higher education system? To provide answers on these questions the intensity of competition in higher education sector has to be measured and relationships between competition level and indicators characterizing the efficiency of higher education system and economic growth have to be examined.

The neoclassical economic theory states that competition among producers promotes the enhancement of quality of the goods and price reduction, ensures a more rapid development of industry and demands a more efficient functioning of

the producers. The development of higher education according to the endogenous growth theories is one of deciding factors for the state's economic growth.

However the higher education is not conventionally considered as a market and therefore the causation above is not acknowledged as true in this particular sector. Endogenous theories of economic growth mention human capital as an essential factor ensuring economic growth (Romer, 1986), not the quantity of workforce but first of all its quality or professional competence. The principles of endogenous theories dominate in management of nowadays economic systems. There are many factors that determine the quality of human capital and its growth potential such as thegeographical situation of the country, its historical and cultural environment, or national traditions. But one of the essential factors is education. This factor is especially highlighted practically in all endogenous economic growth theories as well as by economists, who deal with issues of economic growth and factors promoting it in the course of their job.

Reviewing education as an economic growth factor, the influence of higher education on the quality of human capital and consequently on the economic development is highlighted in particular and, in comparison to influence of primary and secondary education, is clearly greater (Baumanis, 2002). Consequently from the aspect of promotion of state's economic development, it is important to research the factors that promote the development of higher education.

Neoclassical theories mention competition as an essential factor for development of an industry. Higher level of competition among producers promotes more variety of goods and services, more enhancement of quality and more price reduction. Therefore higher level of competition demands more efficient functioning of the producers and ensures a more rapid development of the industry.

However, the positive influence of competition on the market is not an unequivocal issue while speaking about the higher education sector. The right to education is deemed to be one of the fundamental human rights and the provision of higher education is traditionally considered to be a state function. This could lead to the wrongful conclusion that education should therefore be accessible to everyone for free, that it is not a market environment and that classical economic causalities and methods are not applicable in its analysis.

The higher education is more or less state financed in all developed countries. However there are many countries where private funding of higher education considerably exceeds 50% of the total[123]. Private finance is always subject to market principles as the consumers choose the goods they are paying for. With regards to state finance, it also works on the basis of market principles as the

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[123] *Education at a Glance* 2007, Table B3.2b. Relative proportions of public and private expenditure on educational institutions, as a percentage, for tertiary education (1995, 2004). *Education at a Glance* 2007, OECD indicators, 221.p. Organisation for Economic Co-operation and Development, 2007.

resources for implementation of fundamental human rights are limited. Educational expenditures reduce the capability of the state to realize its other functions and provide other benefits. Therefore society – the state as well as individuals have to make the choice and choose how much resources to spend on education while sacrificing the possibility to spend resources on the achievement of other benefits (Johnes, 1993). Therefore the classical economic regularities are applicable to education.

The assumption that education is a state function and should not be reviewed with economic instrument of business analysis is a wrong one. It is irrelevant whether a higher education institution is a state or private one, a profit or non-profit organization; all the education institutions and education systems on the whole should aspire to increase their work efficiency under circumstances of limited resources. They compete among themselves in attracting students and finance while attempting to achieve higher quality assessment and higher academic and scientific results. Higher education institutions work in the market and its activity is subjected to economic principles.

The conventionally used notions in economics that describe commercial activity "goods", "market", "producer", and "consumer" can also be applied with respect to higher education, i.e. an economic sector where there is no unified conception of the nature of economic (or commercial) activities of its participants. Within an education market where there is sale and purchase of education services, these classical notions can be applied, i.e. "goods" can be applied to education programmes, "producer" to education institutions, "supplier" to academic staff and "consumer" to students. Competition as well is reviewed in the competition regulating legislation of European Union and other developed countries as not just among commercial enterprises, but also in a wider sense – among market participants, who are performing an economic activity in the particular market and participating in the flow of goods. Analogically in the education industry it is possible to talk about raw materials, suppliers, means of production, productive forces and other economic categories that are widely used in economic theories, however with regards to the higher education sector these terms may seem extraordinary.

Consequently based on classical economic theories it could be assumed that competition among higher education institutions would further the development of the higher education sector – extends the variety of education programmes offered, increases their quality, reduces prices and furthers the efficiency of higher education institutions. It could be tested by comparing the competition level in different higher education markets and the relevant efficiency indicators in these markets.

In order to determine the competition level in a particular market, respective instruments for measuring the competition intensity are necessary.

2. Traditional methods

In order to carry out measurement of competition intensity it is necessary to precisely define the measurement object, respectively, identify the market that allows us to determine the market participants who are active in the market and compete among themselves. Then, applying appropriate tools, there should be measured the competition intensity in these markets.

2.1. Market delineation

Two characteristic indices can be determined by identifying the market – range of goods (services) that are in circulation in the market and the distribution area of the market or its geographical limits.

Conventionally it is deemed in economics that market participants are in the one and the same market if the production and price determination policies of one participant influence the demand for goods of other market participants. Cross elasticity of demand method can be used to identify goods in the one and the same market (Luft a.o., 1990). With regard to the delineation of the higher education market, all levels of tertiary education programmes except doctoral study programmes (i.e. tertiary education, ISCED level 5) have been included (Rocens, 2008).

To define the area of distribution where the identified goods will circulate there can be applied various approaches - fixed radius approach, variable radius approach, client flow approach and geopolitical approach (Wong, Zhan & Mutter, 2005), or goods flow approach (Elzinga & Hogarty, 1973). The Elzinga-Hogarty test determines the proportion of goods produced in a definite area with respect to total consumption, as well as the proportion of goods consumed in that particular territory with respect to all the goods produced in that area. If both the indicators are high then the geographic territory can be considered as a separate geographic market. Critical value for these indicators is determined at 90%, i.e. a geographic territory, where import and export does not exceed 10% can be considered as distinct market. Though economists are not of single opinion, whether there is theoretical or practical grounds for the determination of such critical value (Massey, 2000), still the goods flow approach and geopolitical approach are to be considered the most appropriate for the delineation of the higher education market and market delineation is identified by the country's geographic borders(Rocens, 2008).

The markets analyzed are higher education study programmes with the exemption of doctoral study programmes (i.e. ISCED level 5) that are being implemented within the geographic borders of a particular country. The market participants among whom competition is being measured are state recognized higher education institutions in the respective countries that realize higher education programmes mentioned above.

2.2. Classical competition measuring tools

The classical competition measuring tools – Concentration ratio (CR_4) and Herfindahl-Hirschman index (HHI) were used to measure the competition intensity in the higher education markets. Those measuring tools are applicable in the higher education markets, adapting them especially with regards to methods of calculation of market share of higher education institutions. The market share can be calculated proportional to the number of students and not proportional to revenue as it is traditionally done in the economic analysis of markets. In accordance to Herfindahl-Hirschman index critical value for low concentration (HHI<1000) used in United States competition law[124], concentration of higher education market is low and competition is strong in 9 out of 14 countries included. In accordance to Concentration ratio critical values (CR_4<20%) (Samuelson, 1989), competition in higher education market is strong only in 1 out of 14 countries (Tab.1).

Country	CR_4	HHI	Number of students	Number of HEI
Germany	8.5%	89	1 979 043	387
Bulgaria	28.1%	399	237 909	51
Hungary	30.1%	424	408 564	71
Switzerland	34.6%	595	182 983	39
Denmark	36.8%	515	186 477	140
Lithuania	37.0%	552	198 519	50
Norway	37.8%	539	202 584	58
Belgium	40.4%	650	163 343	29
Latvia	45.5%	769	127 706	60
Austria	49.9%	1 010	268 555	50
Estonia	59.9%	1 192	68 767	35
Slovenia	82.7%	3 407	114 694	65
Iceland	90.5%	3 432	17 728	12
Malta	100.0%	10 000	9 500	1

Tab.1. Competition indicators in higher education sector, selected countries[125].

However Concentration ratio and Herfindahl-Hirschman index indicate a high mutual relationship. The type of regression curve is exponential; with an increase in the Concentration ratio values, the Herfindahl-Hirschman index values increase exponentially. Value of is R^2=0.96 (Rocens, 2008).

Consequently it could be concluded that critical values for these two indicators of competition intensity are not fully adequate in higher education sector. Compatibility can be reached if the lower critical value of Concentration ratio CR_4 is increased from 20% to at least 45%, or lower critical value of Herfindahl-Hirschman index HHI is reduced from 1000 to 300 points.

The application of the classical tools for measure the competition intensity has not succeeded in confirming the fact that the same causalities that are in force in other industries – higher level of competition demands more efficient functioning of the producers – are in force in the higher education sector. Analyzing the

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[124] U.S.Department of Justice (www.usdoj.gov/atr/public/testimony/hhi.htm).
[125] Calculations are based on data provided by education ministries on breakdown of students in higher education institutions. The number of students was ascertained for the winter semester of the academic year 2006/2007.

relationships between different costs indicators characterizing efficiency of higher education system and indicators of competition level in the higher education market, the correlation coefficients calculated were statistically insignificant or even indicate inverse causal relationships (Rocens, 2008).

3. The alternative tool for measuring the competition

The deficiency of the classic measurement tools for the higher education markets requires the development of alternative tool for the measurement of competition. The Higher Education Competition index (HECI) was created based on methodology for industry analysis (Porter, 1980) and different practice samples for measuring the level of competition. The HECI has 27 sub-indices. Each of sub-indices corresponds to fixed factor characterized the market competition in Porter's model. Factors are adapted to Higher education sector and divided in 5 groups corresponding to Porter's five strengths:

− Entry barriers,
− Rivalry Determinants,
− Determinants of Substitution Threat,
− Determinants of Buyer Power,
− Determinants of Supplier Power.

This approach fully complies with the methodology applied in the annual reports by the World Economic Forum[126] for the comparison of the competitiveness of the countries while calculating the Global Competitiveness Index (Lopez-Claros a.o., 2006 and Sala-i-Martin a.o., 2009) as well as for the competitiveness comparison of the countries at the business level (Porter, Ketels & Delgado, 2006). Similar methodology is used in other applied research, e.g. for the approximation of the competitiveness of the States of Australia[127], in the evaluation of the competition between USA newspapers (Lacy, Vermeer, 1995), and in the competition analysis within the USA health care system. (Wong, Zhan & Mutter, 2005). It can be concluded that this approach of multi-component index allows to gain evaluation of the competition intensity, which can successfully be further applied in practise.

Values of sub-indices are achieved and Higher Education Competition index is calculated by experts' assessment. 126 experts from 18 European countries have assessed the separate values of HECI sub-indices to evaluate the level of competition in higher education. The experts were the academic and administrative staff of higher education institutions. Expert selection criteria – PhD or Doctor degree and 10 years experience at least. The experts' assessment for each of the 27 sub-indices is given in 10-point scale. According to the adherence of each sub-index to one of Porter's 5 forces' characteristic groups, they are transformed in corresponding values to calculate HECI as the average value.

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[126] http://www.weforum.org/en/initiatives/gcp/index.htm
[127] The Competition Index 2004. A State-by-State Comparison. – Tasmania: Department of Treasury and Finance, 2005. – 84 p.

4. Results

The valuation of the factors characterising the higher education competition gained through the experts' assessment allow calculating the Higher Education Competition index HECI (Tab.2). The inner coherence of the questions of the expert's questionnaire is approximated by Cronbach's alpha.

Country	HECI	Number of experts	Cronbach's alpha
Bulgaria	5.04	7	0.839
Estonia	4.91	10	0.618
Lithuania	5.00	16	0.849
Slovenia	4.79	5	0.872
Latvia	4.77	8	0.802
Poland	4.75	5	0.795
Austria	4.71	4	0.738
Italy	4.65	14	0.656
Hungary	4.58	3	0.741
Germany	4.54	6	0.891
Denmark	4.44	6	0.747
Iceland	4.42	4	0.816
Belgium	4.37	3	0.800
Ireland	4.31	5	0.736
United Kingdom	4.31	8	0.766
Sweden	4.30	9	0.612
Norway	4.14	7	0.665
Switzerland	4.06	6	0.709

Tab.2. Higher Education Competition Index (HECI), selected countries, experts' assessment.

To evaluate the influence of competition intensity on efficiency of higher education and economic growth, correlation between values of HECI and indicators of efficiency of higher education and economic growth has been examined.

Selected indicators of efficiency of higher education and economic growth are:

- annual expenditure per student – lower expenditure characterises higher efficiency of the higher education;
- losses per student on the account of those, who have not finished studies – lower losses characterise higher efficiency of the higher education;
- unemployment rate index for people with higher education in comparison to the total unemployment rate – lower index value means higher efficiency of the higher education;
- GDP per inhabitant – larger value means higher economic development level of the country;
- GDP index (percentage change on previous period) – higher index means more rapid economic growth of the country;

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- productivity index (percentage change on previous period) – higher index means more rapid economic growth of the country.

Values of these indicators for the selected countries are shown in the Table 3.

	Annual expenditure per student (ISCED 5-6), EUR, PPS, 2005a00	Losses per student, EUR, PPS, mean of 2003-2005	Unemployment rate index (ISCED 5-6), 2008q01	GDP per inhabitant, EUR, PPS, 2008a00	GDP index, 2007a00	Productivity index, mean of 2001-2007
Austria	12813.4	606.46	0.61	32500	3.1	4.15
Belgium	10117.4	425.20	0.58	30000	2.8	2.97
Bulgaria	3642.2	208.84	0.43	10200	6.2	5.44
Denmark	12654.4	176.34	0.82	31000	1.8	2.98
Estonia	3337.5	340.16	0.75[128]	18600	7.1	9.41
Germany	10425.5	757.16	0.41	28900	2.5	3.41
Hungary	5353.1	395.01	0.34	16200	1.3	5.03
Iceland	8290.0	44.51	:	32400	3.8	3.52
Ireland	8855.5	:	0.62	37000	5.3	4.79
Italy	6785.6	81.15	0.72	25500	1.5	0.93
Latvia	3764.9	610.41	0.47	15100	10.3	8.30
Lithuania	3801.4	139.63	0.52	16100	8.8	7.45
Norway	13156.4	875.43	0.88[5]	46900	3.7	5.76
Poland	4715.6	330.71	0.51	14200	6.6	4.71
Slovenia	7080.5	370.54	0.88	23100	6.1	5.79
Sweden	13489.7	1347.75	0.77	32200	2.7	4.52
Switzerland	:	:	0.68[5]	35600	3.3	3.52
United Kingdom	12105.6	1224.53	0.57	29400	3.1	3.63

Tab.3. Indicators of higher education efficiency and economic growth, selected countries[129].

There has been ascertained statistically significant correlation between HECI and selected efficiency and development indicators (Table 4).

Indicator	Correlation	Significance
Annual expenditure per student	-0.80	0.99
Losses per student	-0.56	0.95
Unemployment rate index (ISCED 5-6)	-0.32	0.90

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[128] Unemployment data Estonia and Switzerland – 2007q02, Norway – 2007q04.
[129] Data source: Eurostat. Losses per student – calculations are based on Eurostat data. Productivity index = percentage change of previous period, calculated as mean of 2001-2007.

GDP per inhabitant	-0.85	0.99
GDP index	0.59	0.95
Productivity index	0.50	0.95

Tab.4. Correlation between HECI and indicators of higher education efficiency and economic growth[130].

5. Conclusions

The classical indicators of competition intensity – Concentration ratio CR_4 and Herfindahl-Hirschman index HHI, show high mutual correlation in higher education sector, $R^2=0.96$.

Critical values for classical indicators of competition intensity – CR_4 and HHI, are not fully adequate in higher education sector. Compatibility can be reached if the lower critical value of CR_4 is increased from 20% to at least 45%, or lower critical value of HHI is reduced from 1000 to 300 points.

The use of classical indicators of competition intensity – CR_4 and HHI, for the evaluation of the influence of competition in higher education on higher education efficiency and economic growth does not provide for statistically relevant results.

The alternative tool for measuring the competition intensity in higher education market is to be developed as a complex index the component values of which are to be ascertained by experts' evaluation.

The newly developed Higher Education Competition Index (HECI) has a statistically significant correlation with the indicators of higher education efficiency and economic growth.

With regard to the higher education efficiency, there can be ascertained a close correlation between HECI and higher education expenditure (Correlation index R=-0.80), as well as fairly close correlation between HECI and losses in the higher education (R=-0.56) and employability of the people with higher education (R=-0.32).

With regard to the economic growth, there can be ascertained a fairly close correlation between HECI and the rate of economic growth (R=-0.59) as well as the increase of labour force productivity (R=0.50).

There exists a close correlation between the competition in the higher education and the level of state economic development – in less-developed countries the level of competition is higher, while in higher-developed countries it is lower (R=-0.85).

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[130] Research calculations.

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An Evaluation of a New Collaborative Preservice Teacher Training Model

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Abstract

The purpose of this study was to explore the influence of a new collaborative endeavor between preservice and alternate route teachers on their development of dispositions, collaboration, and differentiation of instruction. Focus group interviews revealed that both groups of teacher candidates benefitted from this collaborative process. Alternate route candidates mentioned that they developed a clearer understanding of the role of the special education teacher in a co-teaching model, whereas special education candidates valued the ability to develop lesson plans for authentic classrooms. Using the wiki as a tool for collaboration and teacher reflection, both groups of teacher candidates perceived the wiki as an effective collaborative tool. Reflection data showed that participants critically discussed challenges and strategies to address their ability to meet the needs of diverse learners in their classrooms and teacher biases due to disability labels (i.e., teacher disposition development).

Keywords: Alternative certification – Special education – Technology – Collaboration – Dispositions

1. Purpose

The purpose of the current study was to explore the potential influence of a new collaborative endeavor between preservice and alternate route teachers on their development of dispositions, collaboration, and differentiation of instruction.

1.1 Theoretical Framework

Recently, the field of education more fully recognizes the influence of teachers' beliefs on teachers' classroom behaviors. Teachers' beliefs include the following: "Pre- or inservice teachers' self-reflections; beliefs and knowledge about teaching, students, and content; and awareness of problem-solving strategies endemic to classroom teaching" (Kagan, 1990, p. 421). These beliefs are not static, as teacher education coursework contributes a great deal to the development of teachers' beliefs and has the greatest influence on their instructional beliefs (Levin & He, 2008). With the increasing focus on the use of technology, educators are beginning to consider and examine whether or not Information and Communication Technologies (ICT), which includes wikis, can affect the development of new literacy skills, including sharing ideas, writing, communication, using the web, and reflecting (McPherson, Wang, Hsu, & Tsuei, 2007).

Collaborative efforts, project-based learning, and non-academic interactions, lead to authentic learning by using open source technologies which can increase real-time collaboration between learners (Beldarrain, 2006). The largest advantage of the wiki is that it enables the creator to control viewing and editing access, and it enables participants to collaborate on work (Siegle, 2008). Information and Communication Technologies (ICTs) and new literacy skills combine to form strategies in literacy instruction including authentic apprenticeship experiences in interactivity and exchange with global peers, structured and purposeful uses of the Internet for research, and production and publication of ideas, creative works, perceptions and reflections and expressions of voice (McPherson et al., 2007).

In a pilot study by one of the current authors (author, 2008a), a survey was conducted to analyze preservice teachers' perceptions of the wiki; results indicated that nearly all preservice teachers preferred the use of wikis to other collaborative activities and that they would be likely to use it in their own teaching. The pilot study also showed a high level of student engagement in the wiki content and class material in general, which supports prior research (McPherson et al., 2007) in which in-service teachers perceived that wikis would increase their students' engagement in the learning process. Survey results also indicated that students perceived that the wiki impacted their critical thinking skills (e.g., ability to apply, evaluate, and synthesize information).

Developing effective collaborative processes is important, considering past research on the positive benefits of informal mentoring. The wiki format is an avant-garde venue for encouraging collaboration. A study of an alternative certification program in New Jersey found that peer mentoring and collaboration was the greatest facet of the program, and graduates expected to maintain these relationships beyond the duration of the program (author, 2008b).

Given that approximately one-third of new teachers leave the profession within three years (Darling-Hammond, 2003; Ingersoll, 2002), new collaborative models are needed to promote greater retention. Research by the current author (author, 2008b) indicates that alternate route teachers have a strong commitment to the profession, which substantiates prior research by Nakai and Turley (2003). Perhaps this commitment is due to the strong mentoring they receive from their cohort peers, school-based mentor, as well as the program instructors. The wiki offers a means of fostering and sustaining the collaborative discourse inherent in effective mentoring. Jorissen (2003) espouses that relationships with peers ostensibly influence teachers' decisions to remain in the profession.

Researchers continue to debate whether alternate route teacher programs can produce high quality teachers, many suggesting that teachers who complete traditional teacher education programs are more effective in school settings, both in classroom management and instruction. Darling-Hammond (2010) argues that "…learning from the wisdom of practice is perhaps the central issue for both traditional teacher education and alternate routes" (p. 40). In addition, research by the Author (2008a) suggests that alternate route teachers feel

inadequately prepared to teach students with disabilities, whereas preservice teachers in traditional preparation programs perceive their coursework as too theoretical.

1.2 Guiding Research Questions

We, therefore, created a new model where preservice special education teachers and alternate route teachers learned together over the period of one semester. Our main focus was to examine whether this new model would foster collaboration. Through the use of web-based (wiki) reflection, we examined preservice and alternate route teachers' beliefs and dispositions. Using data gathered from focus group interviews, we also examined participants' perceptions of this learning experience.

2. Method

2.1 Participants and Setting

Preservice special education teachers (n = 11) in a university practicum course met weekly for one hour with alternate route teachers who had been teaching for one month (n = 19). The alternate route teachers attended classes (held at a local middle school) twice a week; class content was aligned with state standards. The practicum course met at the same local middle school where field hours were completed, followed by course lecture. The practicum class time overlapped with the evening course taken by the alternate route teachers; thus both groups met together during that one hour time period.

During shared class sessions, alternate route teachers exchanged classroom issues they had encountered, and solutions were generated within small groups. Two university instructors worked collaboratively to guide discussions. Authentic classroom cases served as a basis for on-line reflection, and participants were required to respond to both instructors' prompts and classmates' comments posted on the wiki.

2.2 Research Design

We utilized a qualitative case study design. Qualitative data sources included open-ended responses to wiki reflection prompts and focus group interviews.

2.3 Data Sources and Analysis

2.3.1 Focus Group Interviews

We conducted focus group interviews of each group (alternate route, preservice) of teachers. For each interview, a note-taker recorded the notes, which were summarized immediately following the interviews. Each interview followed the same series of questions to allow for comparisons. Focus group content was analyzed for major themes that emerged in response to each question.

2.3.2 Wiki content

We created a collaborative wiki where each small group (consisting of 1-2 preservice teachers and 2-3 alternate route teachers) had its own page to write their reflections. Professors provided guiding questions, and each group member was required to write his/her own reflection, as well as respond to other group members' reflections. Guiding questions/prompts included the following: (1) What are your concerns regarding making instructional accommodations for the various learning styles; (2) Identify differences in teaching regular education students and special education students. Where do biased impressions come from? Do teachers have biases; (3) What has shaped your view of how you communicate and collaborate; and (4) Describe the importance of communication in your role as teacher with your colleagues, during parent conferences and IEP meetings.

We used content analysis to investigate underlying themes in the data (Nastasi, 1998). Two researchers met together to discuss the content of one survey sub-sample and to create an initial coding scheme. Using recursive analysis, we continued to refine the themes until we reached consensus on an initial set of eight codes. After consensus was reached, we independently coded a sample of the survey transcriptions to check for reliability. After the coding scheme was finalized, all responses were coded, and frequencies established to represent the number of participants who mentioned each category. As stated by Ryan and Bernard (2000), responses to open-ended questions can be considered free lists, and interpretation involves the frequency that each category is mentioned, and the rank order implies the salience of each category/theme. Rank-ordered lists can then be compared for similarities.

Data were entered into ReCal 0.1 Alpha (http://dfreelon.org/recal/recal3.php) to determine inter-coder agreement. Inter-coder agreement is examined for each code separately. The ReCal program provides several indices of inter-coder agreement, but for the purpose of this study, we report Cohen's kappa. (We wish to point out that inter-coder agreement was comparable for Cohen kappa, Fleiss' kappa, and Krippendorff alpha.) Our decision to include Cohen kappa is based on our cognizance that percent agreement may overestimate the actual level of agreement. Examination of the ReCal results showed fair to perfect inter-coder agreement for each code (See Tables 2-5).

3. Results

3.1 Focus Groups

At the conclusion of this project, the two groups of teacher candidates (alternate route, preservice special education) were interviewed separately. Interviewers followed the same protocol for each group, and comparisons of the answers to each question are outlined in Table 1 below. In general, this process seemed to generate a symbiotic relationship where the special education preservice teachers gained insight into authentic classroom situations, and the alternate route teachers gained knowledge about special education. However, some differences emerged. As noted in the response to the impact of this project on their dispositions, the alternate route teachers responded more elaborately, indicating a shift in their approach to working with students, including those with disabilities. In contrast, the preservice teachers only mentioned the need to stay current in the field.

Table 1

Focus Group Interview: Comparison

Question	Alternate Route	Preservice Special Education
1. What was the most valuable aspect of this program?	a. Collaboration in small groups b. Hearing the special education candidates views provided a different perspective; their knowledge was helpful. c. The wiki was a great tool for discussing the lesson plan assignment.	a. The special education candidates connected with the alternate route teachers; the alternate route group was friendly. b. Hearing about what actually occurs in the classroom; the alternate route teachers shared stories.
2. How has this collaborative project influenced your use of technology?	a. I had never used a wiki before. b. I can foresee how I can use it in the future. c. I have begun using wiki.	a. Through the use of the wiki, it enabled us to collaborate. b. Can foresee how we could use it in our own classroom. c. Improved level of technological literacy.
3. How has this collaborative project influenced your teacher dispositions?	a. Made me realize I need to focus on the student. b. I'm more patient. c. You realize you are not alone. d. Increased confidence in teaching ability. e. I'm more receptive to working with students with disabilities.	a. We need to reflect and keep current in our field.
4. How has it helped you to learn to differentiate instruction?	a. Regarding learning styles, teachers typically teach the way that they learn, but they need to differentiate based on their students' needs. b. Others in the program modeled the need to consider context when creating lessons.	a. We learned the reality of how much you can include in a lesson plan. b. The wiki helped us learn about what works.
5. How has it influenced your ability to plan?	a. We learned how to do guided practice. b. We learned to utilize all parts of the lesson plan.	a. We learned the reality of what can be done in lessons. b. We learned that you need to have flexibility.

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	c. We learned to incorporate all learning styles. d. We saw demonstrations that used varied techniques.	
6. How has this influenced your perception of teaching?	a. More excited about teaching. b. Nice to share with other alternate route teachers.	a. We learned how general education teachers think. b. We learned about collaboration. c. I learned that not everyone thinks as I do. d. I have increased confidence as a teacher.
7. What were some of the challenges of this program?	a. None.	a. Some groups worked better than others.
8. Would you recommend this program?	a. Yes, it made us more cognizant of how to present ourselves. b. Topics (some) are new to undergraduates. c. We wanted more time for discussions.	a. Definitely. It's important as so many students are mainstreamed.

3.2 Wiki Reflections

Responses to the first wiki reflection question revealed that preservice teachers have many concerns about their ability to modify instruction based on the diverse learner needs within a classroom. Prominent concerns include the ability to find effective lessons that will keep all students engaged. Participants also voiced concern that their inclination to teach a certain way may not match their students' preferred modes of learning, thus some students might benefit more than others due to their specific learning styles. For example, one preservice alternate route teacher stated,

I may not notice when one of my students has a different learning style than the style I am trying to teach in (usually visual). In this case, the student may not be doing as well as he or she is capable of. I could see a student struggling with the material, and think that the material is difficult and that the student may not be that good. However, the reality of the situation may be that the material may not be that difficult and the student may be very good, but I am just not teaching in a way that the student learns easily.

Table 2 Concerns about Making Instructional Accommodations for the Various Learning Styles

Category/Theme	Cohen's Kappa	Frequency (f)
1. Identification: Ability to accurately identify and know all students' learning styles.	.79***	12
2. Assessing learning styles: Procedures to gather information on students' learning styles.	.54**	3
3. Teaching Style: Teaching to one's own learning style rather than students' styles.	.95****	14
4. Time constraints within class period to include all learning styles in one lesson	.56**	6
5. Equity: Realizing that not all learning styles will get the same amount of attention; try to ensure that each is somewhat covered.	.60**	17
6. Activities: Need to find various ways/activities to add to lesson to address the different learning styles; effective lessons	.58**	17
7. Ability levels: Reaching all students will be difficult; some will be bored, finish quickly	.64***	5

8. Considering accommodations for IEPs/students with disabilities as well as the various learning styles	.91****	6
9. Job Demands: E.g., standardized tests	1.0****	7

Note: Landis & Koch (1977) proposed this scale to describe the degree of concordance using Kappa:
*Fair (.21-.40)
**Moderate (.41-.60)
***Substantial (.61-.80)
****Almost Perfect (.81-1.0)

When asked about the differences between teaching students in a regular education classroom and those in special education, the majority of participants (n = 28 out of 30) discussed the need to follow an Individualized Education Plan (IEP), specifically in regards to making instructional accommodations. Participants also mentioned the need to slow the pace down for students in special education, and the need to differentiate instruction based on various learner needs. One preservice special education teacher stated, "The special education students might need to pace of instruction to be a little slower than the other students need, which could make the regular education students become distracted or bored. They also might need more time for something to be done, whereas the other students' time may not be a factor." In response to this comment, one of the alternate route preservice teachers agreed, stating, "I agree that you have to make certain accommodations for special education students, such as giving them extra time, placing them near the front of the classroom etc."

Many of the participants believe that teachers have biases about students with disabilities, and labeling was the most frequently cited reason for teachers' biases. As one preservice special education teacher remarked, "If a teacher knows that a student is classified, they will already look at them as having a problem, even before they see them in the classroom. They also might not expect more from them, or will not 'raise the bar.'" Others agreed with this statement, as exemplified in one alternate route teacher's statement, "Teachers are biased in that they do not believe that a student with a disability is capable of completing the same work that a student without a disability can."

Table 3 Differences in Teaching Regular Education and Special Education Students

2a. Differences in teaching regular and special education	Cohen's Kappa	Frequency
1. Different goals for different groups	.46**	3
2. Differentiating instruction; tweaking lessons	.81****	15
3. More motivation, encouragement needed for special ed students	.24*	5
4. Need to slow pace down	.47**	15
5. Un/fairness of accommodations	.24*	2
6. IEP and accommodations	.36*	28
7. More teacher time & attention needed for special education students	.64***	9

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Table 4 Teacher Biases

2b. Where do biases come from?	Cohen's Kappa	Frequency
1. Labeling (leads to lower expectations)	.66***	13
2. Teachers' negative comments (e.g., in teachers' lounge)	.78***	5
3. Lack of education/understanding and misconceptions	.70***	9
4. Stereotypes- from 1 or 2 experiences in school, generalize to the whole population	.40*	8

Preservice teachers identified six different components that have influenced their communication and collaboration styles. As seen in Table 5 below, individuals ask for feedback from others and also observe others' responses to their messages.

Table 5 What has Shaped Your View of how You Communicate and Collaborate

Codes	Cohen's Kappa	Frequency
1. Experiences with people from diverse backgrounds; this includes learning from others' perspectives	.91****	10
2. Comfort level within a working group	.90****	10
3. Vocabulary and voice tone/delivery; this pertains to knowing how to adjust your speech based upon your audience	.82****	10
4. Observation & Listening skills- includes paying attention to what others do	1.0****	12
5. Gathering feedback from others or reflecting on whether others accurately perceive the message	.83****	14
6. Knowledge of the topic; confidence	1.0****	7

Finally, the preservice teachers were asked to describe the importance of communication with colleagues, during parent conferences and IEP meetings. As indicated in Table 5 below, they believed that communication and collaboration are important factors when sharing ideas with colleagues, and when reporting on student behavior and performance.

Table 6 Importance of Communication in Various Professional Roles

Code	Cohen's Kappa	Frequency
1. Share ideas with others teachers or your department	.69***	15
2. Report on student past behavior/performance	.85****	13
3. Adjust communication based on audience.	.75***	5
4. Seek parental input	.69***	6
5. Recommend strategies to address concerns/problems, including those that have worked	.35*	9
6. Preparation for meetings	.47**	3

4. Discussion

Studies consistently show that the mentoring relationship between alternate route teacher candidates is a vital component of the program (author, 2008b). Both formal and informal mentors provide additional information on issues that most beginning teachers find difficult, thus perhaps fostering a higher likelihood of success, commitment, and retention. We thus created a collaborative model that brought together preservice special education teachers in a university-based

program and alternate route preservice teachers at the beginning of their first teaching experience.

The data in this study showed that both groups of preservice teachers valued the opportunity to work together and learn from each other. Using the alternate route teachers' authentic classroom examples, and the special education background of the preservice special education teachers, groups discussed teaching techniques that would benefit all students in their classrooms, as well as the potential teacher bias due to a child being labeled with a disability.

As illustrated in the data above, the wiki served as a useful medium for collaboration and reflection. Members within each group responded to instructors' prompts, and elaborated and critically reflected upon classmates' comments posted on the wiki. Both data collected from focus group interviews and detailed discussions posted on the wiki reflect positive teacher dispositions. This group of preservice teachers carefully considered the various sources of influence on teacher beliefs and the importance of communication and collaboration. They also reflected on the need to evaluate their own teaching style and whether or not it will positively impact the diverse array of learners within their classrooms. As educators, we continue to examine the collaborative process and its impact on teachers' thinking, collaboration, problem solving, and teaching.

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Contraceptive Utilization and HIV/AID Awareness among the Working Women of an Urban Slum in Delhi

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Abstract

Slums are an integral part of urban living. Women living in the slums are vulnerable to sexually- transmitted diseases like HIV/AIDS due to lack of knowledge and awareness about preventive health care measures, especially pertaining to sexual health. This study is about the attitudes of the slum dwellers towards contraceptives, awareness towards contraceptive practices, their utilization pattern and adoption of family planning methods available to them. The sample comprised of 50 women in the reproductive age of 16-50 years. A semi-structured interview schedule with open-ended questions was used to collect data. Data obtained was analyzed using averages and percentages. Contraception is a woman's problem is the prevailing attitude among them. Condom usage was not popular due to myths and misconceptions regarding the usage of condoms. The impact of Family Planning programmes seems to be relatively poor. Accurate perceptions about the prevention of HIV/AIDS were not known to most women.

Keywords: Nirodh – Nasbandi – MalaD – Saheli - HIV/AIDS

1. Introduction

Slums are an integral part of urban living. Overpopulation is one the biggest problems in the slums. Women and children living in these areas usually have a poor state of health. Teenage marriages and subsequent pregnancies are the responsible factors for the same.

Need for the study. Women living in the slums are vulnerable to sexually-transmitted diseases like HIV/AIDS due to lack of knowledge and awareness about preventive health care measures, especially pertaining to sexual health. Therefore, there is a need to know about the attitudes towards contraceptives and contraceptive practices followed by slum dwellers. This study is about the attitudes of the slum dwellers towards contraceptives, awareness towards contraceptive practices and adoption of family planning methods available to them. This study has sought to know about the utilization pattern of contraceptives among the users of contraceptives in the slums. This study has also attempted to explore the awareness about HIV/AIDS among the married women living in this slum. This information, in turn, can help facilitate to devise appropriate measures to educate the slum populations about the proper ways and methods to use contraceptives thereby helping them to improve their status of sexual health. The feedback obtained can also help in devising programmes to create awareness in the slum dwellers about sexually-transmitted diseases like HIV/AIDS and preventive measures to be taken.

The aims and objectives are as follows:

1. To find the utilization pattern of contraceptives among the working women of reproductive age in the given urban slum.
2. To determine the extent of knowledge about the usage of condoms.
3. To know about the extent of awareness about the concept of Family Planning and its adoption by them.
4. To find out awareness about HIV/AIDS, its transmission and treatment.

2. Methodology

The sample comprised of 50 women in the reproductive age of 16-50 years. For the selection of sample, preliminary survey and simple random sampling method was used.

The questionnaire consisted of two Sections. Section A pertained to personal data information to be gathered and Section B was the Interview Schedule. A semi-structured Interview Schedule with open-ended questions was prepared and data was collected by personal interview with the respondents. This questionnaire was translated in Hindi. It is enclosed in the Appendix.

Data obtained was tabulated and analyzed using mathematical procedures like averages and percentages. For the purpose of analysis various parameters like socio-economic profile, marriage and child bearing, knowledge and understanding of the concept of Family Planning, contraceptive awareness, its knowledge and usage profile, awareness and knowledge about HIV/AIDS were studied.

3. Observations and interpretations

The observations obtained have been tabulated under five sets of tables A, B, C, D and E for the five sets of parameters mentioned in data analysis. Each table is followed by observations and interpretations.

3.1A. Socio-Economic Profile

Table A1: Age of Respondents

Categories	Age Range	Number	Percentage
1.	16-20	3	6
2.	21-25	12	24
3.	26-30	19	18
4.	31-35	6	12
5.	36-40	6	12
6.	41-45	2	4
7.	46-50	2	4
Total		50	100

Table A1 reflects that 6% respondents were in the age group16-20 years, 24% in age group21-25 years, 18% in age group 26-30 years, 12% each were in the

age group 31-35 years and 36-40 years and 4% each were in age group 41-45 years and 46-50 years. This indicates that most women in the given study were in the age group of 21-30 years.

Table A2: Educational Status of the Respondents

Categories	Education	Number	Percentage
1.	Illiterate	32	64
2.	Just literate	9	18
3.	Middle	5	10
4.	Up to Class X	4	8
5.	10 + 2	0	0
	Total	50	100

Table A2 shows that 64% of the women were illiterate, 18% just literate, 10%had studied up to class VIII, 8% had studied up to class X and none had reached Senior Secondary. This table reflects that the literacy levels were dismal in the sample under study.

Table A3: Occupation of the Respondents

Categories	Occupation	Number of women	Percentage
1.	Semi-skilled worker	2	4
2.	Petty Business	1	2
3.	Domestic help	25	50
4.	Housekeeping Staff	22	44
	Total	50	100

Table A3 shows that 4% of respondents were semi-skilled workers, 2% were involved in petty business, 50% were working as domestic helps followed by 44% of women employed as housekeeping staff in a government organization. This table reflects that most of the respondents were unskilled workers.

Table A4: Native Place of Respondents & Spouse

Categories	Name of the State	Number	Percentage
1.	Uttar Pradesh(UP)	20	40
2.	Bihar	5	10
3.	Madhya Pradesh(MP)	2	4
4.	Delhi	10	20
5.	Haryana	5	10
6.	Other States	8	16
	Total	50	100

Table A4 shows that 40% of the respondents were from UP, 10 % were from Bihar, 4% were from MP, 20% from Delhi, and 16% were from various States of India. Most were migrants to Delhi.

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Table A5: Economic Status of the Respondents

Categories	Monthly Income (in Rs)	Number	Percentage
1.	Up to 2500	5	10
2.	2500-5000	27	54
3.	5000-10,000	13	26
4.	Above 10,000	5	10
	Total	50	100

Table A5 shows that 54% of respondents had income between Rs 2500-5000, 10% each were earning as low as Rs2500 or as high as Rs 10,000, 26% were earning somewhere between Rs5000-10,000. Most respondents were not economically strong.

3.1B. Marriage and Child Bearing

Table B1: Respondent's Age at Marriage

Categories	Age Range	Age at Marriage		Average age
		Minimum	Maximum	
1.	16-20	10	14	12
2.	21-25	14	17	15.5
3.	26-30	14	20	17
4.	31-35	10	18	14
5.	36-40	17	21	19
6.	41-45	16	16	16
7.	46-50	12	12	12
				15

The minimum age was found to be mere 10 years as per table B1 and the maximum age was found to be 21 years among the respondents at the time of marriage. The average age of marriage among the respondents was found to be 15 years indicating that most were married at an early age.

Table B2: Age at the First Child Birth

Categories	Age Range	Age at the First Child Birth		Average age
		Minimum	Maximum	
1.	16-20	15	15	15
2.	21-25	17	21	19
3.	26-30	15	20	17.5
4.	31-35	16	24	20
5.	36-40	16	26	21
6.	41-45	17	17	17
7.	46-50	13	13	13
				17.5

The mean age as per Table B2 at the first child birth was found to be 17.5 years indicating that most women became mothers before they were 18 years.

Table B3: Average Number of Children in the Family

The

Categories	Age Range	No. of women	No. of children		Total children	Average
			Minimum	Maximum		
1	16-20	3	2	2	6	2
2	21-25	12	1	4	31	2.58
3	26-30	19	2	6	60	3.15
4	31-35	6	1	3	16	2.66
5	36-40	6	1	4	21	3.5
6	41-45	2	4	4	8	4
7	46-50	2	6	6	12	6
						3.41

average number of children in the sample under study was found to be 3.41

Table B4: Gender of the First Born

Categories	Age Group	Female	Male
1.	16-20	2	1
2.	21-25	6	6
3.	26-30	11	8
4.	31-35	3	3
5.	36-40	3	3
6.	41-45	1	1
7.	46-50	2	1
Total		27	23
Percentage		54	46

Table B4 shows that the 54% of first born were females and 46% were males. These figures reflect that more females were born to the couples under study which is why they considered their family to be incomplete.

3.1C. Family Planning Concept

Table C1: Awareness of the Concept of Family Planning

Categories	Age Group	Yes	No
1.	16-20	0	3
2.	21-25	6	6
3.	26-30	8	11
4.	31-35	5	1
5.	36-40	3	3
6.	41-45	2	0
7.	46-50	1	1
Total		25	25
Percentage		50	50

Table C1 throws up an interesting observation. 50% of the people are conversant and an equal number are not conversant with the concept of family planning.

Table C2: Knowledge & Understanding of the Concept of Family Planning

Categories	Age Group	No. of women	a	b	c	d	e	F
1.	21-25	6	6	0	0	0	0	2
2.	26-30	8	8	0	2	4	3	1
3.	31-35	5	5	0	7	3	2	1
4.	36-40	3	3	0	3	4	1	0
5.	41-45	2	2	3	3	3	3	0
6.	46-50	1	1	1	2	1	1	1
Total		25	25	4	17	15	10	5
Percentage			100	20	68	60	40	20

Legends
a. avoid unwanted births
b. bring about wanted births
c. regulate intervals between pregnancies
d. decide the birth of baby as per one's age
e. determine the number of children in the family
f. looking after one's family needs

Table C2 shows that all the women understand that unwanted births can be prevented by adopting family planning, only 20% think that it can help in planning a pregnancy, 68% are conversant that one can plan one's pregnancy as per one's wishes which is a good sign, 60% do know that one can plan one's baby as per one's age, 40 % do think that one can plan the number of children in the family. Interestingly, 20% do think that family planning is about thinking about the welfare of one's family in which they include not only their children but their in- laws and husbands welfare also.

3.1D. Contraceptive: Awareness, Knowledge and Usage Profile

Table D1: Knowledge of Contraceptives

Categories	Age Group	Min. One Method	Condom	IUD	Oral Pills	Vasectomy	Tubectomy	Natural Method
1.	16-20	2	2	1	2	0	1	0
2.	21-25	12	12	10	11	6	12	10
3.	26-30	19	19	16	19	9	19	16
4.	31-35	6	6	6	6	3	6	6
5.	36-40	6	6	6	1	2	6	4
6.	41-45	2	2	2	2	1	2	1
7.	46-50	2	1	1	1	0	1	1
Total		49	48	42	42	21	47	38
Percentage		98	96	92	92	42	94	76

Table D1 reflects that the knowledge pertaining to various contraceptives seems to be remarkably good. 98% of respondents are aware of at least one method of contraception. 96% are aware of condom known commonly as Nirodh in India to most illiterate and semi-literate people. The figures for awareness about Intra-Uterine Device (IUD) are also high. It is mostly understood as Copper-T to most illiterate and semi-literate people in India. 92% are conversant with Oral pills by the name Mala-D or Saheli. Only 42% are familiar with male sterilization

whereas 94% are familiar with female sterilization. Lastly, 76% are conversant with Natural Birth Control Methods.

Table D2: Contraceptive Use Profile

Categories	Age Group	No. of women	Condom	IUD	Oral Pills	Vasectomy	Tubectomy	Natural Method	Total Users	Non-Users
1.	16-20	3	0	0	0	0	0	0	0	3
2.	21-25	12	2	3	0	0	0	3	8	4
3.	26-30	19	1	1	1	0	9	4	16	3
4.	31-35	6	0	0	0	0	3	3	6	0
5.	36-40	6	0	2	1	0	1	2	6	0
6.	41-45	2	0	0	0	0	1	1	2	0
7.	46-50	2	0	0	0	0	1	1	2	0
Total		50	3	6	2	0	15	14	40	10
Percentage			6	12	4	0	30	28	80	20

Table D2 shows that the contraceptive usage pattern varies though the respondents may have knowledge about them as reflected in table D1. Tubectomy seems to be the most favoured method of contraception followed by the natural method. Only 4% of the respondents rely on oral pills. Interestingly, only 6% used condoms. Copper-T was used only by 4% of the respondents. Vasectomy was not popular though 42% did have knowledge about it as per table D1. 20% of respondents were not using any method of contraception.

Table D3: Knowledge about uses of condom

Categories	Age Group	Birth Control	Spacing	Infection Prevention	No Idea
1.	16-20	1	0	0	2
2.	21-25	10	4	3	2
3.	26-30	19	11	10	0
4.	31-35	6	4	3	0
5.	36-40	6	5	5	0
6.	41-45	2	1	2	0
7.	46-50	1	1	1	1
Total		45	26	24	5
Percentage		90	52	48	10

Table D3 reflects that 90% of the respondents were aware that unwanted births can be prevented by using condom, 52% were aware that spacing between child births can be effectively done by using condom. *Less than 50% were aware that condom effectively prevents sexually-transmitted diseases.* 10% were unaware of the uses of condom. This 10% group was the younger group and the oldest group in the sample under study.

Table D4: Reasons for Not Using Condom

Categories	Age Group	No. of couples	a	b	c	d	e	F
1.	16-20	3	3	0	0	0	0	0
2.	21-25	10	4	6	4	4	2	6
3.	26-30	18	10	8	6	10	0	16
4.	31-35	6	0	6	0	4	0	4
5.	36-40	6	0	4	4	6	0	0
6.	41-45	2	0	0	0	0	0	2
7.	46-50	2	0	0	0	0	0	2
Total		47	17	24	14	24	2	30
Percentage		94	36.1	51	29.7	51	42	63.8

Legends:
a. Advised by family not to use it
b. Leads to infection
c. Bad for health
d. Generates heat and causes discomfort in females
e. Leads to poor health
f. Reduces sexual pleasure to self/husband

Table D 4 reflects that 94% of the respondent's husbands are averse to using condoms due to various reasons. 36.1% do not use it as the family is against their using them. 51% do not use because they feel that it may lead to infection, 29.7 % do not use because they think that it is bad for health of self/husband, 51% feel that it generates heat and causes discomfort in females, 4.2% have the belief that it may lead to poor health if used, 63.8% do not use it because sexual pleasure is affected.

Table D5: Inhibitions about Vasectomy among women/men

Categories	Age Group	No. of women	a	b	c	d
1.	16-20	3	0	0	0	0
2.	21-25	12	4	4	4	6
3.	26-30	19	2	6	8	4
4.	31-35	6	6	4	4	6
5.	36-40	6	4	6	4	4
6.	41-45	2	0	2	2	0
7.	46-50	2	0	2	2	0
Total		50	16	24	24	24
Percentage			32	48	48	40

Legends
a. Health of man is affected
b. Causes weakness in the male
c. Man's libido is affected
d. Earning is affected as man becomes progressively weak over time

Table D5 shows that quite a lot of myths are associated with Vasectomy which is why men do not undergo this procedure. Interestingly, reasons b and c dominate equally among the reasons for which it is not preferred either by the women or their men. Reason d is linked to reasons a and b. It gives an insight into the thinking of women under study!

Table D6: Decision for Tubectomy

Categories	Age Group	No. of women	a	B	c	d
1.	26-30	9	7	5	4	6
2.	31-35	3	3	0	0	3
3.	36-40	3	1	1	0	1
4.	41-45	1	1	1	0	1
5.	46-50	1	1	1	0	1
Total		15*	13	8	4	12
Percentage			86.6	53.3	26.6	80

*The age groups 16-20 and 21-25 have not been included as none had undergone tubectomy being very young for it.

Table D6 legends:
a. Financial problem
b. Family was complete
c. Advised by family (mother/mother-in-law/husband)
d. Self-decision in the interest of poor health of self

Table D6 shows that 86.6% had undergone tubectomy due to economic reasons, 53.3% had got it done as they felt that the family was complete, 26.6 % were advised by their family to do so, and interestingly 80% had got it done for the sake of their personal health which is quite a good sign as far as awareness towards welfare of family is concerned.

Table D7: Female Sterilization & Son Preference

Categories	Age Group	Tubectomy	Male Child/Couple			Female Child/Couple		
		No. of women	Min.	Max.	Avg.	Min.	Max.	Avg.
1.	26-30	9	1	4	2.5	0	2	1.0
2.	31-35	3	1	2	1.5	0	1	0.5
3.	36-40	1	1	2	1.5	0	3	1.5
4.	41-45	1	1	3	2.0	1	3	2.0
5.	46-50	1	1	3	2.5	3	4	3.5
Total		15			2.0			1.7

Among the 80% contraceptive users, only 30% had opted for tubectomy. Table D7 shows that among the 30% users who had opted for tubectomy, most of the couples had an average of 2 sons per family whereas the number of girls averaged only 1.7 thereby indicating that at some level, there was a preference for sons in the family. This is because a family is considered as incomplete without sons in most parts of India. Even with a single son, many consider the family as incomplete.

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3.1E. Awareness and Knowledge about HIV/AIDS

Table E1: Awareness about HIV/AIDS

Categories	Age Group	No. of women	Aware	Not Aware
1.	16-20	3	0	3
2.	21-25	12	7	5
3.	26-30	19	9	10
4.	31-35	6	4	2
5.	36-40	6	4	2
6.	41-45	2	2	0
7.	46-50	2	1	1
Total			27	23
Percentage			54	46

Table E1 shows that 54% of the respondents had heard about HIV/AIDS whereas 46% of them were not having any idea about HIV/AIDS.

Table E2:   Sources from Where Awareness Acquired About HIV /AIDS

Categories	Age Group	No. of women	Friends/Relatives/ Neighbors	Media-Television/ Radio	Health Care Workers, esp. In NGO
1.	21-25	7	2	5	0
2.	26-30	9	4	5	3
3.	31-35	4	1	3	2
4.	36-40	4	1	3	0
5.	41-45	2	0	2	1
6.	46-50	1	0	1	0
Total		27	8	19	6
Percentage			29.6	70.3	22.2

Table E2 shows that 29.6% respondents had heard about HIV/AIDS from their relatives / friends / neighbours, 70% of them had come to know about it mainly through television, whereas a mere 22.2 % had come to know about it from health care workers namely from the volunteers of NGO.

Table E3:   Knowledge about Modes of Transmission of HIV/AIDS

Categories	Age Group	No. of women	Unprotected Sex	Blood/Blood Products	Mother to Child Trans.	Casual Contact	Mosquito Bite/Unhygienic conditions
1.	21-25	7	6	5	0	6	1
2.	26-30	9	6	5	0	9	0
3.	31-35	4	3	3	0	4	1
4.	36-40	4	4	3	0	4	0
5.	41-45	2	2	2	0	1	0
6.	46-50	1	1	1	0	1	0
Total		27	22	9	0	25	2
Percent-age			81.48	70.3	0	92.59	7.4

Table E3 shows interesting results. 92.59% of the respondents are aware that casual contact with infected persons may cause HIV infection which reflects high levels of awareness leading to cautious approach in personal/social life. Like wise, 81.48% are aware that unprotected sex may cause one to acquire HIV

infection from infected partner.70.3% are aware that infected blood/blood products may cause likelihood of HIV infection. A mere 7.4% held the view that mosquito bite/unhygienic conditions may also cause this disease.

Table E4: Treatment of AIDS

Categories	Age Group	No. of Women	Yes	No
1.	21-25	7	4	3
2.	26-30	9	7	2
3.	31-35	4	2	2
4.	36-40	4	3	1
5.	41-45	2	2	0
6.	46-50	1	1	0
Total		27	19	8
Percentage			70.3	29.6

Table E4 shows that 70.3% of the women think that AIDS has a cure. This reflects ignorance about the treatment of AIDS among the women under study which is a matter of concern.

4. Summary of the findings

*Majority of respondents were illiterate/semi-literate migrants living in a nuclear family and were from low socio-economic strata with the women being the main bread-winners in the family. Some were married at an early age.

* Contraception is a woman's problem is the attitude among the families studied. Condom usage was not popular. There were myths and misconceptions regarding the usage of condoms/vasectomy. The correct way to use condoms was not clearly known. Oral pills were also not popular as they did not have much idea about them.

*Information among women seems to be limited to tubectomy. Awareness/knowledge of other methods with their advantages and disadvantages was not known.

*It appears that the impact of Family Planning programmes has been relatively poor. This is reflected in the limited knowledge about various types of contraceptives to limit births. Tubectomy seemed to have a wider acceptance by most women after perceived family completion. Contraception methods were not seriously followed if the family comprised of only girls.

* Accurate perceptions about the prevention of HIV/AIDS were not known to most women even though some of them do watch television
Suggestions

*Family planning programmes need to promote a wider range of contraceptive methods including balanced information about various methods. Barrier methods and vasectomy, in particular need a boost by dispelling the myths and misconceptions surrounding their usage. What also needs attention in the family

planning programmes is knowledge and awareness about proper use of contraceptives, avoidance of complications and monitoring for side-effects

*Analysis of HIV/AIDS from a gender perspective in awareness programmes on HIV/AIDS to generate a discussion on gender-sensitive prevention strategies is essential to educate the masses. Relying too much on the mass media for dissemination of most public information leaves out the illiterate and semi-literate from the mainstream because of limitations in grasping and comprehending the information.

* Bringing sexuality and sex-related issues like reproductive issues, sex-related hygiene, HIV infection/AIDS into public discourse for a healthy debate/discussion through women's organizations, religious groups and literacy programs. All this should be done in the lingo of the target group and without making the information too technical.

* There is a need for parallel peer education with men as their involvement ONLY can bring about a social, emotional and cultural change in the attitudes of their women.

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6. Appendix

QUESTIONNAIRE

This has two sections. Section A pertains to **personal bio-data** and Section B pertains to **Interview Schedule.**

SECTION A

1. Name of the respondent & Age
2. Educational Qualification
3. Occupation
4. Family Income
5. Native Place
6. Type of Family
7. Age at the time of marriage

8. Age at the time of 1st born
9. No. of boys and No. of girls
10. Gender of 1st born

SECTION B

1. Have you heard about Family Planning? What is it about?
2. Which of these contraceptive methods do you know-condom, IUD(Copper-T),oral pills(Mala-D), vasectomy (Nasbandi), tubectomy, natural methods?
3. Which of the contraceptive methods named by you do you use / have been used by you at various points in your life?
4. What is condom used for?
5. What are your reasons for not using condom?
6. Why did you decide to go in for tubectomy? .
7. Why did you not prefer tubectomy even when your family was complete?
8. Has your husband undergone vasectomy? If no, why ?
9. Have you heard about a disease called HIV/AIDS? From whom/ where did you hear about it?
10. How is it transmitted? Is there any treatment for AIDS?

The Treatment of Special Education in The Spanish Educative System

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Abstract

This paper aims to show how inclusive education is developed in a High School in Aragon (Spain). Inclusive education is developed within the introduction of a new educational legislation (Organic Law on Education) in May 2006, giving great importance to the identification and assessment processes of students with special educative needs to ease their integration in the educative system. Several measures have been implemented: diversification of the curriculum, initial vocational qualification programs, hosting plans, tutoring, curriculum organization and language immersion programs. I analyze the implementation of these measures in High School classrooms with normal students and with those who require educative support, assessing both the strengths and weaknesses arising from the institutional prescriptions. María Moliner schools 392 students under the parameters of Inclusive Education understood as a response to multiculturalism. The guidance report shows that 89% of students have special educative needs, and just 11% attend lessons without support and follow a bilingual teaching program. How teachers can cope with this diversity? It is so prevalent in Spanish public education that it requires highly skilled professionals and the provision of material resources by the Administration.

Keywords: compensatory educative project – multiculturalism - specific educative needs – diversity - Special and Inclusive education.

1. The origins of Special Education

In 1799 some farmers were working in a field in southern France. Suddenly, they found an abandoned child in the thick forest. The boy did not speak, was disoriented and scruffy. The attempts to establish communication with the child in order to know where he came from were not successful. His physical appearance and his communication barrier led farmers to believe that the child could have been abandoned as being deficient. Such were the fears that awed the farmers to take the child to Paris, where there was a specialist in the treatment of deaf children. Once in the office of Dr. Jean-Marc-Gaspard Itard[131], farmers knew the child's illness: he was deaf. Itard named the child Victor to avoid all emerging commentaries on the origins of the child. He was known as

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[131] To get more information see Itard (1806).

"The wild boy of Aveyron" that had never been in contact with humans and had been grown up alone in the thick forest of Aveyron. Obviously, Victor's problems were not only related to his deafness, but also to his lack of human contact. Despite the prevailing ideas of the time that ensured Victor's case had no solution, Itard, instructed Victor with systematic methods designed for the teaching of deaf children, to walk and to use utensils when eating. He also got him to participate in informal conversations with children of his same age. He acted as a father and as a counsellor and removed old demonological conceptions on deficient children (Bragg, 1997).

The origins of Special Education date back to 200 years ago. The Americans, believers in the power of their nation, associate the origins of this discipline to the Individual with Disabilities Education Act. This National Law was adopted in 1975. But, in fact, it was the story of Itard and Victor, when the role of education reached that relevance. This triggered the recognition of the role of education both publicly and universally. Since then, the rights of children with disabilities are acknowledged. In 1846, Seguin –disciple of Itard- published in the United States of America the progresses Itard made with Victor[132]. It became the first treaty of Special Education that acknowledged the needs of handicap children and provided the kind of education they should receive (Deutsch, 2003). For decades, it was believed that education that best suited the needs of disabled children should be based on sensor motor exercises to awaken the nervous sensibility, on the development of the use of speech and on mental operations. These will ease their socialization. This belief has had its ups and downs during the past 150 years.

In particular, the most significant change took place in 1876 when Seguin founded the American Association on Mental Retardation (AMMR). Thereafter, the attitudes on the treatment of people with disabilities have changed. For a time, it was strongly considered that disabled people should receive medical and health care in institutions located in the outskirts of cities where they were detained and segregated from the rest of the population. These were the first educational approaches based on biomedical and health care methods (Bennett, 1997; Powell & Dlugy, 1998). Fortunately, in the sixties, developed countries promoted a different policy framework for the disabled. On the one hand, there were many social movements that sought to integrate disabled children in ordinary schools, in the same way as ethnic minorities and people with learning difficulties. This legal procedure led to an unquestioned support in recognizing the human rights of disadvantaged groups (Spanish Constitution, 1978). International courts also recognized the rights of minorities and involved educational lawmakers to improve the rights of disabled people.

Specifically, in the United States, country of great contrasts, Parent Associations of Children with Disabilities acted promptly and applied great social pressures that went beyond Europe. The aim they pursued was the recognition of the rights of disabled people. Mainly, they claimed the need to provide their children a standard education in order to make life possible at school with same age children. This implied a movement towards school inclusion. Thus, their sons and

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[132] *The Moral Treatment, Hygiene, and Education of the Idiots and Other Backward Children* (Seguin, 1986).

daughters could exchange leisure experiences, share their same interests and, above all, be educated with no discrimination and with the educational services needed. This initiative removed the old tagging on disabled people. Indirectly, an ulterior aim was pursued: they wanted to avoid the labelling of students with disabilities and not to segregate them in special schools located in the city suburbs, where they were forced to exile from the real world, from the teaching materials and from their peers.

Gradually, teaching methods were introduced in order to change traditional educative approaches on the teaching of people with disabilities. They extended beyond the United States, reaching the borders of Europe. In Italy, thanks to the work of Montessori, who held the belief that children with learning difficulties, due to their cognitive potential, could reach basic education through rich and stimulating educative experiences in appropriate didactic settings. Hopkins (1817) travelled to Europe to move specialists in education for the deaf children to the United States to continue their studies with hearing impaired children. Gridley (1832) founded the New England Asylum for the Blind, later named Perkins Institute to strengthen the formal education of deaf children. Another of his pedagogical successes was the founding in 1848 of the Massachusetts School for Idiotic and Feeble-Minded Children.

Thanks to quick intervention and research of these authors, different educative programs were created to enable students with different deficiencies of learning. Obviously, the vast majority of these programs were based on instructional methods developed by Howe (1866) and Gallaudet (1998) in residential institutions. Other programs followed a didactic nature (Farell, 1898) and were implemented in public schools. From a diachronic perspective, Special Education has undergone a major transformation. But, did we manage to offer the disabled student an education adapted to His/her learning difficulties? What factors ease this educative transition?

2. Historical background in the educative legal framework of Special Education

Changes that occur after the implementation of a new educational legislation do not always have negative aspects that involve changes at the organizational level of schools. In the field of Special Education, these changes allow improvements in the treatment of students with specific need of educative support. This can be done either through the creation of schools provided with all necessary conditions for their care, by providing all educational resources required (whether personal, social, human or material).

Spanish legislation in education, the actual Organic Law on Education, approved and implemented on 2nd May 2006, attaches great importance to the process of identification and assessment of special educative needs of students in order to incorporate them in the most appropriate course. This current law aims to provide students the specific educative support they need. With increasing frequency, we find in our Primary and Secondary School classrooms students with different learning difficulties and diverse ethnic backgrounds. Most

immigrants came to our country in different periods of the academic year and are incorporated in the academic course according to their age. They do not know Spanish and cannot follow normal lessons.

Our Spanish Law on Education focuses on all educative levels but with particular attention on this kind of student who really requires specific educative attention. It pursues the incorporation of this group of students in the educative system depending on their capabilities and needs. In order to provide them all the attention required, our educative systems need specialists to teach these students. Most of the decisions undertaken are adopted regarding the psycho pedagogical assessment the counsellor performs. This procedure implies an improvement on previous legislation in the treatment of students with disabilities.

Until 2006, the regulations with which the Spanish educative system had developed education in all compulsory levels consisted of four educative laws: General Law on Education (1970), Organic Law of the Right to Receive Education (1985), General Organic Law of the Education System (1990) and Organic Law of Participation, Evaluation and Government of Teaching Centres (1995). But even with all the implementations prescribed by the new Organic Law on Education (2006) in Spain, have we reached school inclusion in publicly founded schools?

3. Latest trends in the Spanish Educative System

The actual Organic Law on Education has resulted in significant conceptual changes in our educative system that no longer are mere tautologies. So far, the conceptual categorization in Special Education in our country referred to Students with Specific Educative Needs. The General Organic Law of the Educative System (1990) established this label, under which it included normal students and those that, although having educative needs, were able to follow the official curriculum in different conditions than the whole class group. However, the Organic Law on Education extends that label and incorporates a generic category: Students With Specific Need of Educative Support (ACNEAE), formed by five kinds of students with disabilities: those who require an educative attention different from the ordinary one due to their specific educative needs; students who have been incorporated lately in the educative system; gifted students that according to the environment where they are grown up need a different education (gypsy students), children who suffer family trauma, and those who have adverse personal and familiar conditions[133]. Our actual law on education defines this category of Students with Specific Need of Educative Support in its first section:

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[133] These four categories can be found in the *Article 71 Principles* of the Organic Law on Education (2nd May 2006; Official State Bulletin).

Aimed to Students with Specific Need of Educative Support, those who require for a short period of their schooling, or over all of it, certain specific educative support and care arising from their disability or severe behavioural disorders[134].

This typology deserves at least a specific counselling intervention depending on the student's characteristics. Therefore, this proliferation of diagnostic categories in the field of Therapeutic Pedagogy shows the use of old and recurring tautologies that have been used over decades in the speech of education, more specifically, with the Reformation or previous educative laws. These terms are concepts ex novo created with an empty meaning that do not clearly define or even specify core disabilities. Therefore, what kind of educative intervention is required for Students with Specific Need of Educative Support?

Beyond stylistic values, the problem of terminology is evident. It is created an unnecessarily complex terminology that confuses more than it helps, accompanied by a wordy prose that does not invite a reading. However, this terminology suggests that by saying new words, we create new procedures. These procedures do not solve the problems found in Primary and Secondary School classrooms. In the present case it is obvious. In 1990, a new group of diagnosis was created with the General Organic Law of the Education System. Gifted students had a quality education tailored to their intellectual needs.

Until that time, they had received no specific attention and were trained in the same way as the rest of students of the class group. Even more, they were considered a nuisance more than a blessing by the teaching staff. It launched a series of measures to create special classes where specialists could teach these students a specific curriculum. However, the Organic Law on Education (2006) includes gifted students in its wide typology of Students with Specific Need of Educative Support. It considers that if there are students with great cognitive potential, they should receive an education adapted to their intellectual possibilities. Otherwise, it would be a setback in education. Another example of these tautological trends in legislative discourse in the field of education is found in the group of Students with Specific Needs. The General Organic Law of the Education System (1990) defined students who had learning difficulties as those who were not able to follow normal classes. Under this wide category whether gypsy, gifted and students who were incorporated lately to the Spanish educative system, were included. The actual Organic Law on Education (2006) distinguishes between different categories depending on their cognitive level, academic results, behaviour and learning difficulties.

Do these terminological proliferations with scientific patterns imply new perspectives in the field of education? Are they viable in our present educative system with the resources schools have? Have legislators created diagnostic categories and new performance frameworks for people with disabilities? It should be noted a significant change under the actual Spanish education law in

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[134] http://www.boe.es/aeboe/consultas/bases_datos/doc.php?id=BOE-A-2006-7899 (Read: 14th December 2009).

the field of psycho and pedagogical diagnosis, as well as in the field of educative intervention for Students With Specific Need of Educative Support.

The most remarkable difference compared to previous educative legislation is established in the education principles for governing established in the Organic Law on Education (2006). Mainly it provides two principles that must be undertaken in compulsory education: the principle of normalization and school inclusion. These two principles came along with the educative treatment prescribed for Students with Specific Need of Educative Support. It can be proved in the special interest the law highlights when dealing with four matters: 1st) schooling (Article 74 First Section[135]); 2nd) employment and social integration of students (Article 75 First Section[136]); 3rd) in the field of action and education of students with high intellectual abilities (Article 76 Second Section[137]); 4th) when attending to schooling and education of students with late incorporation into the Spanish educative system (Article 78 Third Section[138]).

Have educational legislators also changed the protocol of schooling and special educative programs for students with learning difficulties? Yes, they have. That special interest of the law places attention in these increasingly frequent situations. For that, it created a department for the development of specific educative programs (Article 79[139]).

The course of our history for people with learning difficulties shows a great evolution. Even if they have biological disorders, cognitive disabilities, social adjustment problems, they get support from teachers. Rhetoric conceptions have been eliminated when educating disabled students. Several measures have been implemented in Primary and Secondary Schools. Educative support has been

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[135] "1st Student enrolment will depend on the educative needs he requires following the principles of normalization and school inclusion and will be ensured his non-discrimination and effective equality in access and permanence in the educative system. Relaxation measures can be introduced when necessary in the different educational levels".

[136] "1st In order to facilitate social and professional integration of students with special educative needs who could not reach the aims of compulsory education, Public Authorities will encourage training offers tailored to the specific needs of these students".

[137] "Education authorities should adopt any necessary measures to identify students with high intellectual abilities and assess their needs for early. It is also their responsibility to take appropriate action plans to meet those needs".

[138] "1st Education authorities should support the entry to education of students coming from other countries or for any other reason, belatedly joining the Spanish educative system. Such integration and incorporation will be ensured in any case in the mandatory school age".

[139] "1st Education authorities will develop specific training programs for students who have serious linguistic acknowledgement, low linguistic competence or even basic academic knowledge […]; 2nd The development of these programs would always be simultaneous with the education of these students in regular groups, according to their academic level and learning development".

intensified by Therapeutic Pedagogy specialists in Infant and Primary Schools which enrol Students with Specific Need of Educative Support.

Language immersion programs and educative enhancement programs help Students with Specific Need of Educative Support who incorporate lately, who have serious linguistic and cognitive shortcomings or who acknowledge Spanish. They have been recently developed and are being developed in Primary and Secondary classrooms. Similarly, Therapeutic Pedagogy specialists and counsellors provide individual attention to students who require a different teaching.

4. Inclusive education and performance in María Moline High School

To achieve an inclusive education and provide students the specific educative attention they need, the school has to develop a specific real educative project according to the students it schools. It should start with an analysis of the social context to confirm reality in a properly contextualized approach.

María Moliner High School is located in a lower class district in the city of Saragossa. It schools 392 students, 89% (gypsy and immigrants) have special educative needs and require a specific individual teaching, 11% attend standard lessons with no specific support. Bilingual students follow a bilingual curriculum promoted by the British Council in collaboration with the Ministry of Education and Science of Madrid and with the Ministry of Education, Culture and Sport of Saragossa. They learn 50% of the official curriculum in English and 50% in Spanish language. Bilingual groups consist of 13 students. Non-bilingual groups are mostly composed by gypsy students and immigrants.

Gypsy students have serious behavioural problems, show a continuous disruptive behaviour, a lack of acceptance of standards and have attention deficit. All of them need specific support. Most did not attend Primary school and if so they had a high degree of absenteeism. Thus, many of them in the 1st year of Secondary School do not know basic mathematical operations and make many spelling mistakes. Due to this situation, the staff consists of 10 teachers who are specialists in Therapeutic Pedagogy and a counselor that helps not just in counselling matters but also in behaviour modification through the practice of individual specific techniques. Despite all the effort invested, the students' level of absenteeism and behavioural disruption in the classroom is excessive.

María Moliner schools immigrants who are placed in the academic course according to their age as the law prescribes. They represent 12% of students and some have specific educative needs. The vast majority of them come to school in November, January or even May. They do not know the Spanish language and require linguistic training. They do not have behavioural matters but cannot follow the ordinary curriculum due to their academic and linguistic levels. All groups of students gather in the playground, although have their own group of mates. The teaching-learning process developed with the bilingual groups requires a serious commitment to education. They follow specific methodological

approaches, making an effort on motivating students with continuous bilingual communication and authentic materials. Bilingual groups are perfectly integrated with immigrants. Gypsies do not integrate with any group and try to impose their own one.

The diversity prevalent in the Spanish public educative system requires highly skilled professionals and the provision of material resources by the Administration. Do we have to reject this kind of population due to the marginality they live with? Is segregation of these students in separate classrooms a solution? The Organic Law on Education (2006) provides a very broad procedure in school inclusion. But is it possible to provide students a specific education according to their educative needs with the available staff and didactic resources? Are we moving towards a normalized education and school inclusion in High Schools as established in the Organic Law on Education and seen in the multicultural population of this 21st century? It seems a simple task but it is not.

María Moliner High School project is based on educative redress inequalities. It won the 2nd National Award on Compensatory Education. From 2004 the Compensatory Educative Project involves the whole school community. There is therefore an integral and integrating educative work, sensitive to the percentage of students in the unfavourable socio-cultural context. Consequently, the following basic principles are established to guide the teaching-learning process in order to get school inclusion, since they have been validated as effective. There is no universal answer in Education but there are adequate didactic and methodological approaches that contribute to get inclusive education.

First of all, there has to be a development of the educative practice from prevention and compensation of the student requirements in the Compensatory Educative Project of any school that aims to achieve inclusive and normalized education. In this sense, it has to be understood that prevention and compensation should be implemented as soon as possible in the school work. Secondly, teachers must pay special attention to the classroom diversity, both in terms of cognitive abilities and in terms of cultural backgrounds, assuming that differences and inequalities must be addressed through affirmative approaches and not universal or standardized solutions in the context of an inclusive school. Thirdly, we need to assume the principles of intercultural education, in line with the growing multiculturalism that characterizes our society and towards an education for citizenship in accordance with the configuration of the latter. Finally, the need to create an educative community as a general framework integrating all agents involved in the education of students, understanding that it is essential that it is a cooperative work at all times and levels of school life.

This Compensatory Educative Project, based on the prescriptions and models provided by the Organic Law on Education, attaches great importance to the identification and assessment processes of students with special educative needs in order to facilitate their integration in the educative system. Several measures have been undertaken in this High School to deal with diversity. Mainly, they focus on how to diversify the curriculum with gypsies and immigrants. To provide an education adapted to their needs, teachers teach Spanish to two immigrants

per hour. Subdivision of the whole group of gypsies is made by Therapeutic Pedagogy teachers. They teach 6 students per hour focusing on basic concepts according to the results of the initial evaluation and of the psycho pedagogical diagnosis[140] made by the school counselor. Adaptations of the official curriculum are made when necessary to give students a specific education adapted to their educative needs. Curricular adaptations can be different depending on the student and his educative needs.

To face diversity and facilitate students' integration, regardless of race or learning difficulties, we develop workshop projects, assuming the transverse axis of each school year (multiculturalism, health education, my friend the computer, library-van, travelling bag, etc.). It is also necessary to establish cooperative groups, promoting learning with a detailed organization of charges (coordinator, moderator, secretary, responsible for the material, etc.). These professional actions listed in the Compensatory Educative Project and developed in the teaching-learning processes must take into account the principles of realism in the High School context, attain globalization of all curricular areas, promote cooperative education and provide individual educative attention with all human resources and available curricular materials. It is the only way to achieve an inclusive education.

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Management of the Educational Environment: Developing a Strategy for School Improvement

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Abstract

In the 21st century, education managers recognize the importance of an efficient educational environment development and improvement. Today, educators are concerned with the educational environment that is under the constant pressure of globalization and the associated economic, political, socio-cultural and demographic changes. In the face of the emerging challenges, education managers should take every advantage of traditional managerial practices and new approaches to education and management to guarantee incessant quality enhancement of the educational environment. Managing for quality has become one of key concerns for European higher education institutions in the context of continuous school improvement. This paper is based on the holistic perspective of the educational environment. It provides the analysis of some management techniques that might be used as part of a strategy for a higher school improvement including systematic student feedback as an essential source of analytical input in the process of managing the educational environment.

Keywords: Educational environment - educational management - school improvement - strategy - student feedback

1. Introduction

Recently, European higher education institutions have dealt with educational reforms and the associated reorganisation of knowledge delivery, a European reform process being aimed at creating the European Higher Education Area based on international cooperation and academic exchange, which is attractive to students and staff from all over the world (Bologna Declaration, 1999). European universities have a crucial contribution to make in realising a highly creative and innovative Europe of knowledge. (Leuven/Louvain-la-Neuve Communiqué, 2009). The European Higher Education Area is supposed to assist mobility, prepare students for life as "active citizens in democratic societies, support their personal development", and offer access to "high-quality higher education based on democratic principles and academic freedom" (Bologna Declaration, 1999).

Creating the European Higher Education Area includes providing the constructive educational environment in the European higher education institutions. Today, education managers are concerned with the educational environment that is under the constant pressure of globalization and the associated changes. In the face of the emerging challenges, education managers should employ as traditional managerial practices, as new approaches to education and management to guarantee incessant quality enhancement of the educational environment.

Managing for quality has become one of key concerns for European higher education institutions in the context of continuous school improvement. As stated by Ehlers (2009), we are "entering a new era in quality management for higher education", which presupposes "moving away from a mechanistic to a holistic and cultural view of quality in higher education".

This paper is based on the holistic perspective of the educational environment. It provides the analysis of some management techniques that might be used as part of a strategy for a higher school improvement including systematic student feedback as an essential source of analytical input in the process of managing the educational environment.

2. Developing a holistic understanding of the educational environment

Modern educational organisations are characterised by internal complexity and diversity. The complexity of the educational environment stipulates the variety of contexts, in which education managers make decisions. The dynamic process of managing the educational environment responsive to changes in the global environment dictates applying a holistic way of thinking that "tries to encompass and integrate multiple layers of meaning and experience" (Wikipedia/Holistic education).

A holistic understanding of the educational environment would help us better comprehend complex relationships within a higher education institution. The organisational resources function in a variety of social situations. Consequently, modern managers operate in "multiple contexts, through multitudes of kaleidoscopic movements" (Czarniawska cited in Czarniawska, 2008).

We regard the educational environment as a multi-level structure; its levels (subsystems) being combined as holistic concepts. Our understanding of the educational environment is based on

• The systems theory regarding an organisation as an organism, an entity of the reality having goals towards which it aims its activities (Greenfield, 2004)

• The phenomenological view of organisations regarding an organisation as "accomplishments, as consequences of human action directed by individual will, intention and value" (Greenfield cited in Bates, 2004).

The multiple layers of our analysis are as follows:

• Educational environment as a community of people – the intellectual capital bearers

• Educational environment as a totality of the integrated organisational resources aimed at sustaining the learning process.

The integrated organisational resources include (Stukalina, 2008):

- Tangible (material) resources containing a low degree of human agent.

- Intangible (human) resources containing a high degree of human agent.

- Semi-tangible (informational) resources symbolising a combination of material elements and the embodied intellectual capital.

The resources are related to the four fundamental educational environment subsystems (Ibid): (a) the physical and technological environment, (b) the instructional environment; (c) the psychological environment, (d) the executive environment (which is associated with different processes happening in the educational environment).

3. Managing the educational environment: Using the holistic approach

From a holistic viewpoint, educational management needs multiple perspectives to be considered in the context of providing constant school improvement and the educational environment quality enhancement.

Being a complicated multi-level structure, the educational environment needs a flexible management model containing elements characteristic for different theoretical models described by Bush (2003): formal model, collegial model, political model, subjective model, ambiguity model, cultural model. This versatile management model presupposes that we manage the educational environment both as a supersystem including diverse resources and an intellectual community.

Since management occurs simultaneously in various environment subsystems and at different levels of the organisation, the holistic approach to managing the educational environment as an integrated non-linear system seems to be an efficient tool to cope with the most significant issues. We assume that the holistic approach to managing the educational environment is closely associated with the idea of holistic education - a philosophy of education based on the principle that everybody "finds identity, meaning, and purpose in life through connections to the community, to the natural world, and to spiritual values" (Wikipedia/Holistic education).

In our view, the holistic approach to managing the educational environment presupposes that we help learners find identity, meaning, and purpose of education through connections to the academic community.

Both holistic education and holistic approach to managing the educational environment conducive to learning have in view the same objective – to evoke learners' intrinsic motivation for studying and continuous self-development. The reorganisation of knowledge delivery is supposed to be in the focus of holistic education as a response to the interdisciplinary nature and complexity of modern

knowledge-based society; it includes providing new opportunities to students in the context of the job market customisation and life-long learning.

The reorganisation of knowledge delivery dictates creating a constructive educational environment based on information and communication technologies to ensure students' intellectual and professional development.

For supporting holistic education, we should allow students and educators to perform as "competent quality developers of their own improved educational environment" (Ehlers, 2009). Students ought to be regarded as active community members who can make their contribution to the development of the organisation in the form of participative decision-making. So, we enable the intellectual capital of an educational organisation to play a vital role in the educational environment quality enhancement, this way accepting the holistic view of quality in education.

Holistic education involves several teaching strategies (Table 1).

Table 1. Holistic Education (Source: Wikipedia/Holistic education)

Teaching Strategy	Holistic Education
Transformative approach to learning	Knowledge is created by the context in which a person lives
The idea of connections	Different aspects of life and living are integrated and connected
The concept of transdisciplinary inquiry	Division between disciplines is avoided
Meaningfulness	People learn better when what is being learned is important for them
Meta-learning	Finding inherent meaning in the process of learning and self-regulating their learning
The concept of community	Relationships and learning about relationships are keys to understanding ourselves

We have extended the idea of holistic education to some significant issues of managing the educational environment conducive to learning (Table 2).

Table 2. Using the holistic approach to managing the educational environment

Strategy/ Principle	Manager's Perspective	Student's Perspective
Transformative approach to learning	Knowledge is generated by the environment through social interactions, and is utilised by managers to perform strategic analysis aimed at school improvement	Knowledge is generated through student - educational environment interactions in the form of student learning experience
The idea of connections	The educational environment is managed as an integrated system for achieving the system's synergy and providing quality enhancement	A variety of integrated organisational resources are utilised to create a learner-centred educational environment
The concept of transdisciplinary/interdisciplinary inquiry	The educational environment is managed through integrated pedagogical and managerial tools application	Providing multidisciplinary education to satisfy students' requirements and the needs of the knowledge-based society
Meaningfulness and meta-learning	Motivating people of the organisation to work in collaboration to achieve common goals through special incentives used to develop the educational environment into a community of shared concern	Encouraging students both as self-motivated learners and active community members to help them discover meaning in what they learn and do
The concept of community	Managing the educational environment as an intellectual community of people united by common goals	Communicating and learning about social relationships students take new social responsibilities and become real intellectual community members

4. Employing the holistic view of quality in education

As stated by Ehlers (2009), a holistic understanding of educational quality presupposes that quality enhancement of an educational organisation should be focused on "change more than on control, development rather than assurance, innovation rather that compliance". School improvement is a regular and continuous attempt to provide "a change in learning conditions and other related internal conditions", its final target being to accomplish educational goals more effectively" (Miles & Eckholm cited in Fiddler (2002). We assume that managing school improvement is related to providing qualitative changes in the educational environment.

We suppose that the holistic view of quality in higher education corresponds to an organisational approach to school improvement advocated by Fiddler (Ibid), which presumes that school improvement has an organisational dimension besides being concerned with teaching and learning. Some way or another, qualitative changes should affect both school processes, and school conditions, which contribute to the accomplishment of educational goals (Ibid).

Thus, to provide qualitative changes in learning conditions and processes we have to guarantee qualitative changes in the educational environment as an

integrated whole. As said by Feigenbaum & Feigenbaum (2005), one of the basic principles of successful management is "What makes quality better anywhere in the organisation makes it better everywhere in the organisation".

Therefore, management of the educational environment aimed at improving both school processes and conditions involves management of the four basic educational environment subsystems: the physical and technological environment, the instructional environment, the psychological environment, the executive environment (Fig. 1).
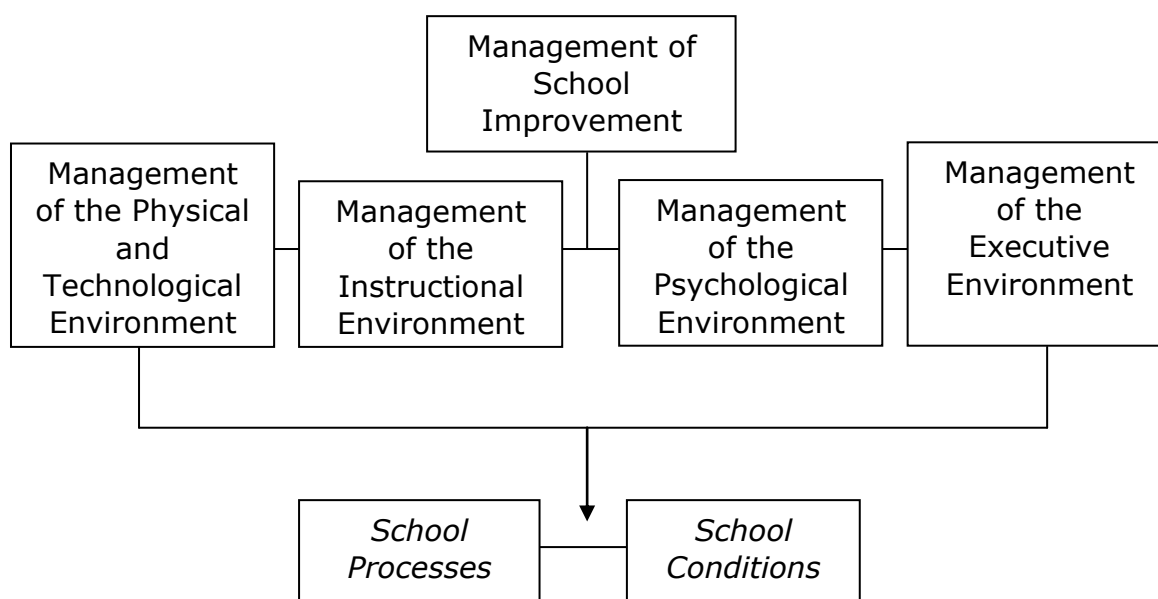
Fig.1 Management of school improvement: Employing the holistic approach

5. Developing a strategy for a higher school improvement

According to Fiddler (2002), management of school improvement is executed within a strategic planning framework, the initial stage of strategy formation including three elements:

- Evaluation of internal resources of the school and their utilisation.

- Evaluation of external influences on the school.

- Acknowledgment of the established school culture.

In the context of school improvement, evaluation of the educational environment might become one of the most important methods of transferring and accumulating organisational knowledge provided that we can identify a set of appropriate evaluation indicators – certain quality-related dimensions (including those associated with students' perception of the environment). Knowledge enhancement of the educational environment is the main prerequisite for introducing qualitative changes in the educational environment. Universities,

being "systems of learning" (Garcia, 2007), should promote knowledge exchange and new knowledge creation for constructing the environment conducive to learning.

We assume the following principles - transformative approach to learning, the idea of connections, the concept of transdisciplinary/interdisciplinary inquiry, meaningfulness, meta-learning, and the concept of community - can be successfully used in the process of managing a higher school improvement for enhancing organisational knowledge capabilities and introducing qualitative changes in the environment.

5.1. Transformative approach to learning

In the process of managing the educational environment, education managers deal with new knowledge creation as one of its outcomes. The continuous learning process may be represented in some knowledge conversion models (Nonaka, Nonaka & Takaushi cited in Gill, 2009):

- socialization – tacit to tacit knowledge conversion;

- externalization - tacit to explicit knowledge conversion;

- combination - explicit to explicit knowledge conversion;

- internalization – explicit to tacit knowledge conversion.

We assume that these knowledge conversion models are realized through several knowledge strategies:

- Planned knowledge transfer schemes including regular educational environment evaluation based on collecting student feedback.

- Unplanned knowledge transfer schemes; Meroño-Cerdan et al. (2007) call them "spontaneous initiatives", which incorporate teamwork, mentoring, etc.

- Internet communication-based knowledge transfer schemes; according to Meroño-Cerdan et al. (Ibid), they comprise decision support technologies and groupware.

These knowledge strategies are a good means of capturing what Bollinger & Smith (2001) called "collective intelligence" of the organisation. We presume that they can be effectively employed in the educational environment provided that the environment is a highly integrated system, and its subsystems are interconnected and mutually supporting.

5.2. The idea of connections

According to Bertolotti & Tagliaventi (2007), most organisational phenomena are mutually dependent. From a holistic viewpoint, the educational environment must be managed as an integrated system; achieving the environment's synergy facilitates quality enhancement and school improvement.

To accomplish the necessary synergy education managers must establish an efficient system of multi-level communications across the organisation, which is characterized by the following features:

- Knowledge is transferred across the educational environment through different social interactions.

- Enabling knowledge exchange and new knowledge creation in a collaborative environment demands applying a set of knowledge strategies.

- Knowledge can be transferred in the form of discussions, creating documents, teaching materials, etc. (Gill, 2009).

In the framework of multi-level communications, we establish tight connections between people of the organisation for developing four fundamental competencies (Liu cited in Gill, 2009): the competency of creating a common consensus, the competency of generating innovation, the competency of creating learning ability, and the competency of creating integration ability. The development of these competencies is absolutely necessary for providing a higher school improvement. It is closely associated with the idea of an educational organisation as an intellectual community.

5.3. The concept of community

Understanding of an educational organisation as an intellectual community is very significant in the context of modern holistic education. For generating an intrinsic motivation for studying (with the perspective of lifelong learning and continuous self-development) we should allow students to discover identity, meaning, and purpose of education through connections to the academic community.

Connolly & James cited in Saiti & Eliophotou-Menon (2009) acknowledge that collaborative working in the educational area demands the participation of every level within the organisation. Being university's stakeholders and consumers of educational services (Hallinwer & Snidvongs, 2008), students should also participate in decision-making. This demands establishing some "channels of effective customer communication" (ibid). Student feedback is an important source of analytical input for developing a strategy for school improvement with the aim to provide qualitative changes in the educational environment. It is recognised that understanding the customers' needs is now in the focus of quality management in education (Kettunen, 2008).

Engaging students in participative decision-making we motivate them as the intellectual community members and help them discover meaning in the process of learning. The learner-centred environment is evaluated against students' requirements so that we can discover what is really important for them.

5.4. Meaningfulness and meta-learning

Meaningfulness that goes in a copula with meta-learning may an efficient means of creating a learner-centred educational environment. In the process of managing a higher school improvement, we must address the following questions:

- How to encourage students to find meaning in what they learn and do?

- How to make an educational environment a community of shared concern?

- How to increase student motivation?

For motivating workers, managers use organisationally oriented and professionally oriented tools (Badawy, 2008). In the learner-centred educational environment, we may also employ as organisationally oriented as professionally oriented incentives aimed at engaging students in the educational environment both as active intellectual community members and self-motivated learners (Stukalina, 2010):

1. Organisationally oriented incentives include involvement of students in participative decision-making and quality assurance activities, increased support from teaching and attending staff for providing constructive atmosphere in the environment, enhanced support from ICTs for improving in-organisation communication, etc.)

2. Professionally oriented incentives incorporate enhanced support from educators in relation to professional activities, encouragements to publish and participate in conferences/seminars, increased use of ICTs for teaching and self-development, improved participation in professional activities, enhanced involvement in international exchange programmes, etc.).

Different motivation incentives are supposed to help students find meaning in what they learn, and take new social responsibilities in the academic community.

5.5. The concept of transisciplinary/interdisciplinary inquiry

Management of a higher school improvement is a complicated multi-level process that demands applying instruments from various disciplines. The interdisciplinary nature of managing modern school improvement is a response to the interdisciplinary nature and complexity of modern knowledge-based society.

According to Fiddler (2002), this process involves internal improvement initiatives that either directly or indirectly contribute to enhancement of student experience and outcome: organisational change philosophies (organisational development, cultural change programmes, learning organisation, Total Quality Management), and more limited management techniques (benchmarking, school self-evaluation, feedback from stakeholders, etc.). Fiddler (Ibid) emphasises that different combinations of management techniques are suitable for particular circumstances. The management process being a chain of management activities (Kettunen, 2008), we might employ integrated management procedures - knowledge management, fact-based management, information management, human capital management, etc. – to support innovative pedagogical tools based on the constructivist approach to education.

According to Hallinwer & Snidvongs (2008), knowledge management is "an especially ripe domain for use by school managers and leaders" in the context of school improvement and change. We think that knowledge management procedures should become the basis of pedagogical and managerial practices integration, knowledge management being a "strategic and systematic organisation-wide effort to plan, control and deploy resources" intended to provide learning across the organization and deliver a quality service to customers (Gill, 2009). Total Quality Management being associated with commitment to continuous improvement required by the consumer of educational services (Fiddler, 2002), knowledge management techniques conform well to TQM principles. Knowledge may be developed through regular data analysis in the form of the educational environment regular evaluation as part of school self-evaluation with emphasis on collecting student feedback.

Thus, several management strategies are supposed to sustain the process of a higher school improvement:

• Total Quality Management (managing the environment using customer focus)

• Fact-based management (managing the environment through collecting data from stakeholders)

• Human capital management (managing the environment through accumulating intellectual capital)

• Information management (managing the environment by creating, storing and sharing collaborative knowledge).

• Customer relationship management (managing the environment by applying educational practices aimed at providing student-centred learning/creating learner-centred school (Dyche cited in Hallinwer & Snidvongs, 2008), etc.

This list remains open: for coping with the complicated issues of managing a higher school improvement we should use a variety of management practices that are at our disposal (Fig.2).

```
┌─────────────────────┐
│    Higher School    │
│    Improvement      │
│     Initiatives     │
└─────────────────────┘
┌──────────────────────┐  ┌──────────────────────┐
│ Organisational Change│  │Integrated management │
│ Philosophies with the│  │and pedagogical       │
│ leading role of TQM  │  │procedures with the   │
│  (Customer focus)    │  │leading role of       │
│                      │  │Knowledge Management  │
└──────────────────────┘  └──────────────────────┘
          ↑                          ↑
        ┌─────────────────────────────┐
        │   Supportive Knowledge      │
        │        Strategies           │
        └─────────────────────────────┘
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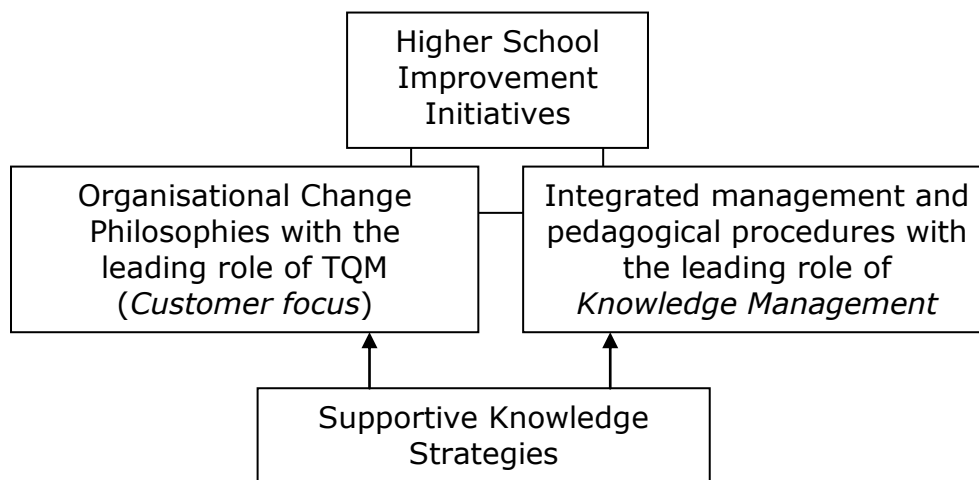
Fig.2 Framework of the strategy for a higher school improvement (Adapted from Fiddler, 2002)

In this framework, which is based on employing the six principles mentioned above, each educational institution can develop and use a set of educational and management practices aimed at quality enhancement of the organisation.

6. Conclusions

The present paper has discussed the importance of using the holistic approach to managing the educational environment that is a complex multi-level structure, whose entities are combined as holistic concepts. Thus, management of the educational environment occurs in different social situations and various contexts.

We have extended the idea of holistic education to some significant issues of managing a higher school improvement. The paper has provided the analysis of some management procedures that might be used in conjunction with innovative pedagogical instruments as part of a strategy for school improvement. From a holistic viewpoint, educational management needs multiple perspectives to be considered in the context of providing constant school improvement.

We have suggested a framework of the strategy for a higher school improvement that includes a number of internal improvement initiatives supported by some knowledge transfer schemes, which may comprise an efficient system of multi-level communications. This framework is based on the interdisciplinary approach to managing the educational environment.

We suppose that the following principles - transformative approach to learning, the idea of connections, the concept of transdisciplinary/interdisciplinary inquiry, meaningfulness, meta-learning, and the concept of community - can be successfully used in the dynamic process of managing a higher school improvement for promoting organisational learning. We view knowledge as key factor for providing quality enhancement of the educational environment.

Knowledge may be generated through the educational environment evaluation that is supposed to be one of the most important methods of creating, transferring and accumulating organisational knowledge. Student feedback is an important source of analytical input for developing a strategy for a higher school improvement. Involving students in participative decision-making we motivate them as the intellectual community members and help them discover meaning in the process of learning. The learner-centred environment is assessed against learners' requirements. This is essential in the context of providing continuous improvement required by the consumer of educational services.

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Educational computer games focused on self-regulation as a procedure to predict and improve preschoolers' ineffective learning behavior

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Abstract

The main research question is whether a computer game can function as an unobtrusive procedure to assess toddlers' learning behavior, by means of their mouse performances. Unresponsive (N=8), impulsive (N=8) and reflective (N=12) children were randomly assigned to an instruction-condition (computer-assisted instruction (CAI), adult-assisted-instruction (AAI), both or no instruction). After that, the children played a Dutch computer game focused on improving learning behavior (see: www.samenslim.nl). The preliminary results show that their learning typology corresponds to their mouse behavior. Reflective children show the best learning outcomes, followed by respectively unresponsive and impulsive children. However, no significant improvement was observed in repeats and reaction times during the sessions, although unresponsive children show a slight decrease in reaction times. CAI + AAI is the most effective instruction-condition for reflective children. However, AAI has a more positive effect on learning outcomes of ineffective learners.

Keywords: diagnostic instrument - ineffective learning - computer games - self-regulation - preschoolers.

1. Introduction

Effective learning is important for success in school. Adequate developed self-regulation strategies reduce the risk to a developmental delay. Preschool programs have proven to be efficient in boosting school readiness and even be a protective factor for children with family or environmental risk factors (Diamond, Barnett, Thomas & Munro, 2007; Gormley, Phillips & Gayer, 2008). In order to prevent or reduce ineffective learning strategies, children should be early taught learning-to-learn skills.

Especially for children who have difficulties with staying on-task or seeking help during traditional tasks, educational computer games might function as an adequate tool to teach specific learning-to-learn skills. Computer-games might therefore function as an efficient tool to improve learning behavior of preschoolers. Firstly, games are able to provide immediate and consequent feedback. Secondly, they are interactive and interesting for young children. Thirdly, they can also be easily implemented in classroom without costly interventions.

Proceedings 2nd Paris International Conference on Education, Economy and Society – 2010

1.1. Impulsive, unresponsive and reflective learners

Based on the reflection-impulsivity dimension (Kagan, 1965) children can be divided into reflective and impulsive learners. We also categorized another learning type, as a contrast of impulsive children: unresponsive children. Both impulsive and unresponsive children are ineffective learners and have deficiencies in their self-regulation skills. When they have difficulties, they do not seek help. They do not pay enough attention to instruction and they do not evaluate their own progress (Bornas, Servera & Llabrés, 1997; Newman, 1990; Stright & Supplee, 2002).

A variety of literature can be found on deficiencies of learning behavior of impulsive children. The main aspects that come forward are: finishing tasks quickly, making many errors, showing fast response times (they do not inhibit their behavior) and showing a high response uncertainty (e.g. Kagan, 1965; Wyatt & Fulton, 1987). In contrast to impulsive children, literature on unresponsive children is scarce. However, we defined unresponsive learners as children who do not actively seek instruction or help. They make almost no errors, and withhold their response too long and are more passive. In the middle of the continuum of impulsive and unresponsive children, we defined reflective children, the effective learners. They evaluate their progress, gather their information systematically, showing self-control and withhold their responds until they have a high probability of giving a correct answer (Bornas et al., 1997; Kagan, 1965).

1.2. Adult- or computer-assisted instruction

In the context of computer activities, two types of instruction can be defined: adult-assisted-instruction (AAI) and computer-assisted-instruction (CAI). Research (e.g. Jelsma & Pieters, 1989; Jelsma & Van Merriënboer, 1989) indicates that adequate instructional conditions may lead to better learning outcomes. Ineffectively learning children are able to show a more reflective strategy when instruction is focused on self-regulatory skills (e.g. Manlove, Lazonder, De Jong, 2007; Montague, 2007).

Both CAI and AAI can be individualized and focused on ineffective learning behavior. Empirical research shows that CAI is able to improve learning outcomes (Bornas et al., 1997; DuPaul & Eckert, 1998; Mautone, DuPaul & Jitendra, 2005; Ota & DuPaul, 2002). However, we could not find any studies on the relative effectiveness of individual AAI compared to CAI. Most literature is focused on independent seatwork tasks compared to CAI. These studies (with older than preschool children) indicate that on-task behavior, impulse control and attention of impulsive learners improves during CAI-tasks (DuPaul et al., 1998; Mautone et al., 2005; Navarro, Marchena, Alcade, Ruiz, Llorens, Aguilar, 2003; Slate, Meyer, Burns, & Montgomery, 1998). However, other studies emphasize the importance of mediation by an adult in supporting children's learning (Karpov, 2005; Elias & Berk, 2002). Therefore the question still remains

which type of instruction - adult or computer assisted - is the most effective in improving learning behavior. However, AAI is not always available. It is more time-consuming and less consequent than CAI. Computer-instruction may therefore be an adequate tool, not to fully replace the teacher, but to fill up the traditional educational program. This ends up in the research question whether CAI is equally effective as AAI. Secondly, if CAI is effective, is it equally or more effective than AAI for unresponsive and impulsive children?

1.3. The present study

In this study we are trying to discover information on the different learning outcomes per learning type in the four feedback conditions, in order to investigate whether a computer game is able to distinguish children's learning behavior that corresponds to their learning style. In doing so we will have produced an unobtrusive instrument for assessing ineffective learners. This study is a part of a more extensive study of the same object. Here we analyze a small number of infants as a multiple case study. Learning outcomes will be defined into six mouse characteristics, see Table 1.

Table 1
Hypotheses concerning learning outcomes between three types of learners

Learning outcome	Hypothesis
Amount of trials	Impulsive ≈ Unresponsive > Reflective
Slopes of performances	Reflective > Unresponsive ≈ Impulsive
Reaction time	Unresponsive > Reflective > Impulsive
Frequency of repeats	Impulsive > Reflective ≈ Unresponsive
Duration of mouse movements	Unresponsive > Reflective > Impulsive
Distance of mouse movements	Impulsive > Reflective > Unresponsive

We expect that all three types of learners show different performances that correspond to their daily learning behavior. Unresponsive children show the slowest reaction times and the longest duration of movements compared to reflective learners (unresponsive learners only move relatively precisely and carefully with the mouse, but do not click). Impulsive children show the fastest reaction times, the most repeats (because of ineffective problem solving strategies) and shortest duration of movements. However, we expect that impulsive learners show the largest distances of mouse movements, since they behave more impulsively and wildly than unresponsive and impulsive learners.

Secondly, we hypothesize that the aforementioned learning outcomes will be different in the four instruction conditions, see Table 2. Unresponsive children who only receive CAI may show better performances than in the AAI-condition, since they do not have to seek help from an adult and receive immediate instruction from the computer. For impulsive children it is expected that AAI is more efficient than CAI, because of the flexibility, the emotional and social aspects that are needed to slow down the fast responses.

Table 2
Hypotheses concerning learning outcomes between four instruction-conditions

Learning type	Hypothesis
Unresponsive	CAI + AAI > CAI > AAI > No instruction
Reflective	CAI + AAI ≈ CAI ≈ AAI > No instruction
Impulsive	CAI + AAI > AAI > CAI > No instruction

2. Method

2.1. Participants

28 (12 male, 16 female, calendar age in days M =1284, SD =142.77) Dutch preschool-children living in the northern area, participated in this study. On a scale for maternal educational level, categorized from no education (1) until university (8), the mean level was 6.03 (SD 1.42), implying mostly middle class families. The mean level of raw scores on the subtest 'Language comprehension' was 38.29 (SD 2.49). None of the participants had received information on the aim of the game.

2.2. Design

To determine the learning type of individual children, preschool-teachers, parents and a trained rater received a questionnaire. This questionnaire consisted of descriptions of behavior of typical unresponsive, reflective and impulsive children. The raters had to categorize each individual child into the best fitting category according to their daily learning behavior. After categorization, each child was randomly assigned to one of the four instruction-conditions: (no) adult (AAI) and/ or (no) computer-assisted instruction (CAI) (see Table 3).

As discussed in 1.3 this study is a subset of an extensive study of 184 children. 145 children were selected with normal scores on the Mullen Scales of Early Learning subscale 'Language comprehension'. From these 145 children, two or three children of each learning type per instruction-condition were randomly selected for this analysis.

Table 3
Experimental design

Learning type	No instruction	AAI	CAI	CAI + AAI	Total
Unresponsive	2	2	2	2	8
Reflective	3	3	3	3	12
Impulsive	2	2	2	2	8
Total	7	7	7	7	28

2.3. Procedure

Each child played two or three computer-game-sessions (dependent on their performances) during two or three weeks in a quiet room at the playgroup. In case of no-AAI, a supervisor was present only for technical help like starting and ending the game. In the AAI-condition, the trained supervisor assisted the child if necessary, but only with adaptive hints or stimulating instructions, e.g. "You first have to move, then you must click on the object.". After completing a maximum of seven computer games during one session, the child was assisted to the classroom.

2.4. Instruments

Type of learning style.   The type of learning behavior (unresponsive, reflective or impulsive) was identified on the basis the scores of the three (or two, in case of a missing or disagreed rater) a priori ratings from the parents, preschool teacher and a trained rater (see Table 3). 96% of the 184 participating children in the extensive study, were rated consistently between at least two raters (p=.00). The percentage agreement between teacher and the trained rater was 70% (p=.00), between teacher and parents was relatively low 49% (p=.42) and between trained rater and parents was also relatively low 60% (p=.09). This means that especially parents found it difficult to score their child's learning type.

Developmental age.   The level of language comprehension of each child was measured with the subtest of the Dutch version of the Mullen Scales of Early Learning (AGS Edition).

Learning behavior during computer tasks.   Individual mouse-data (e.g. amount of clicks per game, (in)correct object clicks) of each game were collected automatically during playing on www.samenslim.nl, resulting in a continuous measurement of the children's level of knowledge and skills. Mouse-skills were practiced with a trained supervisor. The child had to practice until he was able to control the mouse. The samenslim-game (see the website) consists of five increasingly complex levels, each of which has nine games in three different settings (park, farm and living room). A standardized decision model determines whether a child can progress to a higher level or has to go back to a lower level. Every child starts at the lowest level (one) and depending on how well he or she plays, reaches the highest level (five) sooner or later.

2.5. Analysis

Six main specific variables were selected from the automatically registered mouse-data.

1. **Reaction times.** The reaction time is the time between the beginning of the first clicking moment (see Figure 1) and the first (in)correct mouse click. The maximum reaction time is 15 seconds.
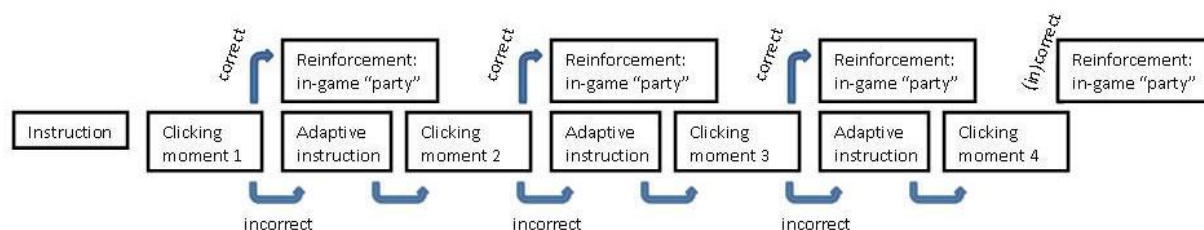
Figure 1. Construction of the game

2. **Duration of mouse movements.** The average duration in seconds of mouse movements during all games.

3. **Distance of mouse movements.** The average distance in pixels of mouse movements during all games.

4. **Frequency of repeats.** A repeat is defined as two or more clicks on the same wrong object during one game. If a child clicks (more than) twice on the same wrong object on two or more clicking moments during one game, this is scored '1', and in case of no repeats it is scored '0'.

5. **Slopes of performances.** The amount of games needed to achieve the highest level ($L_{max}=5$). For instance, a child who reaches level three within fourteen games, has a slope of 3/14; $S_{max}=1$.

6. **Trials.** Total amount of clicking moments that a child needed to finish a game ($T_{max}=4$).

Finally, each variable was divided by the total amount of games that the child has played.

By linear regression the average amount of trials and the slopes of performances were corrected for calendar age. This means, the fewer the trials, the better the skill and the smaller the slope, the worse is the skill. Therefore, a negative score on the average amount of trials means that the child performed better than expected for his calendar age. A negative score on slopes of performances means that the child performed worse than expected for his calendar age.

The statistical procedures consisted of descriptive analyses (performed in Microsoft Excel) and permutation tests (Monte Carlo analysis (Good, 1999; Todman & Dugard, 2001) performed in Poptools (Hood, 2008)). The Monte Carlo analysis is particularly efficient to analyze data that are not normally or regularly distributed. Each significance test was based on 1000 simulations. Effect sizes are expressed as proportions of standard deviations. The data concerning learning patterns were smoothed with a Savitzky-Golay-smoothing technique (Simonoff, 1996).

3. Results

3.1. Comparison of performances of three learning types

Figure 2 and Table 4 demonstrate that reflective children show the best learning outcomes (the highest slopes of performances and the lowest amount of trials needed), compared to impulsive and unresponsive children. However, unresponsive children perform significantly better (they show higher slopes of performances and need fewer trials) than impulsive children.
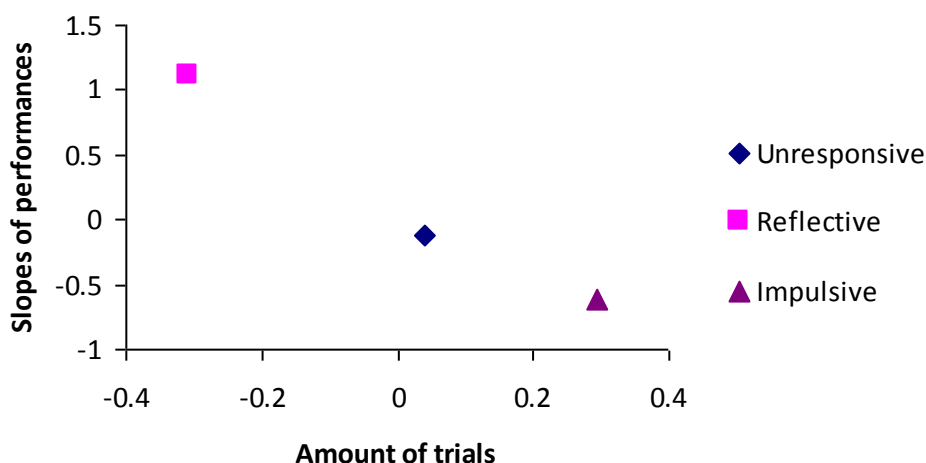
Figure 2. Averages of the corrected slopes of performances per learning type

Table 4
Effect sizes of the differences between learning types

Hypothesis	Effect size	p
Reflective > Unresponsive	.49	.014
Unresponsive > Impulsive	.28	.003
Reflective > Impulsive	.77	.000

The average reaction time per game during the first clicking moment is presented in Figure 3. Significant differences can be observed between the combined slopes or performances and amount of trials of the learning types (see Table 2). Unresponsive children show the slowest reaction times (M = 12.95; p=.000). Slightly faster reaction times of unresponsive children are visible during the last games. Impulsive children show in general the fastest reaction times (M = 5.44) compared to reflective children (M = 6.95; p=.001). However, the difference between impulsive and reflective children is smaller during the last games.
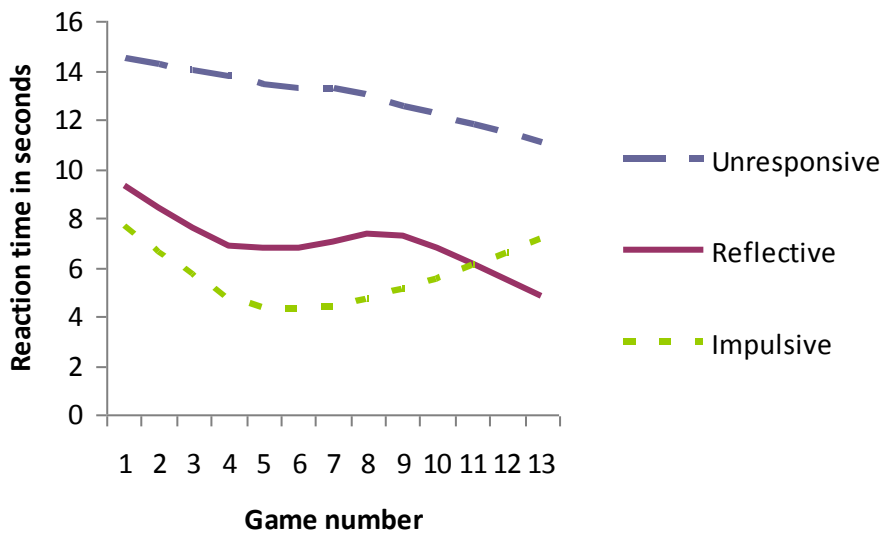
Figure 3. Averages of reaction times during the first clicking moment per game per learning type

No significant differences can be found in the duration and distance of mouse movements between the three learning types, see Figure 4 and 5. Also no improvement of duration or distance (a decrease for unresponsive or impulsive children) is visible during the games. However, Figure 5 demonstrates a slight increase of distance for all children.
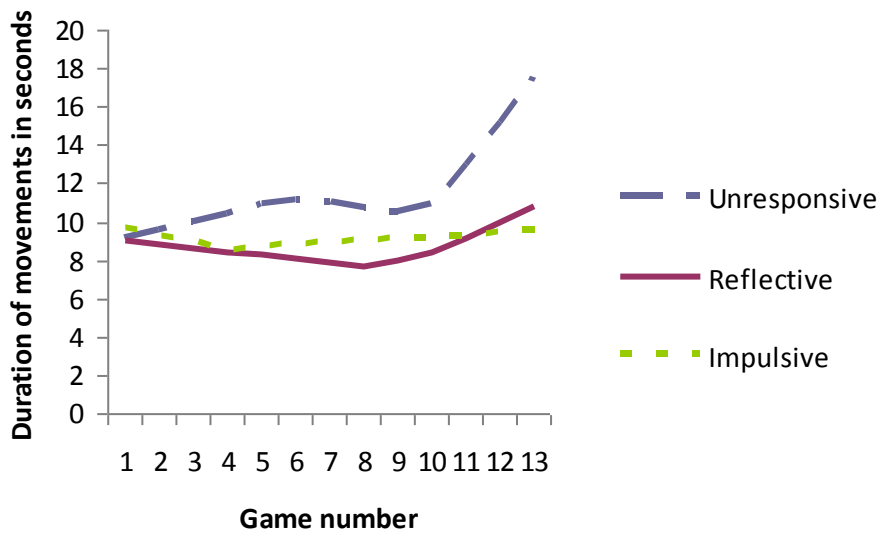
Figure 4. The average duration of mouse movements per game per learning type
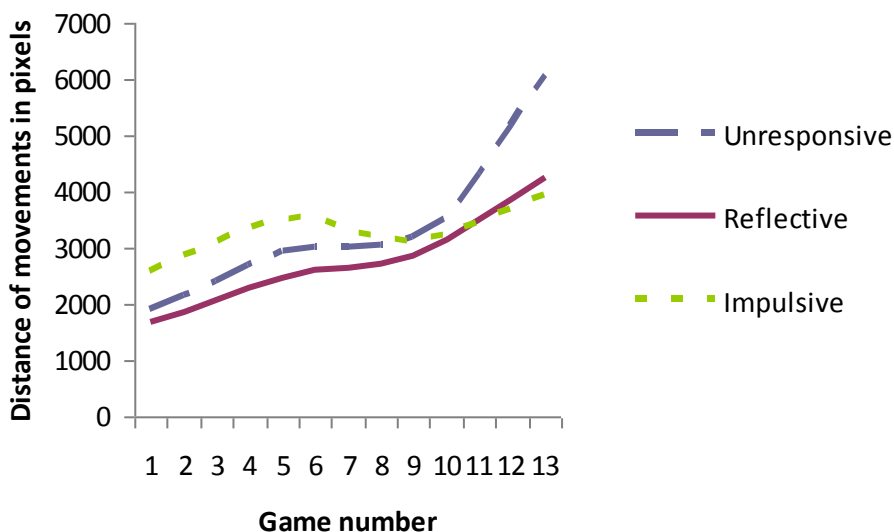
Figure 5. The average distance of movements in pixels per game per learning type

The frequency of repeats indicates that the more repeats, the worse the problem solving strategy. Figure 6 demonstrates that impulsive children show on average significant more repeats than unresponsive and reflective learners (.000). Unresponsive children show in the beginning no repeats at all. During the games reflective children show no significant more repeats than reflective children (.160). However, during the games they show, like unresponsive children, an increase of repeats.
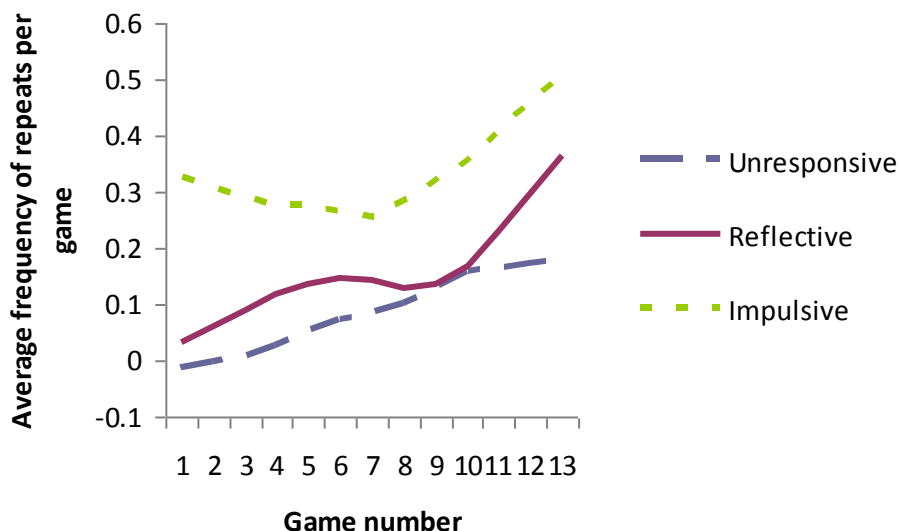
Figure 6. The average frequency of repeats per game per learning type

3.2. Comparison of performances between four instruction conditions

The learning outcomes of the three learning types per instruction-condition are investigated in this section. We analyze reaction times, frequency of repeats,

slopes of performances and the amount of trials of the three learning types in the four instruction-conditions. Since duration and distance do not seem to correspond to the type of learning behavior (see paragraph 3.1), we did not compare these mouse characteristics.

Reflective children show the best learning outcomes in the CAI + AAI-condition (see Figure 7 and 8; Table 5), compared to ineffective learners. AAI is the most effective way of instruction for both impulsive and unresponsive learners. In contrast to these learners, reflective learners show worse performances during AAI and do profit more in the CAI-condition. Furthermore, it is striking that the No-instruction-condition is sometimes more effective for ineffective learners than CAI.
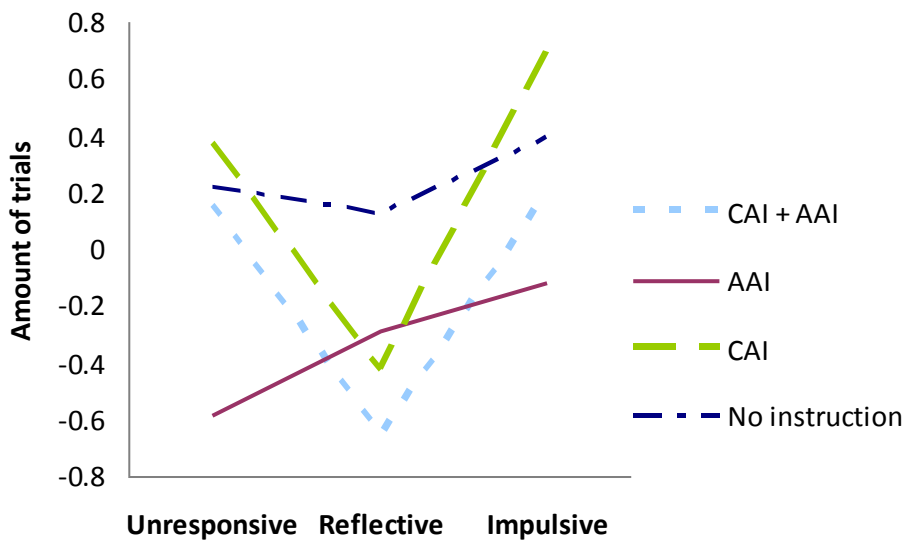
Figure 7. The average amount of trials of the three learning types in four instruction conditions
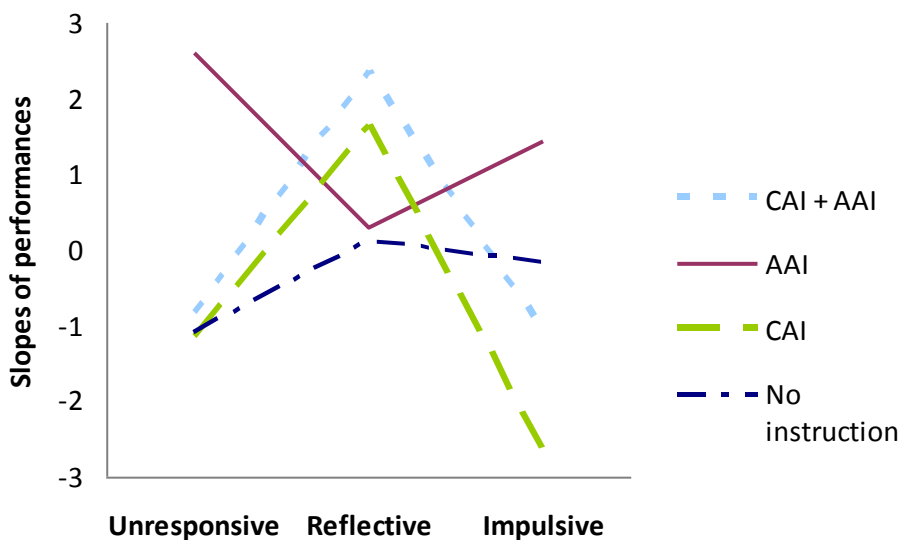
Figure 8. The average slopes of performances of the three learning types in four instruction conditions

Table 5
Results of permutation test, categorized into instruction-condition

Hypothesis	Learning type	Effect size	p
AAI > No instruction	Unresponsive	1.30	.000
CAI + AAI ≈ CAI	Reflective	.30	.000
CAI ≈ AAI	Reflective	.36	.056
AAI > No instruction	Reflective	.33	.020
AAI > CAI	Impulsive	1.39	.000

It is striking that the reaction time (see Figure 9; Table 6) of reflective children varies the most between the instruction-conditions. In the No instruction-condition, reflective children seem to wait to react. In the CAI-condition, reflective children show the best (fastest) response times. For impulsive children, CAI causes the best (slowest) reaction times. On the contrary, unresponsive children show in the CAI-condition the best (fastest) reaction times.
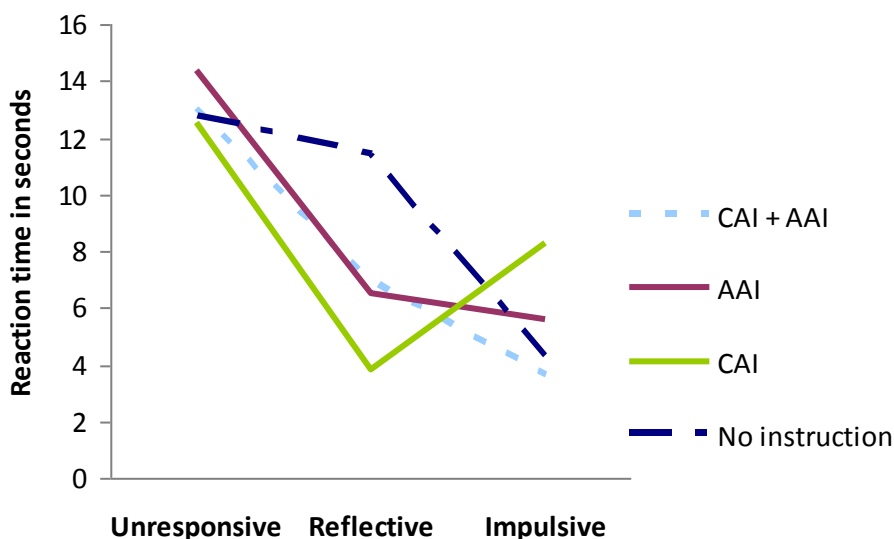
Figure 9. Reaction time during first clicking moment per learning type and per instruction condition

Table 6
Results of permutation test concerning reaction time, categorized into learning type

Hypothesis	Learning type	Effect size	p
CAI > No instruction	Impulsive	1.00	.032
CAI + AAI > No instruction	Reflective	1.12	.005
AAI > No instruction	Reflective	1.21	.001
CAI > No instruction	Reflective	1.90	.000
AAI ≈ CAI	Reflective	.69	.045
CAI + AAI ≈ AAI	Reflective	.09	.425
CAI + AAI ≈ CAI	Reflective	.78	.023
CAI > AAI	Unresponsive	.47	.160

The amount of repeats is the highest in the No-instruction-condition for impulsive children (see Figure 10; Table 7). However, for reflective children, the No-instruction-condition is the most effective. It is also striking that unresponsive children show the highest amount of repeats in the CAI + AAI-condition.
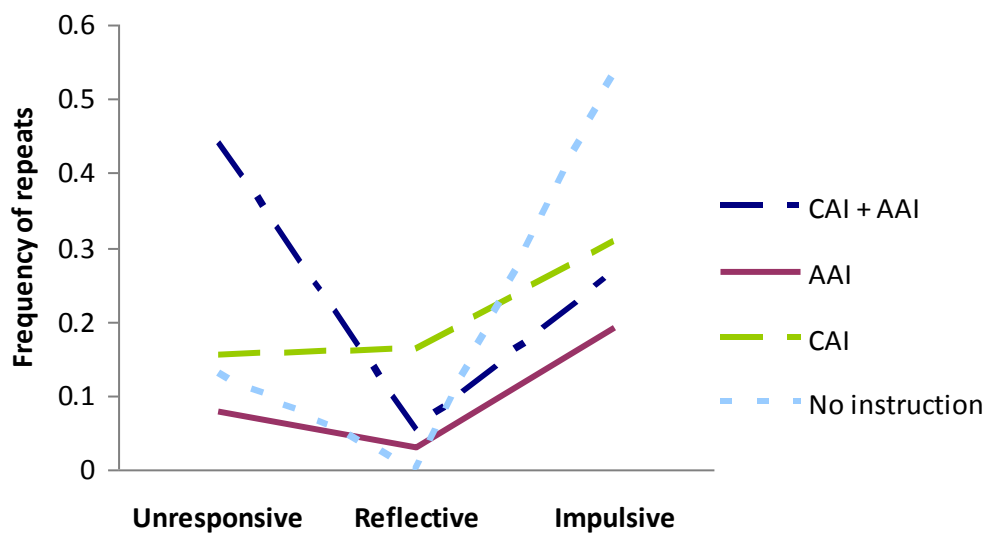
Figure 10. Frequency of repeats per game per instruction condition'

Table 7
Results of permutation test concerning repeats, categorized into learning type

Hypothesis	Learning type	Effect size	p
CAI > No instruction	Impulsive	.49	.928
AAI > No instruction	Impulsive	.73	.004
CAI + AAI > No instruction	Impulsive	.57	.122
AAI > CAI	Impulsive	.24	.590
CAI + AAI > CAI	Impulsive	.08	.486
CAI + AAI ≈ CAI	Reflective	.44	.677
CAI + AAI ≈ AAI	Reflective	.10	.464
AAI > No instruction	Unresponsive	.13	.509
AAI > CAI	Unresponsive	.19	.808

4. Discussion

To explore the question whether a computer game can function as an unobtrusive procedure to assess children's learning behavior, this study analyzed effectively and ineffectively learning preschoolers during playing an educational computer-game.

The findings support our hypothesis that the three types of learners show different performances that correspond to their habitual learning behavior. Impulsive, reflective and unresponsive children show different slopes of performances, need a different amount of trials and show different reaction times. However, compared to unresponsive children, impulsive children perform significantly worse. Impulsive children also show significantly more repeats than the other learners. The findings are in line with the theory that reflective children show more effective learning behavior than unresponsive and impulsive learners, for instance better problem solving strategies and show adequate reaction times (Bornas et al., 1997; Kagan, 1965). The slow responses of unresponsive children are also in line with the expectation that these children withhold their response too long. However, duration and distance of mouse movements do not differ

between the three learners. This might indicate that distance and duration of mouse movements do not correspond to the type of learning behavior, but are dependent on the level of development of fine motor skills (e.g. Kerr, 1975; Phillips & Triggs, 2001).

None of the learning types showed significant improvement. The fast reaction times of impulsive learners did not slow down. However, the reaction time of unresponsive children slightly decreased during the sessions. Also duration and distance did not improve significantly during the game sessions. Although we expected improvement during playing a computer game focused on ineffective learning behavior (e.g. DuPaul et al., 2003), learning behavior did not improve during the sessions.

Our second hypothesis was that the learning outcomes between the three types of learners would be different in the four instruction conditions. The findings concerning reflective children were mainly in line with our hypothesis. They show on average the best slopes of performances and the lowest amount of trials in the CAI + AAI and CAI-condition and the worst performances in the No-instruction-condition. However, the reaction time was highest in the CAI-condition, where there was no adult involved. In the CAI- condition, they also showed more repeats. Perhaps they reacted too fast and because of that they made more repeats. In general, reflective children seem to perform the best in the CAI + AAI-condition.

The results also demonstrate that unresponsive and impulsive children perform the best in the AAI-condition. This is in line with the hypothesis that these ineffective learners need the social and emotional aspects of an adult to channel their learning behavior (Karpov, 2005; Elias et al., 2002). This indicates that adapted instruction only from a computer is not sufficient. In the No-instruction condition, impulsive learners showed the most ineffective problem solving behavior (the highest frequency of repeats) compared to the other instruction-conditions. This indicates that instruction, irrespective of what kind (CAI and/ or AAI), seems to have a (small) positive effect on ineffective learning strategies. For unresponsive children we can conclude that they also show the best learning outcomes in the AAI-condition. However, they basically show the same slopes of performances and amount of trials in the other three conditions (CAI, CAI + AAI or No-instruction). This means that we can not distinguish the effectiveness of these conditions. Furthermore, unresponsive children show in all conditions too slow reaction times.

Since this analysis was a multiple case study, it provides rich, detailed information on learning behavior of effective and ineffective learners. However, generalization requires more research with more complexity levels of games than used in this study (some of the games were too easy for some children and were thus less motivating for them). We also wonder whether children with relatively low scores on, for instance, language comprehension and fine motor skills will show similar profit from playing the game as do children with more advanced skills and probably better listening skills. In addition, it is also necessary to study the long term effects of educational computer games focusing on improving learning behavior and its generalization to other educational tasks.

In summary, the finding of significant differences in mouse behavior of three learning types, allows us to conclude that an educational computer game can serve as an adequate and unobtrusive procedure to assess types of learning behavior in a context that is both interesting and enjoyable for preschool learners. However, the question still remains whether this game (with more complexity levels and more game sessions) is able to improve learning behavior in the long run.

Finally, CAI has a substantial effect on already effective learners. However, we can conclude that with adequate AAI, ineffective learners will also profit from adaptive, educational computer games focused on ineffective learning behavior.

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La surconsommation et la non-durabilité. Analyse d'une expérience éducative à l'Université pour une consommation responsable et solidaire

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Résumé

La surconsommation actuelle crée une société où les gens profitent de plus de confort, mais les conséquences en sont les coûts sociaux et environnementaux. Cependant, peu comprennent le rapport entre habitudes quotidiennes et crise socio-environnementale locale et globale dans laquelle nous sommes. Notre style de vie et notre comportement sont à l'origine de ces phénomènes socio-économiques. C'est pourquoi il faut donner aux citoyens –consommateurs-, une information adéquate afin d'éviter la surconsommation. L'éducation joue un rôle essentiel, car elle doit former des personnes responsables, critiques et respectueuses de l'environnement. Pour y parvenir, nous avons développé et analysé une stratégie didactique basée sur une approche constructiviste qui vise à conscientiser, augmenter les connaissances et rendre les étudiants universitaires capables de consommer de façon responsable, durable et solidaire. Les résultats de notre analyse seront ensuite présentés.

Mots clés
Consommation – Durabilité - Expérience éducative à l'Université.

1. Introduction. Les principes actuels de consommation ne sont pas viables

Dans les sociétés industrialisées et développées économiquement, les personnes disposent de beaucoup plus de confort que leurs ancêtres. Ces sociétés se caractérisent par le fait qu'elles produisent des biens de consommation, et que leur système se base sur la croissance économique continuelle et sur une consommation plus élevée ; à tel point que l'acquisition et la "rénovation" des biens acquis devient la valeur sociale la plus prestigieuse, et la rapidité de ce renouvellement devient la marque par excellence du statut social de chaque individu-consommateur. C'est la société de consommation de masse.

On peut affirmer que le modèle actuel de production et de consommation de notre société a de graves conséquences sur l'environnement, car la plupart des problèmes de dégradation de l'environnement trouvent leur origine dans des phénomènes socio-économiques causés par notre style de vie et notre comportement (Riechmann, 2009). L'augmentation des inégalités, la surexploitation de la nature et la production continue et incontrôlée de déchets (GEO-4, 2007), démontrent clairement la non-durabilité du modèle économique actuel et le besoin urgent de changer les principes de comportement.

La passion pour la consommation, aussi appelée surconsommation ou « consumérisme », est une manifestation pathologique de la société contemporaine. La croissance précipitée de la consommation au cours des dix dernières années et les bouleversements qui en découlent laissent penser que le monde va se retrouver d'ici peu face au grave dilemme de dégradation socio-environnementale (Worldwatch Institute, 2009).

Le rythme de consommation des pays industrialisés est d'une telle envergure que, selon le dernier Global Footprint Network (2008), il nous faudrait l'équivalent de 1,3 planètes Terre pour survivre, et 2 planètes Terre en 2050 si la tendance de consommation se maintenait au rythme actuel. Toutefois malgré des dangers de plus en plus visibles, il ne semble pas que le train de la consommation ralentisse. La surconsommation généralise une culture de l'achat qui ne s'intéresse pas à nos possibilités et à nos besoins. Parfois même, cette culture de la surconsommation essaie de remplacer sans succès nos besoins affectifs en rendant normale, en plus, l'idée que la consommation de biens et de services est la solution à tous nos problèmes.

2. Surconsommation et publicité

Le lien entre surconsommation et publicité est clair. La production en masse de biens exige également une vente en masse et celle-ci est seulement possible grâce à la publicité[141]. Il s'agit d'augmenter la demande ou bien de la créer.

Le besoin d'attirer de nouveaux clients constitue pour les entreprises un puissant appât qui les conduit à développer tout un arsenal de nouvelles formules conçues pour stimuler la demande, et nombreuses sont celles qui exploitent les besoins physiologiques, psychologiques et sociaux des êtres humains. Par le biais de la publicité, les fabricants essaient d'informer sur leurs produits, de créer des besoins , d'imposer des modes, d'introduire de nouveaux produits et d'orienter les différents groupes vers une consommation continue qui augmente de façon excessive la consommation nécessaire et d'une façon intense la consommation superflue.

La publicité joue un rôle clé dans la diffusion des valeurs de surconsommation. Elle représente une réalité toute puissante qui constitue presque la seule forme de communication à laquelle on ne peut échapper. Sa force est telle que nous ne pouvons nous en libérer ni nous en passer. On peut repérer sa présence facilement dans tous les médias : la presse, les revues, la radio, le cinéma, la télévision, l'internet, les panneaux publicitaires, le porte-à-porte..., la quasi-totalité des moyens de communication en est imprégnée, et elle affiche, de plus, ses meilleures qualités communicatives.

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[141] La publicité a non seulement comme fonction économique d'augmenter la consommation mais elle a aussi d'autres fonctions. Quand elle remplit les fonctions fondamentalement économiques ou commerciales, on parle plutôt de publicité, et, lorsqu'il s'agit de diffuser des idées, des doctrines ou des croyances, on préfère le terme de propagande.

Il n'y a rien de plus éloquent que l'augmentation effrénée des investissements dans la publicité, en particulier dans les pays développés, où un citoyen reçoit plus d'une incitation ou message de consommation par minute. Cela conditionne en quelque sorte notre conduite !

1000 messages par jour nous incitent à acheter des articles dont nous n'avons pas besoin. Comme l'a dit le cinéaste Guerin, *l'air que nous respirons est composé d'oxygène, d'azote et de publicité*. Nous sommes plongés dans la surconsommation qui se nourrit de l'influence de la publicité et cette dernière se base sur des idées aussi fausses que le bonheur dépend de l'acquisition de produits. On peut dire que le phénomène de la surconsommation est parallèle au développement des médias et que ces deux faits sociaux interagissent et s'alimentent mutuellement.

Par ailleurs cette obsession agressive pour une société de consommation de masse crée aussi une détérioration parallèle des indicateurs de santé de nombreux pays « développés », car les « maladies de la consommation » augmentent sans arrêt (tabagisme, obésité...) et diminuent donc la qualité de vie de la population.

3. Rôle de l'éducation

Si les désirs de consommation des pays les plus riches sont insatiables, il y a peu d'espoir de freiner la consommation dans le reste du monde avant que la planète ne s'appauvrisse et ne se détériore pour atteindre des limites dévastatrices.

Il existe, cependant, de nombreuses raisons d'espérer, car si chaque acte de consommation contribue à transformer l'environnement, les consommateurs sont un facteur clé pour redéfinir un modèle de société qui contribue à la durabilité en changeant leur manière d'agir. Nous devons encourager la vigilance quant à la publicité et aux discours persuasifs sur la consommation. Il est donc nécessaire de changer de façon drastique nos principes de production et de consommation. Néanmoins, peu connaissent le rapport entre les habitudes quotidiennes et la crise environnementale locale et globale dans laquelle nous sommes plongés et, d'autre part, une grande partie de la population des pays industrialisés – les plus grands consommateurs – a pris conscience de l'importance d'agir durablement. Mais le problème est que cet intérêt existe en parallèle avec un sentiment d'impuissance et d'incapacité à adapter des comportements concrets (Jensen, 1993; Uzzel, Rutland & Whistance, 1995). Il est donc indispensable de donner aux citoyens – consommateurs – une information adéquate leur permettant d'agir durablement en lien à la « surconsommation ». Pour y parvenir il faut évaluer de façon critique non seulement « combien » mais aussi « comment » on consomme.

L'éducation joue un rôle essentiel dans ce processus. La communauté éducative doit se rapprocher du monde de la publicité pour former des consommateurs avertis, critiques et autonomes. L'éducation doit éviter que la publicité « ne diminue les défenses » face à la consommation superflue, ce qui peut être obtenu si on dote les millions de consommateurs d'une conscience critique vis à

vis de la consommation, en leur fournissant une information adéquate et en les rendant capables de prendre des décisions qui à leur tour se traduisent par des actions en accord avec un style de vie qui favorise une consommation responsable, solidaire et durable (rationnelle et écosélective). Pour y parvenir il faut associer la théorie et la pratique éducative, à partir de méthodologies actives, participatives et intégratrices.

Afin de contourner cette difficulté, nous avons développé une stratégie didactique de recherche et de base constructiviste (Álvarez & Vega, 2009a) qui tout en rapprochant la théorie et la pratique, vise à faire prendre conscience et à former nos étudiants (des enseignants en formation) pour une consommation responsable et solidaire[142], en les plongeant dans la résolution de problèmes réels et concrets au lieu de les limiter à la simple discussion d'éventuelles solutions (Vega, Álvarez, Freitas & Fleurí, 2007).

Dans le cas concret de l'exemple posé pour illustrer son développement (*Pollution mentale*), les étudiants sensibilisés aux répercussions doivent être capables d'agir, individuellement et collectivement, face à la pression de la société (publicité, modes...). Elle pousse à une surconsommation qui devient, à son tour, la cause d'importantes dégradations environnementales et parfois même la cause de dommages sur notre santé (tabac, alcool, fast-food...), sans parler de la discrimination économique de certains secteurs ou groupes aussi bien dans notre entourage que dans de nombreux endroits de la planète.

4. Brève description de l'expérience éducative « Pollution mentale »

Nous visons, avec cette série d'activités à exercer une influence sur l'inertie imposée par le système, afin de modifier le sens de ce courant de façon que nos étudiants soient pleinement conscients et responsables des effets de nos actions de consommation, afin d'aller vers des formes de vie conformes, intégrées et respectueuses de l'environnement et des personnes. Afin de chercher, en définitive, « l'optimisation de la consommation » et non pas la « diminution du

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[142] Nous utilisons l'expression « consommation responsable » car, à notre avis il est plus facile de la visualiser et de la comprendre plutôt que l'expression « consommation durable » - telle qu'elle a été définie lors de la *Table Ronde sur Production et Consommation durable*, organisée à Oslo, en février 1995 -, puisque la première ne suppose pas la réduction des niveaux de consommation. Nous considérons donc la consommation responsable et solidaire, celle qui remplit les conditions suivantes :
-   elle doit comporter des améliorations réelles dans la qualité de vie des gens, tout en diminuant la consommation ;
-   elle ne doit pas compromettre les chances et la capacité de consommation nécessaire des générations à venir ;
-   elle doit prendre en compte les critères de redistribution entre zones et collectifs pour obtenir une distribution plus juste et équitable.

bien-être », sans oublier que l'augmentation de la consommation n'entraîne pas forcément une amélioration de la qualité de vie. Voici les objectifs visés :

• Lever le voile sur la consommation, renseigner sur les effets contraires de la consommation sur la nature et sur la société, aussi bien au niveau local que global, pour encourager une consommation responsable et solidaire.
• Dénoncer toute forme de publicité sexiste, violente, trompeuse, vexatoire ou manipulatrice, pour promouvoir une éducation analytique face à la publicité et aux médias.
• Dénoncer les régimes alimentaires typiques des pays « développés » (trop riches en protéines animales), pour revenir à la diète méditerranéenne.
• Bâtir une culture de la consommation avertie, critique et éthique, respectueuse de l'équité et des limites de notre planète et enrichissante du point de vue social.

Le matériel stimulant utilisé fait référence à l'influence exercée par la publicité sur notre consommation superflue (« pollution mentale ») et ses impacts sur l'environnement, complété par l'impact environnemental et sur la propre santé du modèle dominant d'alimentation dans les pays occidentaux (consommation excessive de produits dérivés de la viande), et par la détermination de l'empreinte écologique (Wackernagel & Ress, 2001) personnel et de son entourage, ainsi que par le *sac à dos écologique* (Ritthoff, Rohn & Liedtke, 2002) d'une paire de jeans.

Ces hypothèses ayant déjà été développées dans d'autres travaux (Vega & Álvarez, 2006 ; Álvarez & Vega, 2009b), nous allons simplement signaler que l'ensemble des étudiants a été divisé en groupes de 4 ou 5. Chaque groupe a reçu un texte-résumé sur la problématique à traiter, les objectifs de la « recherche », une liste des activités à effectuer et, le cas échéant, les considérations préalables à prendre en considération lors de leur mise en œuvre.

Les groupes étaient organisés périodiquement dans des modules de supervision établis auparavant lors des réunions générales. Les enseignants ont rempli la fonction de directeurs-coordinateurs du processus d'apprentissage des étudiants, tout en travaillant sur l'orientation du travail de chaque groupe, sur la coordination des mises en commun et fournissaient des informations lorsque cela était nécessaire.

5. Analyse et évaluation de la stratégie didactique

5.1. Méthode

Suivant la perspective constructiviste assumée par la stratégie didactique que nous voulons évaluer, il faut tout d'abord connaître la situation de départ des étudiants, vis-à-vis de leurs connaissances conceptuelles, de leurs attitudes environnementales et de leur intention de mettre en œuvre des comportements durables (réduire leur consommation superflue et leur empreinte écologique personnelle). Cette stratégie deviendra non seulement le point de départ de leur

apprentissage, mais aussi de référence pour évaluer le changement conceptuel, attitudinel et comportemental (intention de conduite) que cette stratégie a sur eux.

5.2. Participants

94 sujets ont participé à cette recherche, des enseignants en formation, de l'Université de La Coroge (Espagne), inscrits en Didactique de l'Éducation Environnementale pour l'année scolaire 2008-2009 à la Faculté des Sciences et de l'Éducation. Parmi ces individus, on comptait 71 femmes (75,53%) et 23 hommes (24,47%), avec une moyenne d'âge de 21,1 ans (déviation typique 0,936).

5.3. Matériel et procédé

Trois étapes ont été nécessaires pour la vérification du fonctionnement du modèle d'intervention :

1. *Pré-test* : Au début de l'année scolaire on a fourni à l'ensemble des participants un dossier constitué de :

a) une échelle d'attitudes environnementales envers la consommation, préalablement réalisée et validée (Álvarez, P., De la Fuente, E. I., Fernández, M. J. & García, J., 2002) ;
b) un questionnaire préalablement validé de dix questions ouvertes, pour connaître les connaissances de départ sur l'environnement, des problématiques environnementales et de consommation (Álvarez, P., De la Fuente, E.I., Perales, F.J. & García, J., 2002) ;
c) une échelle d'intention de conduite vers une consommation durable et vers la réduction de l'empreinte écologique personnelle, élaborée *ad hoc* pour ce projet de recherche (Annexe).

2. Traitement expérimental : mise en œuvre des expériences afin de déclencher une consommation responsable et solidaire.

3. *Post-test :* à la fin de l'année scolaire, on a remis aux participants un nouveau dossier pour vérifier s'il y avait eu variation de leurs connaissances, de leurs attitudes environnementales et par rapport à la consommation superflue, ainsi que leur intention de conduite orientée vers la consommation responsable et solidaire et, le cas échéant, si cette variation était statistiquement significative.

Le temps consacré à l'administration des questionnaires a été de 45 minutes, aussi bien pour le pré-test que pour le post-test.

5.4. Analyse des données et des résultats obtenus

Les données collectées ont été analysées avec les logiciels SPSS et Excel 2007.
Il ressort de l'analyse quantitative des données obtenues lors du pré-test que, en ce qui concerne leurs attitudes envers la consommation et l'environnement, les participants manifestent un niveau attitudinel élevé (moyenne=93,01 sur un maximum de 125; D.T.=4,112), fait déjà souligné au cours de recherches antérieures sur des étudiants espagnols (Vega & Álvarez, 2006), bien qu'on voie clairement la "fonction défensive" que Sarabia (1993) attribue aux attitudes, en évitant une implication personnelle et en imputant aux institutions les problèmes de dégradation de l'environnement.

Quant à leurs connaissances sur l'environnement, sur les problématiques environnementales et sur la consommation, les statistiques descriptives soulignent le fait que les sujets méconnaissent les structures conceptuelles en lien avec le sujet, malgré l'incidence qu'elles ont dans la presse, la télévision, la radio,…, les résultats obtenus étant assez bas.

Quant à la préoccupation environnementale perçue, elle ne correspond pas à l'intention de conduite pour l'environnement, nettement inférieure, et pour une consommation responsable (Moyenne=60,736 sur 100; D.T.= 4,258) ; quant à cette intention de conduite il faut signaler qu'il existe une meilleure disposition à mettre en œuvre des comportements au niveau individuel et dans des cadres quotidiens, plutôt que d'autres comportements qui impliquent une action de groupe.

Une fois l'expérience terminée (à la fin de l'année scolaire), des analyses statistiques ont été effectuées avec les données reprises dans le post-test afin de vérifier si les participants avaient amélioré de façon significative, en termes statistiques, leurs attitudes, leurs connaissances conceptuelles vis-à-vis des effets négatifs de la surconsommation, sur l'environnement et de leur intention de réaliser une consommation responsable et solidaire, tout en tâchant de réduire leur empreinte écologique personnelle.

Les résultats obtenus indiquent que les sujets ont amélioré de façon significative, en termes statistiques (F= 2,158, p= 0,000) (figure 2), leur niveau attitudinel pour l'environnement et pour une consommation durable (ouverture à la pensée biocentrique), (Moyenne = 108,36; DT = 3,984), malgré le haut niveau de départ (pré-test). Cependant puisque l'outil utilisé était une échelle de type Lickert, nous ne pouvons pas écarter l'idée que les sujets participaient à un projet singulier et qu'ils ont donc surestimé cette variable.

Il faut également souligner la hausse importante opérée dans la note moyenne de quelques-uns des facteurs de l'échelle qui avaient obtenu les notes les plus basses lors du pré-test parce qu'ils faisaient référence à la diminution de leur empreinte écologique personnelle (des « sacrifices » économiques et personnels).

Vis-à-vis des connaissances conceptuelles et de leur rapport avec l'impact de la consommation sur l'environnement, les sujets ont obtenu des résultats

remarquablement supérieurs à ceux du pré-test. On a constaté une augmentation de leurs connaissances à cet égard, des variations dues à l'effet de la méthodologie appliquée (figure 1).
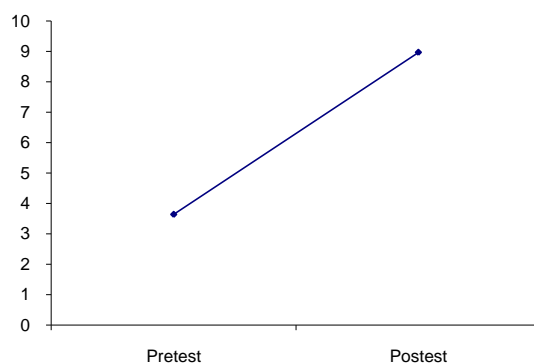
Figure 1. Variation des connaissances conceptuelles sur la problématique environnementale liée à la surconsommation, données mesurées lors du pré-test et du post-test.

Finalement, quant à l'intention de conduite pour la mise en œuvre d'une consommation responsable et solidaire et pour la réduction de l'empreinte écologique personnelle (moyenne=73,249 ; DT=2,70385), on a vérifié que les différences pré-test/post-test étaient statistiquement significatives (F=2,378 ; p=0,000) (figure 2), ce qui détermine une augmentation de l'intention de mettre en œuvre des conduites qui supposent une réduction de l'impact environnemental plutôt au niveau individuel qu'au sein d'un groupe.
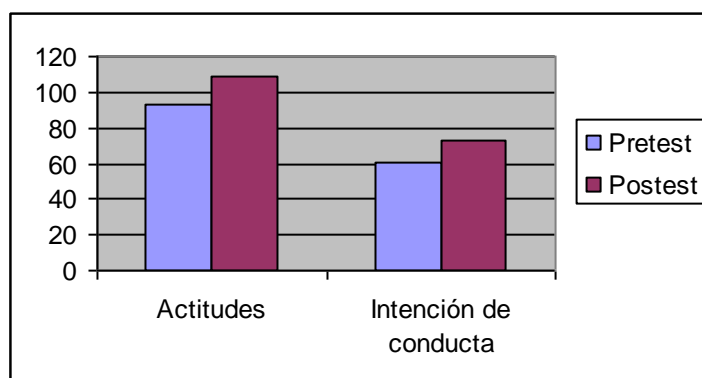
Figure 2. Variation d'attitudes et intention de conduite sur la problématique environnementale par rapport à la surconsommation, données mesurées dans le pré-test et le post-test.

6. Conclusions

L'expérience éducative décrite se révèle être une ressource de grande efficacité dans un cadre universitaire, puisque l'on constate une amélioration vis-à-vis des connaissances sur l'impact environnemental de la surconsommation ; cela

favorise également le développement des attitudes pour l'environnement et pour une consommation responsable et solidaire des étudiants et ceci malgré le haut niveau attitudinel de départ qu'ils présentaient et qui laissait une faible marge de changement. Il faut constater, en outre, que l'intention de conduite afin d'éviter la surconsommation et la réduction de l'empreinte écologique s'est accrue de façon significative, surtout au sein des comportements individuels de consommation responsable, aspect à souligner, qui suppose, dans la pratique, la mise en place de conduites moins liées à la surconsommation et plus solidaires sans que cela soit considéré comme des actions exceptionnelles.

Cette stratégie didactique a besoin logiquement de plus de temps pour un bon déroulement. C'est pourquoi nous estimons qu'elle a sa place dans les programmes des actions de formation en phases non-présentielles, en mettant à profit les temps impartis dans le nouveau cadre de l'Espace Européen d'Éducation.

Ensuite, et bien que ceci n'apparaisse pas comme un objectif dans notre étude et qu'il ne soit donc pas quantifié, nous avons pu constater, d'une part, que la presse est un média très efficace pour la transmission de l'information ; et on a vérifié, d'autre part, que pendant la mise en œuvre de cette expérience, les participants ont surmonté les réticences initiales vis-à-vis de la façon de travailler plus active, qui leur demandait un effort intellectuel et de procédure plus important que la simple « prise de notes » qui constitue leur quotidien à l'Université.

Finalement, il faut souligner que la problématique de la surconsommation et de la non-durabilité peut engendrer des conflits et créer une certaine insécurité et anxiété initiale parmi les étudiants. Néanmoins ces appréhensions ont été surmontées au cours de cette expérience, lorsqu'ils ont constaté que la méthodologie proposée était efficace et, surtout, viable.

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ANNEXE

Questionnaire pour l'évaluation de l'intention de conduite

Évaluez votre comportement personnel selon l'échelle suivante :

Jamais 1	Parfois 2	Toujours 3

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1	Chez moi, je trie dans des sacs différents les différentes sortes de déchets	1	2	3
2	Je renonce à un certain confort pour protéger l'environnement	1	2	3
3	J'achète du papier recyclé, même s'il est plus cher que l'ordinaire	1	2	3
4	J'achète des sodas en canette métallique, car c'est plus facile à transporter	1	2	3
5	J'utilise des piles rechargeables	1	2	3
6	Lorsque j'achète quelque chose, je réfléchis aux déchets que cela crée	1	2	3
7	Je laisse couler l'eau du lavabo pendant que je me brosse les dents	1	2	3
8	Je prends les transports en commun lorsque je me déplace en ville	1	2	3
9	J'aime m'habiller avec des marques connues, même si mon allure est « décontractée »	1	2	3
10	J'achète des produits, alimentaires ou pas, issus de la production locale	1	2	3
11	J'aime le chauffage fort, pour pouvoir être en chemise	1	2	3
12	Je participe à des campagnes et à des manifestations contre les agressions à l'environnement	1	2	3
13	J'achète régulièrement des produits jetables	1	2	3
14	Je dépose les bouteilles dans leurs containers spécifiques, même s'il faut les transporter plus loin	1	2	3
15	Je préfère acheter dans les grandes surfaces, car j'y trouve « tout »	1	2	3
16	Je me déplace en vélo dès que j'en ai l'occasion	1	2	3
17	Je ne débranche pas les appareils électriques quand je ne m'en sers plus	1	2	3
18	J'essaie d'être à la mode	1	2	3
19	Je n'éteins pas la lumière quand je sors d'une pièce	1	2	3
20	J'achète de préférence dans des magasins dont une partie des bénéfices est destinée aux pays pauvres	1	2	3

Incorporating lesson study for teacher professional development

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Abstract

A lesson study approach was identified for a study in Australian schools involving cohorts of early career teachers and their mentors over a four year period. The study reported in this paper documented teachers' experiences of the lesson study cycle to: identify a challenge in their teaching; consult research and their own personal experience to hypothesise a solution; collaboratively develop a lesson; observe the lesson being taught to monitor student learning and debrief. Findings from the study indicated that lesson study provided teachers with opportunities to develop a range of teaching strategies that reflected improved understanding of the nature of a quality learning environment and a greater willingness to trial innovative teaching approaches particularly to integrate ICT. This paper will share teachers' experiences using video footage and discuss the challenges and benefits teachers derived from their participation in such a study.

Keywords: lesson study-professional development-early career teachers-mentors

1. Introduction

Lesson study is a form of professional development that enables teachers to examine their practice by engaging in deep conversations about curriculum, teaching and student performance in the authentic context of classroom practice (Stewart & Brendefur, 2005). It has been credited with creating a safe environment for collaboration, changing the way that teachers think, increasing the intellectual quality of lessons and contributing to improved student engagement and achievement. In a typical lesson study cycle a group of teachers select a goal and a curriculum topic; refer to relevant research; create a detailed lesson plan; observe the lesson and gather data on student responses; reflect on and revise the lesson; and, finally, document and publish their work. Sometimes the lesson is re-taught to a different class and reassessed. Each cycle lasts for four to eight weeks and groups usually complete two or three cycles in a year (Audette, 2004; Murata, 2002; Lewis, 2006).

International background

Lesson study originated in Japan in the early 1990s. Interest in lesson study in the United States was stimulated by the report of the 1995 Third International Mathematics and Science Study (TIMSS) and the publication of *The Teaching*

Gap by James Stigler and James Hiebert (1999). The TIMMS report indicated that United States students were performing at significantly lower levels than students from high performing countries. An associated video comparison of teaching in mathematics classrooms in Japan, Germany and the United States highlighted differences in student performance and teaching methods. As a result, the TIMMS report generated concern about student performance and interest in lesson study in the United States. This interest was intensified with the publication of *The Teaching Gap* in 1999. Stigler and Hiebert promoted lesson study as a form of professional learning that would enable teachers to improve their teaching skills. Several groups of teachers in the United States took up the challenge, and began to experiment with lesson study. By 2004 it was estimated that 269 school districts in 29 states were involved in lesson study (Audette, 2004).

Lesson study has been conducted in a variety of contexts. Groups of teachers in Hong Kong (Lee, 2008), Indonesia (Saito, 2008), Malaysia and Australia (Sam, 2005; White, 2005) have experimented with lesson study. Although in Japan lesson study is usually conducted among elementary teachers, in other countries it has also been used in secondary schools (White, 2005), and in college and university education (Cerbin, 2006; Saito, 2008), including pre-service teacher education (Alvine, 2007; Parks, 2008; Marble, 2007) and a statistics course (Roback, 2006). Because lesson study was introduced in the USA and Australia as a means to improve mathematics teaching it has been used most extensively in that area (see, for example Fernandez, 2004;White, 2003). However, effective lesson study programs have also been conducted in many other subject areas, including literacy (Hurd, 2005; English (Lee, 2008), and a variety of subjects and grade levels (Audette, 2004; Stewart, 2005).

2. Professional Development and Teacher Change

Lesson study has the features of effective professional development identified by Garet and colleagues: it is sustained and intensive, focused on content, involves teachers in active learning and collective participation and is integrated into their work (Garet, 2001; Rock, 2005). As teachers collaborate in lesson study, they are empowered and their efficacy is increased. They take the standpoint of researchers, develop their content knowledge, see the lesson from the perspective of students, and a learning community is built among them (Lewis, 2004; Lee, 2008; Puchner, 2006; Hurd, 2005; Fernandez, 2003). It is not surprising, then, that lesson study leads to changes in teachers' thinking and pedagogy, and to improved student achievement.

Lesson study provides teachers with the opportunity to make changes at the conceptual level as they consider their own beliefs and values (Lewis, 2004; Hurd, 2005; Murata, 2002). Lewis (1998) observed that Japanese science teachers had changed their conceptions of teaching from "teaching as telling" to "teaching for understanding" (p. 12) as they engaged in lesson study. One teacher expressed the change in his ideas:;"Through my work with the elementary science research group, I came to see education not as giving

knowledge to children but as giving them opportunities to build their own knowledge" (Lewis, 1998, p.15) .

Such changes in thinking may lead to changes in practice, which are also stimulated as teachers receive feedback on their lessons, learn new techniques from one another, and reflect on their work. Some researchers have noted that the changes in teaching practice that occur during lesson study happen in a relatively short period of time and are long-lasting (Olson, n.d.; White, 2005). Although in many contexts lesson study is still in its infancy, some researchers, while unable to prove causality, are finding that the changes in teachers' thinking and pedagogy are producing many positive outcomes for students, including improvement in the quality of lessons measured using the Quality Teaching framework (Lewis, 2004; NSW DET, 2003a; Rock, 2005), increased student engagement (Puchner, 2006; Saito, 2008), and statistically significant improvements in students' state mathematics achievement tests (Lewis, 2006).

3. Lesson Study in NSW

In NSW the lesson study approach has been supported through the Australian Government Quality Teacher Program (AGQTP). Lesson study projects have been conducted with mathematics and economics teachers, and a discussion paper targeted at new scheme teachers has been published.

The NSW *Lesson study* project was a Commonwealth funded state-wide initiative of the Professional Support and Curriculum Directorate of the Department of Education and Training (DET). The project began with a Trial Phase in Semester 2, 2001, and continued with Phase 1 and Phase 2 in 2002. A total of 84 secondary schools were involved and the Mathematics Education Research Team from the University of Western Sydney carried out an evaluation of the project. They found that the project had been successful at all levels. Teachers expressed:

"high levels of satisfaction of *Lesson study* as a program for teacher professional development and as a process for improving the teaching and learning in secondary schools… Teachers reported developing a *Lesson study mentality* that allowed them to apply the skills and knowledge they had acquired to their daily teaching…The team members formed a professional relationship that remained after the completion of the program. Many teams expressed confidence and the motivation to continue the program without the provision of support. The lessons developed were enthusiastically received by the students and resulted in higher learning outcomes and the improvement of student motivation, engagement and attitude towards mathematics. (White, 2003, pp.1-2)"

The evaluation team recommended that "the *Lesson study* program be continued as a voluntary program to meet the professional development needs of government secondary mathematics teachers and as a process to improve the teaching and learning of mathematics in secondary schools" (White, 2003,p.2). In a follow-up study of participants in the 2002 project 12 to 18 months after the

support ended White (2004, cited in White, 2005) found that 90% of respondents were still using what they had learnt during the Lesson Study project. By the end of 2004 when funding for the Lesson Study project ceased, over two hundred secondary schools had participated in the project (White, 2005).

In another AGQTP funded project, entitled *Taking Professional Standards into Practice,* the Lesson Study model was a key strategy for school-based professional development. Between 2006 and 2009 experienced teachers acted as mentors and coaches to form collegial relationships with teachers in their first years of teaching in more than 120 NSW schools. Early career and experienced teachers in the project schools worked in partnerships and teams to engage with the NSW Institute of Teachers Professional Teaching Standards (NSW Institute of Teachers, 2005). A meta-analysis of school project reports using thematic coding produced findings on the lesson study approach used in professional learning sessions, with a particular focus on developing lessons that were academically challenging in a supportive learning environment (NSW DET, 2003a, 2003b). While schools had flexibility in the way they adapted the Lesson Study model, a set of guiding principles as steps in the cycle were articulated in a discussion paper, *Lesson study as a framework for professional learning (AGQTP, 2006)*.

Steps in the lesson study cycle

The literature describing Lesson Study ('*jugyoukenkyu'*)defines the process by a set of steps to ensure a systematic approach to teacher professional development. The Lesson Study team:

1. identifies a student learning need, using an evidence-based approach (teacher observation, student data, student, teacher and/or parent self-reporting through surveys)
2. defines a pedagogical problem or teaching challenge linked to the student learning need
3. engages in a cycle of planned professional learning to investigate and share a range of teaching and learning approaches and resources
4. critiques an existing lesson plan or designs a new lesson in detail
5. teaches the lesson following the jointly developed lesson plan
6. observes the lesson based on the pre-determined and agreed observation criteria
7. revises the lesson incorporating the group feedback
8. evaluates the lesson by jointly reflecting on its effect on student learning (e.g. level of engagement, time on task, interactions with the teacher and other students). Student work samples and video segments of the lesson can assist this process
9. teaches and observes the revised lesson (or the next lesson in the sequence, revised in light of feedback from the previous lesson) to another group of students
10. evaluates the revised lesson and observations

11. collectively documents the results and shares with others outside the group the group. (Extract from *Lesson Study as a framework for professional learning: A discussion paper,* 2006, p.3-4)

These 11 steps can be repeated for another lesson. All steps are considered important phases in the Lesson Study approach. However, as Stewart and Brendefur's research found, "it was not the number of lesson plans that were covered by the groups but the depth and quality of the conversations that influenced their teaching most" (2005, p.687).

The results from a four year meta-analysis of 120 project team reports provided evidence that using a Lesson Study approach as a form of collegial professional development resulted in early career teachers using a wider variety of engaging activities and a willingness and confidence to trial and experiment with classroom management strategies that focused on the quality of the pedagogy (Ewing & Brooks, 2008). As teachers' confidence in and understanding of Lesson Study became more sophisticated, teachers became more adventurous in how they differentiated learning to address the full range of learning needs, integrated innovative use of ICTs and developed a sense of collegiality that resulted in professional benefits to both early career teachers and their mentors (Brooks & Ewing, 2009). As one teacher reported:

The collegial team approach allows for the development of trust, professionalism and deep learning for improvement in what can be a daunting and difficult element of the teaching standards (Brooks & Ewing, 2009, p.22).

A critical step in the Lesson Study cycle involves being observed in authentic aspects of classroom practice (NSW DET 2003b). While confronting at first, being observed was documented in some school project reports as producing very rich and rewarding outcomes. Such practices were reported as reducing the professional isolation Brook & Ewing, 2010). The collegial support produced meaningful feedback as participants in the Lesson Study process engaged in critical dialogue about teaching and how it could be improved while also celebrating what had been achieved through strong collaboration. These benefits were reported as mediating the considerable time demands on teachers' already heavy workloads (Brooks & Ewing, 2010).

4. Overcoming the challenges

There are a number of challenges that need to be overcome as Lesson Study is adapted to other contexts. These challenges include: finding the time for lesson study, lesson observation, and the degree to which the lesson study format should be modified. In this section these challenges identified in previous research are explored using insights from the meta-analysis of the NSW school projects (2006-2009).

4.1 Time

In the Japanese context Lesson Study is time-consuming, and the length of time it takes is also a challenge in other contexts (Lewis, 2002; Chokshi, 2004; Lee, 2008; White, 2005). However, when teachers become involved in lesson study and begin to see the value of it, they make the time for it (Fernandez, 2002; White, 2003). Recognising that time for lesson study will always be restricted, some researchers have suggested strategies to make the best use of the time available. These strategies include appropriate scheduling, substitute coverage, provision of funding, and using meeting times more efficiently (Fernandez, 2002; Chokshi, 2004).

In the NSW context AGQTP funding provided time for teachers to co-plan lessons, combining the capabilities of more experienced teachers with the curriculum knowledge,ICT skills and energy that early career teachers brought to the collegial relationship. Funding, as well as other school resources made available through timetabling, enabled teachers to follow up their joint planning with observation and feedback, and to engage in reflection, discussion and critique informing the next cycle of teaching. These benefits are described in one school project report as:

"The allocated time to develop skills and resources has provided real and lasting benefits to each teacher. Many acknowledge they would not have developed these specific ICT skills without the time made available through the project. The strong collegial bonds and positive professional partnerships have extended into other areas of school life for the teachers working on the project" (Brooks & Ewing, 2010, p.15).

4.2 Peer observation

For many teachers worldwide, having other people observe their lessons causes great anxiety. This is particularly true where observation is usually related to performance appraisal. However, the focus of classroom observation in lesson study is on student learning, rather than teacher performance, and on the lesson for which the group of teachers is responsible (Chokshi, 2004; Lee, 2008). Guidelines for observation based on the research question assist the observing teachers to focus on the lesson goal (Chokshi, 2004), and it is important that observing teachers do not become involved in the lesson, even if a student is struggling (Watanabe, 2002).

Stewart and Brendefur (2005) found that many teachers overcame their fears of being observed and even enjoyed the experience, but that groups that did not observe lessons did not succeed. They suggested that supportive group leadership and a focus on improving instruction helped the groups to overcome their fears. This collegial approach to lesson observation was adopted in the NSW context. "Working together and observing each other has led to increased self-reflection and ease in discussing their attempts and mistakes in a non-threatening way" (Brooks & Ewing, 2010, p.21). The notable benefits arising from observation of colleagues' classroom practice, in addition to the

demonstration of rich pedagogical techniques, was exposure to a range of strategies for classroom management and a deeper understanding of the consistency of expectations in the classroom.

4.3 Modifying Lesson Study

While it is important to recognise that a successful program such as lesson study cannot simply be imported from one country to another without some modifications suggests that there are four features of lesson study that are essential wherever it is conducted (White, 2005; Lewis, 2006; Lewis, 2002). These features are: "a shared long-term goal," "important lesson content," "careful study of students," and "live observation of lessons" (p. 7-12). Live observation is favoured over videotaping a lesson because it enables teachers to observe from different viewpoints and to focus on students' reactions to the lesson (Fernandez, 2002; Lewis, 2002). No doubt, following these suggestions will lead to best practice lesson study, but it is interesting to note that even when teachers have ignored one of these essential features and, for example, videotaped lessons or become involved in the lesson, lesson study was still found to be effective (see, Trent, 2005; Stewart, 2005).

In the NSW context, project schools' approach to using Lesson Study was enhanced by the links made to quality pedagogical frameworks like the Quality Teaching model (NSWDET, 2003) and focus on elements of the NSW Institute of Teachers Professional Teaching Standards (2005).

Teachers have developed the ability to integrate Professional Teaching Standards and Quality Teaching elements into their planning and implementation and now see these frameworks as effective tools throughout the planning, implementation and evaluation process" (Brooks & Ewing, 2010, p.24).

Schools had the flexibility to modify their approach to Lesson Study as a model of collegial enquiry. In some cases schools combined individual steps such as lessons being jointly planned, teaching sessions being observed, using time for reflection, discussion and critical feedback to fine tune the teaching process to develop in the next lesson in the sequence rather than reteach the modified lesson in another classroom. In the context of more than 120 schools participating in the four year study there was considerable variation in how Lesson Study, was implemented. A benefit of this approach was "a sense of ownership for the project thus increasing its chance of success" (Brooks & Ewing, 2010, p.20).

5. Conclusion

Although there are many challenges to the successful implementation of lesson study in schools, the proliferation of reports of successful programs in a variety of contexts indicates that ways of overcoming the barriers can be found. The many reports of successful Lesson Study programs in a wide variety of different contexts indicate that it is potentially a means to bring deep and enduring

changes in teacher pedagogy. Evidence from the NSW context demonstrates that implementing Lesson Study as a form of collegial inquiry has enabled a shift in mindset about the richness both experienced and new teachers bring to professional relationships that focus on the quality of teaching. Lesson Study provides more than structure to professional development. It provides long-term benefits for sharing the depth and currency of pedagogical practice. Lesson Study processes open classrooms doors to powerful practices of observation, critique and reflection and strengthen teachers' understanding about the consistency for quality instruction that improves students' learning outcomes.

6. Acknowledgements

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Re-Placing Flexibility: An investigation into flexibility in learning spaces

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Abstract

Flexibility is used ubiquitously in education. However, little is known about the impact on learning of flexibility in learning spaces. The resurgence of personalised constructivist pedagogy has resulted in 'flexible learning spaces'. Framing flexibility as movement of spaces, people and uses, this study asked: "How does flexibility in learning spaces affect learning?" The qualitative research considered a secondary school in Victoria, Australia, that was changing to personalised learning strategies. Six learning spaces with several year groups and pedagogies were studied for one year. Multi-method data collection was employed including spatial mapping, semi-structured interviews and participatory action research. Analysis showed that the meaning of flexibility was contested and flexibility was rarely employed in learning spaces. Attitudes towards learning spaces and learning changed positively when spatial, corporeal and utility movement was fostered. The paper concludes that flexibility be re-placed to support constructivism learning through a flexible, student centred, constructivist learning place.

Keywords: Flexibility – Learning – Pedagogy - Learning Spaces - Multi-methods

1. Introduction

With the recent resurgence of constructivist pedagogies and the massive investments in built facilities across the world,the relationship between space and learning is being reconsidered. Within the discourse on new learning spaces calls for flexibility are growing (for example British Council of School Environments, 2006; Council of Educational Facility Planners International, 2009; OECD The Programme on Educational Building, 2006; Victorian State Government, 2008) as educators and designers collaborate to spatially interpret the principles of personalised learning.

The body of literature on flexible learning spaces is sparse. Though used widely by architects, educators and facilities providers, the term flexibility has not been investigated in sufficient depth that commonly accepted understandings prevail. Its meaning to the stakeholders, how it is currently employed and what potential it has are generally missing from the research literature.

This paper reports on research into flexibility in the learning space and its impact on learning opportunities. It will discuss the drive for flexibility through the rise in constructivist pedagogy and its relationship to the environment and movement. The influence of the changing discourse on space and place will be explored. The current literature relating to flexibility will be presented that will establish flexibility as changes in spatial arrangement and corporeal location.

Following the methodology, the findings of the research and the possibilities for flexibility in relation to learning will be presented.

2. Learning

Pedagogical approaches are shifting and driving the desire for flexibility. There is a move away from traditional, explicit teaching towards personalised, constructivist pedagogies. Constructivism is described by Schunk (2008) as 'a psychological and philosophical perspective contending that individuals form or construct much of what they learn and understand' (p235). This approach promotes the attainment of knowledge through the interaction of the student and their environment. Dewey, the American educational philosopher, was a strong advocate of this interaction and promoted learning through activity based 'situations' stating that:

'The conceptions of *situation* and of *interaction* are inseparable from each other. An experience is always what it is because of a transaction taking   place between an individual and what, at the time, constitutes his [sic] environment.' (Author's italics, 1938-39, p. LW 13.25)

Following Dewey, the Russian psychologist Vygotsky saw the environment not as 'something absolutely hardened, inflexible, and unchanged' (1926/1997, p. 53) but a plastic arrangement of elements to be manipulated by the learner. To him, the environment was not just a natural resource but social due to human interactions. As a result, he believed that the environment was 'very nearly the most flexible of all tools of education' (p. 54).

Learning through a human interaction with the environment requires corporeal movement within space. Active learning inherently requires motion for various social connections to be made. Dewey believed that movement was the prerequisite for development stating:

'I believe that the active side precedes the passive in the development of   the child nature: that expression comes before conscious impression; that   the muscular development proceeds the sensory; that movements come before conscious sensations; I believe that consciousness is essentially   motor   or impulsive; that conscious states tend to project themselves in   action.' (1897, p. 79)

The importance of the environment and human movement to learning was extended by Gardner through Multiple Intelligences (1993). He proposed a range of intelligences that include spatial and bodily-kinesthetics. Spatial intelligence was described as 'the capacities to perceive the visual world accurately, to perform transformations and modifications upon one's initial perceptions, and to be able to re-create aspects of one's visual experience' (p. 173). Gardner attributed not only location, orientation and composition to spatial intelligence but an ability to transcend scale and distance to bring two seemingly disparate experiences together. Bodily-kinesthetics includes the capacity to control corporeal movement and to be dexterous in handling objects. Object and space

manipulation was a key attribute of this intelligence. These two intelligences of Gardner's support the importance of the learning environment and its manipulation through flexibility. But how are spaces developing in response to these changes in learning understandings?

3. Learning Spaces and Places

Space is being linked directly to pedagogy (Fisher, 2005). The design of learning spaces is being driven by the different situations and interactions preferred by constructivist pedagogies. Like pedagogy, the notion of space is changing. Previously considered as a vessel, a container, an architectural enclosure, space is being reconceptualized as a social construct (Lefebvre, 1997). Space is seen as a result of social interactions constantly being created and recreated. This concept was applied by McGregor (2004) who explored the spatiality of school through the physical and social interactions of the actors, both human and non human, that go beyond the school walls and integrate into a global network across space and time.

The socially constructed notion of space has influenced the thinking on place. Formally associated with regions and boundaries, Massey describes place as 'articulated moments in networks of social relations and understandings' (1997, p. 322). This transitory social state, like space, requires constant remaking. Also working on place, Dovey (2010) sees it as a dynamic, intense assemblage, a 'state of affairs' (p. 16). Ever changing desires hold the place assemblage together in a non deterministic way that is becoming rather than being.

These social notions of space and place are combining with social constructivist pedagogies to create learning spaces that support social interactions. The design of contemporary learning spaces incorporate a range of learning settings to sustain a variety of group sizes undertaking a variety of tasks with the ability to flow seamlessly between settings as the task requires. Learning spaces are becoming 'flexible'.

4. Flexibility

Flexibility is used extensively in policy documents (Victorian Labor Party, 2006), in design criteria (British Council of School Environments, 2006), by facilities providers (Victorian State Government, 2008), by architects (Dudek, 2000) and by educators (Nicoll, 2006). However, despite the dictionary meaning for flexible being 'able to bend without breaking; pliable; pliant' (Oxford University Press, 1995) there is some confusion as to its meaning among the contributors to learning spaces.

Spatial flexibility has developed over the decades to incorporate a range of solutions including operable walls and sliding doors, moveable furniture and transformable fittings, open fluid spaces and purposeful spaces, learning streets and multi-functional areas (Burke & Grosvenor, 2008; Commission for Architecture and the Built Environment, 2006; Dudek, 2000; OECD The

Programme on Educational Building, 2006). A variety of solutions are proposed to provide a generic flexible learning space (for example Ehrenkrantz, 2000; Leggett, Brubaker, Cohodes, & Shapiro, 1977). Interestingly, these designs often relied on creating overlaying grids of structure, support services and information technology that are themselves rigid within which space use could change. There is some debate about the requirement for the term at all. The DesignShare forum asked whether there was 'no such thing as flexible space'(2006). To Hertzberger (1991) 'flexibility became the catch-word, it was to be the panacea to cure all the ills of architecture' (p. 146) He thought that a flexible space does not fully cater to any user and was always a compromise. Monahon (2002) has investigated the boundary between virtual and physical learning space. He provided a short critique of flexibility dividing it into five 'properties of space' (p. 1): fluidity, versatility, convertibility, scaleability, and modifiability. However, the focus of this study is not flexibility over time, often referred to as adaptability, but the immediate flexibility that affects learning spaces on a daily basis. Thus, these properties can be distilled into three constructs: spatial arrangement, corporeal location and functional utility.

Progressive learning theories have become the flexor of new and existing learning spaces. Flexible has become the main and sometime sole adjective to describe the evolving learning space. But what is flexibility, how is it enacted, who controls it, can it help create places of learning, and how does flexibility in learning spaces affect learning?

5. Methodology

To investigate the effect of flexibility in learning spaces a qualitative study was undertaken that focused on a single secondary school in Victoria, Australia. Chosen as an exemplifying case (Bryman, 2004), this school was progressively changing to a personalised learning strategy. Furthermore, the school had a range of different learning spaces from traditional to contemporary and permanent to relocatable buildings. Six different learning spaces were selected with a range of year groups, number of students and teachers, and pedagogical approaches.

Multi-method data collection was employed including spatial mapping, semi-structured interviews, and participatory action research. Based on work by Horne (1999) the spaces were mapped each month up to six times. The mapping followed the three themes of flexibility: spatial arrangement, corporeal location and functional utility. The changes in the space, the movements of a teacher and two students, and the uses of the space were logged over 100 minute sessions. Open ended interviews (Zeisel, 1981) were conducted with the teacher and two students from each space along with three facilities providers and five architects involved in school design.

A participatory action research project (Kemmis & McTaggart, 1988) was undertaken within the Year Nine (aged 15/16) learning space. Students and staff reviewed their learning space through a process of planning, acting, observing and reflecting. Six students volunteered to collaborate on the project with the

teaching staff having only a commentary role in the process. The students and staff made observations about their learning space. Then, the students and the researcher compiled an action plan to change the learning space. A range of learning settings was created using moveable furniture and screens. The spaces were used, periodically mapped and observations made. Ongoing group and individual discussions were held with the students and teaching staff to reflect on the intervention. The discussions, plans, interviews and observations were all recorded for analysis.

Finally, for all spaces, the mapping, observations and interviews were reflected back individually to all the participating teachers and their comments recorded.

6. Results and analysis

6.1 The meanings of flexibility

When asked 'what do you mean by flexibility' there is a distinct but subtle difference in the understandings of flexibility between the interviewees. Most related flexibility to the changing of spatial arrangements in some way through furniture or movable architectural items. Likewise there was a predominance of interviewees who saw flexibility as a way of providing functional utility through having a variety of different spaces, or using one space, to accommodate different uses. A significant number of students associated flexibility with corporeal movement, people moving within a learning space. However, this was not reflected in any other interview group with the exception of one teacher. Evidently there is a mismatch in the desires of the students to move in their learning space and the ability for them to do so. Students perceived that teachers controlled the learning space as well as any flexibility within it.

6.2 Middle years: Years Seven and Eight (Aged 12 and 13)

The middle years displayed a balanced pedagogical approach between student centred and teacher centred learning. In partnership with this there was a fairly balanced amount of student and teacher movement within the learning space. There is some movement of the spatial arrangement, predominantly furniture, between observational periods. However, during a 100 minute learning session the spatial arrangement typically remained unaltered. Despite this, the range of functional uses was well spread across the space.

Interviews with students revealed an increasing awareness of space. Year Seven students were not significantly aware of their learning space and did not think that it had any influence on their learning. Whereas, the Year Eight students were given more influence over their space by their teacher and had significantly more understanding of the impacts of space. Despite this, Year Eight students interviewed believe that the learning space influences learning only sometimes.

The Year Eight students liked change and preferred to move around the learning space working with different student groups. They saw this as an opportunity to obtain inspiration either from peers or from surrounding display material. The Year Eight students believe that they have control over the flexibility of their learning space. They find flexibility 'fun' and a positive influence on their learning and it made them feel like they owned the space.

One teacher questioned the benefit of students relocating to different rooms each session as is the norm in secondary school. She suggested that as much as possible students should stay predominately in one space and develop some ownership over their place. Despite the need to have specialist spaces for senior electives students, the teacher believed that most subjects could be learnt within one space. These possibilities were currently prevented in the secondary school by timetabling decisions.

The teachers preferred an open flexible learning space for junior students. Strongly linking pedagogy and space, one states: 'You can't deliver that type of pedagogy if you don't have flexible spaces' (M1 Teacher). There was a wish to see student movement and independence. However the mapping did not fully support the enactment of this desire with teacher control preventing this aim. Further, the stated aim to provide a variety of learning settings during a session was not converted to reality in the learning space.

6.3 Senior years: Years 10 and 11 (Aged 15 and 16)

Due to the perceived pressure of the end of school examinations for students in Years 10 and 11, the predominant teaching style adopted was teacher centred. Compared to the middle years, there was significantly less spatial change. In this teacher centred Year 11 environment, and despite the subject relating to physical education, it was the teacher who covered most distance during a learning session when compared to the relatively static students. Spatial arrangements were only altered during specific practical exercises, otherwise students selected existing group table layouts at which to sit and remain.

Within the Year 10 traditional learning space, and despite the space being used by other classes, a horseshoe arrangement of tables rarely varied. Students remain substantially static within seats with the teacher circulating on a consistent route. The functional uses map showed that most activities were being exercised though they were restricted to the areas defined by the horseshoe layout.

The teachers of both these year groups had little regard for space: 'my teaching is not driven by space, at the moment, in terms of my effectiveness' (PE1 Teacher). Student ownership of the space was not highly prized with little or no student work displayed. Teachers were concerned with student distraction, teacher privacy, territory and control. The delivery of curriculum and the achievement of good exam results were key drivers of the teachers. Changing of the spatial arrangement to satisfy a range of learning opportunities was not a

priority. In referring to the enduring horseshoe layout the teacher said '[Change] from my U, why would I ever change my U?' (E1 Teacher)

Student opinion of the Year 10 traditional learning space was that of prison cells, dull, not happy and 'yuk' (Year 10 Student). They found the horseshoe shape boring, old and the cause of distractions due to the way all students were on display to the remainder of the class. Students craved mobility to provide a break in the 100 minute session, connect socially and educationally with their peers, and obtain inspiration. On the other hand the Year 11 students were in a building designed for them. They felt ownership of the space despite the lack of display of their work. Ownership came from the social aspects of the space. They felt able to move within the space and to move it around. They appreciated the ability to move to a space that suited them and it helped their learning, 'I have enjoyed school more this year, as far has having the new space' (Year 11 Student).

6.4 Year Nine (Aged 14)

At the case study school the Year Nines spent some time on a separate campus away from the school environment. At this campus the students undertook community based projects amongst traditional subject based curriculum. In this campus, the teacher believed that movement of students developed a level of ownership in the spaces, created a level of pride and increased engagement. The teacher promoted 'degrees of discomfort and movement and change' (C1 teacher) as a way of motivating students to question things. Space was 'extremely important' (C1 teacher) and movement in space increases 'engagement, communication familiarity and stability' (C1 Teacher).

A group of six Year Nine students who volunteered for the participatory action research (PAR) project were of varying character. Some were interested in design; others just interested in 'opting out' of mainstream school work. However, without exception, all found the experience of working to develop their learning space exciting, engaging, and empowering. They critiqued their current space and decided on a series of interventions and implemented them. They purchased modular soft furnishings, couches and chairs arranged them into small breakout spaces in the learning spaces. Surrounded by mobile screens they became spaces of social and educational interaction. They manipulated a circulation corridor into small meeting spaces with movable screens, table and chairs. These were used by visiting staff members or for small group meetings. The students broke down a row of computers into small group spaces whilst maintaining larger areas for explicit teaching. They reclaimed a small lobby from storage and created a one-on-one space with a quiet area for telephone calls for their projects.

Mapping of the spaces showed that student movement was greatly increased though there was some territorial appropriation of the new spaces. Initially, these spaces, especially the soft seating areas, were considered by other students exclusive to the PAR student team. However, this notion was soon dispelled by the PAR students whose aim was to provide these areas for all the

students. The students liked the new areas and reported an improvement in their learning as a result of their creation. This was based on their ability to choose where to work and with whom to work. They commented on the social aspects of the space but related that to learning. Furthermore, the students felt better in themselves as a result of creating the spaces and produced a presentation on their project for the presentation night. However, they reported that they would not have created the spaces without adult instigation. Also, despite the opportunity for daily rearrangement of the mobile furniture, the layouts remained predominately static once constructed. Teachers found the ownership by the students of these spaces so strong that the teachers themselves did not rearrange the furniture.

7. Conclusion: Re-Placing Flexibility

Flexibility requires a re-framing of its use. Currently confused and misused, the use of flexibility needs to be restricted and made, well, inflexible. It should be acknowledged that flexibility is not just a 'rearranging the deck chairs' but relates to spatial arrangement, corporeal location and functional utility in differing amounts to different people. The students interviewed, though, have a strong concept of flexibility relating specifically to student movement, or fluidity, which is different to others. This understanding should not be ignored and could be the key to improved learning.

What is the effect of flexibility on learning spaces? The work with the PAR group showed that flexibility can be a powerful force in learning. The creation of a varied learning space through the students' social interaction and physical action provided a place of learning over which the students felt ownership. . This was achieved not through the usually promoted principle of displaying students' work on pinboards but through more powerful tools of student responsibility, free will, respect, negotiation, self-planning and self-policing. Flexibility became a social 'compromise' to create change, where 'change is good' (both Year 10 students).

However this emancipatory act cannot occur without an adjustment of teachers' spatial control. Prior to undertaking the PAR process, all interviewed students across the years expressed a feeling of a lack of spatial empowerment. To them the teacher controls the learning space. However, learning spaces could be conceived in the same way as progressive pedagogy. Just as constructivist learning has changed explicit teaching habits, a flexible constructivist learning place can change the classroom. By releasing some control and providing mutually acceptable flexible learning spaces, students would be given the right to control their environments, engage in self constructed situations and reap the benefits of a social flexibility. Teachers would need to frame this constructivist use of space the same as they are framing constructivist learning. In this scenario teachers would frame spatially released constructivist learning places to be flexibly lived by students.

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Learning and memory: A biological viewpoint

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Abstract

Education, such as that provided by interactions between parents, family members, and the general community, is the primary method of transmitting society's collective knowledge, or culture, from one generation to another. Education and, of course, teaching, are closely intertwined with human memory and learning, but there is a growing acceptance that learning and memory are features of all organisms as well as all inanimate objects, such as computers. Memory may, in fact, exist in any system that has structures and such memory may persist for a long time and affect the behaviour of such a system. In this study, a wide range of concepts relating to learning and memory is considered in order to determine whether such an wide-ranging approach has the potential to contribute to the development of models of instructional design that may be used in human education and teaching.

Keywords
Education – Learning – Memory – Biology - Neuroscience

1. Introduction

Education and teaching are inextricably intertwined with human learning and memory, with education serving the function of communicating memories, including knowledge and skills, from individual to individual through learning. Education, such as that provided by interactions between parents, family members, and the general community, is the primary method of transmitting society's collective knowledge, here referred to as culture, from one generation to another. Education can transmit such culture in a variety of ways, including through the use of non-human stores of information such as books and computers. Over the last four hundred years, institutionalised education, in countries with the resources for its support, has become one the preferred methods of transmitting culture, and teaching has played a critical function as such institutionalised education has become widespread.

Our understanding of institutional education is closely tied to our understanding of learning and memory, but these two terms, rather than being used exclusively in an educational context, are used routinely in descriptions of function and behaviour of humans and other organism. Studies in integrative biology have examined learning and memory processes at multiple levels of microscopic and molecular complexity and shown that, not only do these processes occur in all organisms with a nervous system, but also in many other multicellular organisms (e.g. Borges, 2005) as well as in individual cells, including unicellular organisms (e.g. Kilian & Müller, 2001). Learning and memory processes may exist also in

the non-organismal world, and are described similarly for inanimate objects and organisms (e.g. Dennett, 1995; Bentley; 2007; Edelman, 2007). It can be argued, therefore, that the consideration of learning and memory as an interaction with environment is a feature fundamental to all organisms and to non-organismal structures.

Some researchers assert, therefore, that learning and memory can exist in any system that has structures and that such memory may persist for a long time and affect the behaviour of the system (e.g. Wolfram, 2002). This assertion has implications for humans and the other systems with which they engage, for example, in the utilisation or management of large environmental systems that contain organisms and non-organismal structures, many of which may have learning and memory processes. It may be useful, therefore, to re-examine the concepts of learning and memory across organismal and non-organismal structures, and across also the systems that they may be part of, in order to place human learning and memory, and human cultural accumulation, in a broader context. This may lead to a clearer understanding of the concepts of learning and memory in relation to environmental interaction, and such understanding may enhance the education that serves the transgenerational transfer of culture.

2. Learning, memory and organismal connectivity

2.1. Learning, memory and connectivity of the central nervous system

The human central nervous system is considered to be more complex than that of other primates and larger vertebrates, particularly as it relates to an increased apparent capability of a human forebrain (cerebral cortex) that is enlarged and well-developed relative to other parts of the brain and body (e.g. Finlay & Darlington, 1995). However, the learning and memory processes of organisms that, like humans, possess a central nervous system have been found to be comparable in many ways, and in many of these organisms some input information may be retained, in the short term as short-term or medium-term memory or, in a longer term as long-term memory, through changes to the connections between neurons and related structures (e.g. Edelmann, 1987). In all organisms with a centralised nervous system that includes a brain or other aggregation of neuronal cell bodies, learning and memory are sometimes considered as functions of processed input information and of the resultant reaction, if any, of an organism to such processing (e.g. Baars, 2001).

2.2. Learning and memory in organisms with a non-centralised nervous system

Not only do animals with a central nervous system demonstrate learning and memory, there is evidence also that animals that have non-centralised neurons or rudimentary aggregations of neurons, may have learning and memory functions. This can be seen in the Cnidarian (jellyfish) assessment of

environment and behaviours such as swimming, which are under neuronal control, implying some kind of information storage, or memory, even though this may not be needed for all complex motor activities (Martin, 2002; Satterlie, 2002). Cnidarians may have also chemical signalling that uses endocrine messenger chemicals and synapses, similar in many ways to that seen in learning and memory mechanisms of organisms with a central nervous system (Martin, 2002; Satterlie, 2002).

2.3 Learning, memory and connectivity in multicellular organisms with no nervous system

There are many other multicellular organisms, such as plants and fungi, which have no neurons at all. Such organisms, however, may have other systems that serve to receive and process any stimulus from the environment, albeit over generally longer time frames. For example, plants have photoreceptors that allow them to forage for optimal absorption of electromagnetic radiation, and these photoreceptors function in alerting a plant to the proximity of a neighbour or enabling the plant to modify its growth and development as a shade-avoidance response (Borges, 2005). Plants may make genetically-programmed modification of changes of development in response to a stimulus or a situation, a modification achieved by an association between negative or positive reinforcement feedback and a response or action, and this may be considered, therefore, as learning (Cohen, 1998). Some support for this argument is seen in observations that plants may be able to discriminate between different types of stimulus, an associative learning function (e.g. Trewavas, 2002).

2.4. Learning, memory and information flow

The strong similarities between the response and signalling systems in animals and plants indicates, therefore, that there is both learning and memory in plants, and also in animals without neurons, just as there is in animals that have neurons. Learning can be viewed as a reinforcement of an accelerated information flux (flow) rate between a signal and a response (Borges, 2005) and all multicellular organisms may be considered capable of learning on this basis. Any resultant behavioural change may be slow, however, when compared to that which results in the faster movement of motile animals that have neurons. More generally, learning and memory processes in multicellular organisms can be considered under the umbrella of phenotypic plasticity, the ability of organisms with a given genotype to vary their developmental or pattern, appearance or behaviour in response to varying environmental conditions (e.g. Ghysen, 2003).

2.5. Learning, memory and plasticity within cells

Unicellular organisms also can be said to learn because they respond, using phenotypic plasticity as do multicellular organisms, to variations in their environment using sensory mechanisms and information pathways within the cell (e.g. di Primio, Müller & Lengeler, 2000). The chemical pathways that constitute

memory in unicellular organisms may exist in all cells, with this memory sometimes described as the quantity and quality of substances inside a cell at a given time (Kilian & Müller, 2002). Some researchers argue further that any unicellular organism, just like any multicellular organism, has a memory if its present state is determined partly by its past history (e.g. Casadesús & D'Ari, 2002). All cells may demonstrate also intelligence, through ordering and integrating large amounts of data (Albrecht-Buehler, 2005). Memory may be passed transgenerationally through cell lineages during generation of new generations by mitosis, a process called phylogenetic learning (e.g. Kilian & Müller, 2002). Some unicellular organisms may detect and respond collectively to environmental changes through intercellular information-sharing, a learning process referred to in bacteria as quorum sensing (e.g. Shapiro, 1998).

2.6. Learning and memory as connectivity with environment

Based on such comparisons, learning in organisms can be described in a general sense as the process of change in connectivity, for example in number, strength and type of connection, within the structures representing the pathway between an environmental signal and an organismal response. This connectivity may be as simple as a chain of chemical reactions that start with a chemical in the environment interacting with the exterior of the cell, but may include more complex chains and cascades of interactions with a variety of energetic and/or chemical components. Although it appears that such a series of interactions should lead to an organismal response to that environmental interaction, such a response may not necessarily be observable, or may not occur. The changes in number, strength and type of connection may be described as memory.

3. Learning, memory and non-organismal connectivity

The concept of learning and memory as resulting from plasticity of connectivity is not limited to organisms and may be applied more widely to non-organismal structures and systems. Such plasticity results from the potential for the connections between a structure and its environment to be changed so that there is a remembered relationship between elements of the environment and the structure, a relationship that may result in differing responses to different environmental elements. A modern computer systems is perhaps the most convincing example of a non-organismal structure that has a memory and that can learn through processing information about its surroundings, and some modern computers may also incorporate self-generational and developmental considerations that allow them to arguably evolve, and further develop memory through learning (e.g. Bentley, 2007; Edelman, 2007). Since any evaluation of a structure as either living may seem arbitrary, some researchers have explained learning in terms of an object, living or non-living, that processes information about its surroundings (e.g. Dennett, 1995).

4. Merging concepts of learning and memory

In recent years there has been increased research and discussion that integrates ideas about learning and memory processes and pathways in organismal and non- organismal structures and systems, with some emphasis on merging concepts derived from evolutionary biology and cognitive function with those derived from education and the information sciences (e.g. Sweller, 2004). There has been also a closer examination of connectivity of pathways involved in communication and information processing in both machines and organisms, in such processes as evolution and cognition (e.g. Barabasi, 2002). Some researchers are investigating how functional information-processing structures, some of which may be involved in learning and memory, can emerge in complex dynamical systems (e.g. Bentley, 2007; Edelman, 2007).

5. Learning, memory and information processing

Learning and memory can be thought of, in a broad sense, as associated with the interaction of a structure, organismal or non-organismal, with the environment through information pathways or systems of connectivity. The information communicated into or out of the structure is either matter or energy and the pattern of connectivity or pathway between environment and the structure is spatiotemporal, since the information is first in one place and then later in another. Some of the information communicated in any such interaction may result in changes to the structure, including changes in information content or connectivity of information within the structure. For any structure, however, the communication of information both into and out of a structure can be described as learning if there is a resultant change in the information (knowledge or memory) within that structure. This change in information is sometimes referred to as information processing. The state, or activity, of a structure, given such input or output of information, relies on observation of change of the information within the structure.

Considering learning and memory in terms of information processing systems is not novel (e.g. Schneider & Shiffrin, 1977; Shiffrin & Schneider, 1977), with some researchers considering human learning and memory in these terms in order to gain insight into education and teaching. Sweller (2004), for example, has used comparison of information flow in the natural information processing systems of evolution and human cognition to delineate and further develop educational principles derived from models of educational design based in cognitive load theory. The results of such comparisons have been utilised in refining evidence-based and testable instructional methods for education and teaching, including those using electronic media (e.g. Kalyuga, 2006). The concept of learning and memory as a kind of human information processing is sometimes geared toward information input when considered in education. Information, however, flows not only from the environment to an individual, but also from an individual to the environment. The consideration of both inward and outward information flow is a common strategy, however, in some areas of science, for example, ecology, where organisms are considered in terms of

environmental inputs and outputs, and neuroscience, where information transfer into and out of neuronal synapses is integral to information flow.

6. A broad sense of learning and memory and its application to education

Based on consideration of a wide range of organisms and non-organismal structures, learning and memory, in a broad sense, can be said to involve three temporally connected, but separable, stages in information flow; environmental information input to or output from a structure, processing of resultant information changes within the structure (information processing), and changes in the observed state of the structure resulting from any such information processing. This broad sense of learning and memory has parallels in educational practice, for example in considering teaching as having four aspects: one, where the teacher assesses the information state of the learner in order to best determine the information to be presented for learning; two, where the teacher presents to-be-learned information in a pattern that is accessible to the learner, in an environment that encourages information input; three, where the teacher assesses, through information output, whether any presented information has been remembered (through processing), and; four, where the teacher uses this last assessment as a basis for further presentation of information.

There are numerous educational theories that provide methods of enabling successful teaching on this basis, but there is little support for any claim to empirical verification of their efficacy (e.g. Sylwester, 1995). In contrast, some of the theories developed from information processing models, such as cognitive load theory, have provided testable principles with proven efficacy (e.g. Sweller, 1994, 2004). Studies in integrative biology that have investigated human cognition on various levels, from macroscopic to molecular, have indicated that there may be biological parallels to the phenomenology that underpins information processing models, such as those in cognitive load theory (Woolcott, 2009a, 2009b). The broad sense of learning and memory described above, however, indicates that an overarching view of environmental interaction may need to be considered in order that teachers and researchers evaluate effectively any teaching methods.

Environmental information flow has not been fully considered in models of educational design in that many models are inherently based on an assumption that information presentation is the most significant environmental interaction in learning. Studies based in integrative biology lend support to a contention that there is a significant effect on learning due to input and output information flow of even simple environmental factors, such as water, oxygen and glucose (Riby, Meikle & Glover, 2004; Chung et al., 2007). It follows, therefore, that learning principles derived from a broader sense of information flow may apply to teaching and instructional design in relation to organisation of environmental input and outputs. Two such principles that may be applied in institutional education are considered below.

7. Two new principles related to a broad sense of learning and memory

7.1. The Learning Readiness Principle

In human cognition, growth of knowledge structures, such as neuronal assemblies, requires that certain matter and energy requirements be met through both inputs to and outputs from the central nervous system, and the human organism more generally. For any addition to memory, all required systems must be supplied with the necessary reactants at the required conditions in the appropriate time frames. The Learning Readiness Principle can be described, therefore, as a chemical and energetic learning readiness wherein certain environmental interactions can be seen, in a general sense, as the minimum condition for learning. This Learning Readiness Principle reflects an intuitive understanding about readiness as a requirement for learning, sometimes considered in terms of motivation and engagement. The Learning Readiness Principle suggests more generally, however, that inputs and outputs must both be considered in any learning and that, further, it is necessary to consider all matter and energy inputs and outputs, such as oxygen, water and glucose.

7.2. The Environmental Connectivity Principle

The Environmental Connectivity Principle follows in many ways from studies that see human learning and memory as holistic processes, where all parts of an organism are involved with the formation of every memory (e.g. Kandel & Squire, 2002), and studies that see this involvement as extending into a connection with environment (e.g. Järvilehto, 1998; O'Regan, Myin & Noë, 2005). The Environmental Connectivity Principle refers to the situation where information flow may occur only if there is appropriate connectivity. This Principle can be seen within human cognition, where there appears to be also a constant interaction between environment and the central nervous system and where such interaction determines all aspects of cognition, including the growth of cognitive structures. There can be no situation where the interaction with environment ceases, as many internal somatic processes are involved in cognition. For example, sensors in muscles constantly monitor body position, requiring information input and output even when the body is sleeping (e.g. Llinás, 2001). This environmental interaction, however, needs to be considered for each component of the cognitive system, in particular time frames, as information flow is not necessarily constant across all components.

The Environmental Connectivity Principle indicates that, within the human cognitive system, for any memory storage in the central nervous system and, perhaps resultant changes in the motor system, there must be appropriate connectivity for information flow between components within the human cognitive system and the human soma. There must be also appropriate connectivity between the human soma and its environment. If such connectivity does not exist, learning or memory cannot occur. This can be illustrated clearly

in some cases of autism, where environmental connectivity may be compromised and learning, therefore, problematic (e.g. Grandin and Johnson, 2005). This Principle implies, among other things, that there needs to be accurate assessment of information flow for individuals being educated.

8. Conclusion

There appears to be a reluctance in human society generally, and specifically in education, to accept the numerous and constant connections of each human with the universe at large, even through apparently simple environmental factors such as heat or food availability. The treatment of a human as an information processing system may provide a more complete understanding of the process of human learning and memory when it is interpreted in an environmental context using a universal perspective. The broad sense of information processing and the two-way information flow between structure and environment, as described here, incorporates aspects of human cognition as well as more conventionally described information processing in biological systems and may be useful in delineating principles that may be useful complements to those already developed. In particular, this broad sense indicates that aspects of the internal and external environment may need to be considered in promoting human learning and memory through education.

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Mots clefs

Index

Proceedings 2nd Paris International Conference on Education, Economy and Society – 2010