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## Table of Contents

<i>Effects of Social Studies Instruction Using Case Study Method on Democracy concepts and Critical Thinking Abilities of Secondary School Students</i> Warut Intarit	pp. 1 - 12
<i>Learning to Talk, Talking to Learn: An Action Research Project to Investigate How Practitioners' Interactions with Children Under Six Support the Development of Language and Communication Skills through a Play based Approach to Learning within a Formalised School Environment</i> Alicia Blanco-Bayo	pp. 13 - 26
<i>The Dynamics for Differential Performance of Secondary School Students in Mathematics</i> Amos Adewale Ojo Odunayo Emmanuel Popoola	pp. 27 - 37
<i>Impact of Semiotic Analysis of Images on Students: A Case Study of Images Published in Time Magazine, Asia</i> Nayer Fardows Sarah Nayer Shakeel Jaffar Rakhil Mariam	pp. 39 - 49
<i>ASEAN Economic Community: An Analysis of Trends and Challenges For Thai Higher Education Institutions</i> Prapassara Thanosawan	pp. 51 - 67
<i>Seeking the Meaning of Global Citizenship: Selected Findings From Case Study Research Within a Japanese University</i> Paul D. Sherman	pp. 69 - 83
<i>English Language Development and Academic Integrity - Making the Connection</i> Beena Giridharan	pp. 85 - 91
<i>Reification of Social Privilege in International Volunteerism</i> Stephanie Katelyn Sisson Ee Lin Lee	pp. 93 - 106
<i>Confronting Students' Science Anxiety through "In Dialogue with Nature"</i> Wan Heng Sandy Hoi Wing Hung Wong Kam Moon Pang	pp. 107 - 119
<i>How to Support Collaboration in a Learning Community</i> Heli Makkonen	pp. 121 - 128

<i>Pedagogical Credo Based on Feminist Pedagogy as a Way to Voice Personal Identities</i> Sigal Oppenheim-Shachar	pp. 129 - 137
<i>Development of an Online Platform for Understanding Students' Weaknesses</i> YM Tang	pp. 139 - 146
<i>Depth of Teachers' Subject Content and Pedagogical Knowledge as Predictors of Secondary School Students' Academic Achievement in Kwara State, Nigeria</i> Felicia Olabisi Olasehinde-Williams Lasiele Alabi Yahaya Henry Olumuyiwa Owolabi	pp. 147 - 160
<i>Interactive Learning, Teaching and Assessment Using Socratic</i> Dilshad Sarwar Amin Hosseinian-Far	pp. 161 - 171
<i>Friendship As a Determinant of Supporting an Inclusive Approach in Kindergarten</i> Dominika Provazkova Stolinska Miluše Rašková Eva Šmelová	pp. 173 - 180
<i>Changing Perspectives: Contemporary Art Practices in Primary and Secondary Art Classrooms</i> Chor Leng Twardzik Ching	pp. 181 - 196
<i>An Overview of Narrative Research Methodology with Underprivileged Youth in an Out-of-School Visual Arts Programme in Singapore</i> Vincent Twardzik Ching	pp. 197 - 206
<i>Learning CAT Tools Using eLearning Tools – A Case Study</i> Isabel Fernandes Silva Ana Luísa Teixeira Célia Quintas	pp. 207 - 219
<i>Negotiation Strategies to Support Misbehaving Children: The "Deal" Strategy</i> Mariana Boules	pp. 221 - 226
<i>Achieving Sustainability Learning through a Cloud-Based Online Learning Platform</i> George T. S. Ho	pp. 227 - 237
<i>Needed Interventions for More Effective Counsellors' Role Performance in the School System in Edo and Delta States of Nigeria</i> Agatha Ojeme	pp. 239 - 249



- We are All Related: Course Design for Reconciliation – Indigenous Teachings Nehiyaw (Cree) and Critical Thinking*  
Janice Makokis  
Kathryn Campbell  
Diana Steinhauer  
Diane P. Janes pp. 251 - 263
- Sustainability Education (SE) in Primary School Curriculum in Tanzania: Exploring Teachers' Views and Perceptions*  
Aurelia Raphael Kimaro pp. 265 - 281
- The Use of Digital Means in the Teaching and Learning of Multiplatform and Social Media News Reporting*  
Ainara Larrondo  
Irati Agirreazkuenaga  
Simon Peña pp. 283 - 294
- Innovative Pupils! Documentary Research on Teaching and Learning Approaches for Innovativeness*  
Claudia Scharf  
Swantje Weis  
Inga Gryl pp. 295 - 313
- Education of Teachers of Inclusive Pre-Schools in the Czech Republic*  
Eva Smelova  
Alena Vavrdova pp. 315 - 327
- Does the Economic Crisis Affect Greek Adolescents' Academic Performance? An EST Approach*  
Tanya M. Geritsidou  
Despina Paizi pp. 329 - 345
- The Effect of Stimulating Children's Brains Using Digital Games on Their Information Retention*  
Ahmad Hammoud  
Ahmad Shatila  
Nisrine Adada pp. 347 - 357
- Learning Needs in the Modern Edutainment System (On the Base of Partworks)*  
Iuliia Dracheva pp. 359 - 371

- The Packaging Design Factors to Reduce Alcohol Campaign for Youth People: A Case Study of Packaging Design's Classroom*  
 Wichanat Tiwasing  
 Kevin Hapeshi pp. 373 - 383
- Re-Thinking the Student Teaching Curriculum: Using Field-Based Instruction to Help Candidates Notice, Acknowledge, And Address Bias in the Classroom*  
 Elizabeth Soslau  
 Nicholas Bell pp. 385 - 396
- Te Wānanga o Raukawa: Transforming the Colonial State of New Zealand Through Education*  
 Annabel Lucy Mikaere pp. 397 - 406
- The Influence of Educational Psychology Variables on Student Grades in an Introductory Economics Course*  
 Ahmad A. Kader pp. 407 - 422
- Measuring Classroom Pedagogical Transformations when "Educating for Change?" A Lesson from Singapore*  
 Denise E. De Souza pp. 423 - 438
- An Experimental Learning Model for Rfid*  
 C.H. Wu  
 Tommy Cheung  
 P.P.L. Leung  
 W.Y. Lau  
 W.H. Ip pp. 439 - 447
- Automatic Assessment of Programming Assignments to Enable New Educational Paradigms*  
 José Cardoso  
 João Carlos Pascoal Faria  
 Bruno Miguel Carvalhido Lima pp. 449 - 458
- Towards a Poetics of Empathy: Literary Fiction as a Transformative Experience*  
 Cynthia F. Wong pp. 459 - 465
- A Comparison of the Use of Social Media in China and UK Higher Education in Art and Design Subjects*  
 Zhifen Di  
 Minhua Ma  
 Wei Zhao pp. 467 - 478



***Effects of Social Studies Instruction Using Case Study Method on Democracy concepts and Critical Thinking Abilities of Secondary School Students***

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**Abstract**

This article describes the Effects of Social Studies Instruction Using Case Study Method on Democracy concepts and Critical Thinking abilities of Secondary School Students. The purposes of this research were to test the hypothesis that secondary school student demonstrate higher scores in democracy concepts and critical thinking abilities after using case study method. The participants were twenty-four tenth grade students who enrolled the civic education class. The research instruments were the democracy concepts test with the reliability at 0.81 and The Cornell Critical Thinking Test, Level X with the reliability at 0.71. The experimental instrument was the ninth case-study method lesson plans. The data were analyzed by means of arithmetic mean, standard deviation, and The t-test dependent. The research results were as democracy concepts and critical thinking abilities of secondary school students after learning by using case study method were higher scores than that before using case studies method at 0.05 level of significance.

Keywords: Case Studies method / Critical thinking / Democracy concepts

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## Introduction

Thailand has been replacing with a parliamentary democracy for 80 years, but the political conflicts were always led to the several of coup and acts of violence. Thailand has changed the constitutions in every 4 year. Consequently, Thailand's democracy has failed and changed only in its political structure. However, it has never changed the way of life of people. These were the consequences of misunderstanding of democracy among Thai people. According to the report of Office of The Election commission & Office of the Basic Education Commission of Thailand (2009) and Thaewarumitkul (2012), ensured that Thai youths have been studying democracy for 15 years in the pre-tertiary education, but democratic cultures could not be achieved because many of Thai students don't grasp the concepts of democracy clearly.

The considerable problem of Thai education is the hierarchical society. Most of Thai students were taught to be believed and obeyed the leaders without questioning and asking for reasons. The citizenship education in Thailand emphasizes on teaching democracy as a government rather than democracy behaviors (Tantisunthorn, 2012), so that students cannot think logically. Moreover, they lack of analyzing skills. Therefore, the important tasks of all teachers are to establish and to develop habits of democracy. Initially, the teachers need to educate Thai students to understand the democracy concepts and develop their critical thinking abilities. Why we have to improve Thai citizen's knowledge about the concepts together with critical thinking abilities? Several papers have showed that the concepts are the fundamental of higher-order thinking and can enhance understanding between each other. (Arends, 2001). If teacher want to promote democratic cultures and cultivate students to be good citizens, teaching concepts would be the first step of processes (Crick, 2002). They need to give students mutual concepts in terms of law, justice, representative, natural right, liberty, individuality, and welfare. As a result, the development of democracy concepts will help students to understand themselves, to respect other opinions and to accept the social diversity. Jaramillo & Murillo (2013) supported that the citizenship education cannot be completed without the development of critical thinking. When the people are critical thinkers, it will force them to use reasons to overcome individual biases and assumedly that they will not have fallen into any of the logical fallacies or rationalizations themselves (Halpern, 1999; Wood, 2002). There is another reason supported by Ennis (2011). He explained that the critical thinkers are disposed to consider seriously about other people's views, to listen carefully to other reasons and to literally concern about other welfares. These attributes assure that the critical thinking will help improve good citizenship mindset of students.

How could the democracy concepts and critical thinking skills be developed? The strategy of this case study has been normally used in many fields as a basic class discussion. Kauchak and Eggen (2003) cited that the case studies are the most powerful examples that teachers can use to teach the difficulty, complex and abstract concepts, so the theoretical democracy concepts could be simplified through them. Klein, et al (2010) supported that teachers can bring concept of human rights alive in their classrooms through examples they use, questions they raise, through active

discussion, critical thinking and reflection. When the teacher posed the questions “How” or “Why” during the inter-group discussion, students were required to use their appropriate reasons to argue with another group. In the process of using case study, teachers are not only to facilitate students to figure the answers out, but also afford an opportunity to develop communication and problem solving skills (Davis & Wilcock, 2003 p.) Brooke (2006) and Saleewong (2012) coincidentally founded that the case study method can promote Socratic dialogue and critical thinking skills in the visual classroom. However, the effective of it significantly depends on the two strategies; the type of cases and the questions which teachers proposed. In general, case studies should be based on a true story, real life or the contemporary phenomena and the question “why” is very useful to urge student to think critically. Yin (1994) supported that

“if you wanted to know "why" the act had occurred, you would have to draw on a wider array of documentary information, in addition to conducting interviews if you focused on the "why" question in more than one terrorist act, you would probably be doing a multiple-case study”

Using case study instruction helps Thais to not judge anything merely by own views and attitudes. They will investigate more and more facts and use information from different resources before making a conclusion. Besides, they are fostered to participate in democracy classroom and construct the body of democracy concepts in their own mind. To achieve these objectives, I bought a copyright of The Critical thinking Test, Level X by Ennis & Millman (2005), and it was translated into Thai version by Department of Consular Affair, Kingdom of Thailand. The test is accepted to be one of the standard critical thinking tests. It was generally used in many cultures. Importantly, the test items cover the key critical thinking concepts including assumption, induction, deduction, and credibility as well as observation skills.

### **What is the case study instruction and how it functions?**

What is the definition of case study? By term, case study is defined as the description of the complex problem based on human story that illustrates a difficult situation requiring a decision (Stanford University, 1994) It is comprised of several relevant dimensions (Gerring,2004)□ and it is inquired when the boundaries between phenomenon and context are not clearly evident (Yin, 1994). Using the case-study can literally reveal all empirical facts of stories. The case study is normally used in a variety of educational field nowadays. The lecturers traditionally bring it into the classroom as one of active learning strategies. It can boost up student’s motivation and improve student’s main skills; group working, information gathering and analysis, time management as well as practical skills (Davis & Wilcock, 2003: p7). Easily, they could be developed from personal or teacher’s experiences. How can the case study develop democracy concepts and critical thinking abilities? The research of this study analyzed and synthesized information from various papers in terms of teaching using the case study.To achieve the purposes, the researcher has integrated key question



techniques in every process. The case studies method strategies comprise of 5 steps as follows;

1) Presenting the case study: Before presenting the case study, Lane (2007) suggested that teachers have to determine the learner attributes and learning outcomes. In this paper, the case studies based on the true and complex story particularly from political conflicts and democracy situations in Thailand. Teachers give students time to read it carefully.(Stanford University, 1994)

2) Identifying problems: Teacher will ask students key questions; what is the main problem? Where does the situation take place? What is intended by saying that? Then, students identify problems themselves (Saleewong, 2009) (Facione, 2011)

3) Analyzing case study: Students jointed the groups and then they prepare to use a different information and several perspectives to analyze the story. (Choi & Lee, 2009) In addition, students were urged to draw upon principles in political sciences, democracy concepts as well as ethics to solve a problem. (Stanford University, 1994). The democracy concept will be formed in this process.

4) Classroom discussion: There are several strategies in this process. Firstly, teacher passes the question out in order to give student an issue to be discussed. Next, students explored the problems and exchanged their opinions to each other. Then, they presented the intra-group's solutions to others and instructor. (Khamanee, 2009) Importantly, the teacher need to ask some questions that motivate student's critical thinking abilities. Students can understand democracy concepts more clearly when they actively participated in this process. These are very useful to check reasons behind conclusions. The "why" and "how" questions are needed.

5. Conclusion: Teacher asks students to summarize the classroom discussion and then give them time to make conclusions themselves. If all the answers were not be completely carried out, students can be assigned to find more information for the next class session (Stanford University, 1994)

### **What are the democracy concepts?**

The concepts of democracy highlight the intrinsic importance of right, liberty, and equality, rule of laws, majority, election, pluralism, responsibility and political participation. Each concepts is mentioned in the Thailand's Education Basic Core Curriculum 2008. The definitions of each concepts are as follows

Democracy concepts	Description
Right	In the democratic states, It is believed that all human beings are born with dignity so they have right to live, right to participate in public affairs that affects them, right to education, right to elect their representatives, right to take part in associations and particularly right to check and petition government (Bassiouni, et al (1998), Klein, et al (2011)). The

	principle of human rights is ratified by the constitutional law. The concepts is closely relate to liberty, equality, election and political participation.
Liberty	Liberty is freedom. The freedom to speak, freedom to publish, freedom to express their opinions fairly, freedom to own properties and freedom to belong to social or cultural associations (Klein, et al,2011). However, Citizens freedom is linked to others so they can't not treat or break the laws. Gollob, et al (2010) suggested that in the school context, individual freedom of expression must be limited, quite strictly, to guarantee every student has a chance to participate in the debate. Liberty is enshrined in the democracy society.
Equality	Equality means all social members are protected from discrimination. (Bassiouni, et al (1998). Democracy, however, may be differences between citizens by the way of their backgrounds, the government should realize the individual competence without regarding one's race, gender, religion, ethic or whatsoever (Klein, et al,2011).The crucial importance of equality stresses everyone stands under the laws even the prime minister, legislators or state authorities.
Rule of laws	The rule of law has been accomplished by parliamentary vote or public acceptance, No one, therefore, stands above the laws and all citizens are held responsible if they break it (Klein, et al, 2011). To protect citizen's right and liberty, the process of legislating must be fairly, equally and transparently.
Majority	This implies the majority should be sovereign (Coppedge, et al, 2011). In democracy, people exercise their right to vote for their agents at all level including school, local, regional and national election, and all voters must accept the results, the principle of majority rule, however, must be balanced with the protection of minority interests to ensure social cohesion. (Gollop, at el, 2010). The majority is accepted to be a fundamental of democracy. This concept is intimately related to personal right and liberty. Burnham (2011) supported that "I am not living in a democracy if I cannot choose which books to read, which movies to watch... Equally I have to be able to choose which government will make choices on my behalf. But again I have to accept that my choices will eventually be circumscribed by <b>the majority</b> . "
Election	Election means the competition among the multi-party systems though fair, free and periodical election. All citizens can choose their own representatives in the condition of equality, openness and transparency (Bassiouni, et al (1998). If the public officials could not answer common questions, voters have a chance to leave incompetent leaders through elections (Klein, et al, 2011). This confirms that citizens are not stuck with the unsatisfactory leaders for a long time. The

	concept of election is closely linked to majority, responsibility, right and political participation.
Pluralism	Democratic society includes various groups by way of clans, ethics, races, colors, political parties, behaviors, classes, ages, lifestyles, types of learner and opinions. There may be tension or conflict between two groups of people, teachers have to give room for discussion, debate and accommodation of different viewpoint.(Klein, et al,2011). Political tolerance and negotiation are significantly needed.
Responsibility	This concept emphasizes what people do affects others and vice versa, they, therefore, have to take responsibility for their behaviors. Besides, the public officials have to hold accountable for their actions, policies, decisions or indecisions during the time they position in the public offices (Klein, et al, 2011). To balance freedom and equality, teacher need to share speaking time and attention to every student equally (Gollop, at el,2010)
Political participation	Political participation becomes democracy's symbolic (Burnham, 2011) This entails the process that people can connect themselves to the government, to guarantee the right of self-governing (Klein, et al, 2011). It is presupposed that citizens would actively involve in every public decision through associations, elections or referendums. This is closely related to all concepts.

## Research Methodology

### Participant

The participants were 24 tenth-grade students enrolling in a section of the civic education class at Samsenwittayalai School, the public school in Bangkok, Thailand. They were divided into 3 groups as being classified by high, medium and low social studies learning achievements. Each group has 8 students equally. All students have taken the critical thinking test, Level X, and the democracy concepts test before using case study method. Then, they were asked to participate in the case study method program for 9 weeks. Teacher checked their critical thinking and the concepts again after finishing all processes. The processes shown in table 1.

Experimental group	Pre-test	Treatment	Post-test
E	D <sub>1</sub>	X	D <sub>2</sub>
	C <sub>1</sub>		C <sub>2</sub>

E: Experimental group

X: Case study method program

D<sub>1</sub>: Measuring students democracy concepts before the instruction using case study method

D<sub>2</sub>: Measuring students democracy concepts after the instruction using case study method

C<sub>1</sub>: Measuring students critical thinking abilities before the instruction using case study method

C<sub>2</sub>: Measuring students critical thinking abilities after the instruction using case study method

## Materials

### The materials used in this research comprise of

1. Case studies method lesson plans: To stimulate student's critical thinking abilities and Democracy concepts. Teacher selects nine case studies from different resources such as newspapers, teacher's experiences, history and political books. All of the cases involve the democracy or political situations in Thailand or global society. For example, the case study "the unequal society in India" presents a variety of status in India and how people treat to the person who are differently. Teacher has integrated 5 steps of the case studies-strategies with this study. They are 1) Presenting case study; 2) Identifying problems; 3) Analyzing case studies; 4) Classroom discussion; and 5) Conclusion in every lesson plan. Students were asked to take the Case study method program for several weeks prior to post-test.

2. The Critical thinking Test, Level X: The teacher measured student's critical thinking by using the critical thinking test, Level X (Ennis & Milman, 2005) this test has been used in curriculum and teaching experiments for evaluating the critical thinking ability of a group and for program admission and employment.

The Level X is a 71-item, multiple choice test for students in Grades 5-12+. It may be administered as 50-minutes timed or as an untimed evaluation. The reliability of the test is at 0.71. The component of the test follows

#### The component of Cornell Critical Thinking Test, Level X

Cornell Critical Thinking Test, Level X	Question items	Score
Induction	3-25,48,50	25
Deduction	52-65,67-76	24
Credibility and Observation	27-50	24
Assumptions	67-76	10
Total	71	71

3. The democracy concept tests.

Teacher generated **paralleled-democracy concepts tests** to evaluate student's achievement before and after using case study method. Each test comprises 30 items

and multiple choices .To test student's concepts in term of right, liberty, equality, rule of law, majority, election, responsibility and political participation. An evaluation of the test using the index of item-objective congruence (IOC) by the social studies experts in Thailand. All experts agreed that all item was clearly measured. The reliability is at 0.81

## Results

**Table 1** The comparison between democracy concepts of students classified by high, medium and low social studies learning achievement before and after using case study method

Duration	N	( $\bar{x}$ )	S	T	Sig.(One-tailed)
<u>Total</u>					
before	24	15.17	3.40	6.350	0.00*
After	24	17.83	3.17		
<u>High-achievement group</u>					
before	8	17.88	2.53	4.314	0.004*
after	8	20.75	1.28		
<u>Medium-achievement group</u>					
Before	8	14.63	2.88	4.202	0.004*
After	8	17.88	1.96		
<u>Low-achievement group</u>					
Before	8	13.00	3.02	2.525	0.04*
After	8	14.88	2.90		

\*P< 0.05

According to the table 1, the results founded that democracy concept of secondary school students after learning by using case study method were higher than that before using case studies method at 0.05 level of significance ( $\bar{x}_{\text{before}} = 15.17$ ,  $\bar{x}_{\text{after}} = 17.83$ )

**Table 2** The comparison between critical thinking abilities of students classified by high, medium and low social studies learning achievement before and after using case study method

Duration	N	( $\bar{x}$ )	S	T	Sig (one-tailed).
<u>Total</u>					
Before	24	37.54	8.42	9.078	0.00*
After	24	44.42	7.60		
<u>High-achievement group</u>					
Before	8	39.38	6.05	5.974	0.001*
After	8	46.13	4.19		

<u>Medium-achievement group</u>					
Before	8	44.38	3.81	4.357	0.003*
After	8	50.75	4.06		
<u>Low-achievement group</u>					
Before	8	28.88	6.22	5.123	0.001*
After	8	36.38	5.73		

\*P< 0.05

According to the table 2, the results founded that critical thinking abilities of secondary school students after learning by using case study method were higher than that before using case studies method at 0.05 level of significance ( $\bar{x}_{\text{before}} = 37.54$ ,  $\bar{x}_{\text{after}} = 44.42$ )

## Discussion

The purposes of this research were to test the hypothesis that secondary school students demonstrate higher scores in democracy concepts and critical thinking abilities after using case study method. Results shown that case study method program is effective in enhancing student's democracy concepts and critical thinking abilities. The high, medium and low social study achievement students demonstrated higher scores after participating in the program. Each step of case study method supports critical thinking and organizes concepts in student's mindset. The results suggest that step of analyzing case studies influences forming democracy concepts. For example, when a researcher taught the concept of Liberty, I presented the words such as violent, military power, freedom to publish, freedom to own property, freedom to speech, lawbreaker and strictly controlled. Students could identify what was related to democracy concepts and what was not. Rybarczyk†, et al (2007) use a case-based approach increases student learning outcomes and comprehension of cellular respiration concepts. The case is comprised of controversial story. Rybarczyk†, et al (2007) used this method with the biology undergraduate students who randomly assigned in the using case study group and disusing case study group.

This finding of the research conforms to the conclusion of Rybarczyk†, et al (2007) that case study leads to increased learning gains and boosted usage of higher-order thinking skills when compared with student-reported evidence previously described. This research, however, could not compare learning outcome between two-groups of students as another group that I taught obviously had higher score in all subjects. Additionally, the results indicate that students greatly improved their critical thinking abilities in the process of discussion. In this step, a researcher checked the reasons behind conclusions by using questions. For instance, why would you bring to this conclusion? Is the definition of democracy concept correct? Why do you believe this end? Were you consider all angles? Please repeat your reasoning again. The results support the findings of Brooke (2006) and Salewong (2011). Both of them implemented case study method to develop critical thinking of students in the online classes. Those research concluded that case studies promote Socratic dialogue and higher order thinking skills as well as classroom participation. Besides, the significant



factor that improved student achievement learning was the democratic classroom. Wilmer (2002) described that democracy in the classroom can provoke critical thinking among participants in the dialogue. This requires good listening skills. A researcher affords students opportunity to choose their group themselves. All students were asked to share their opinions in the classroom session. They have the right to dispute freely, fairly and equally insofar as they did not break other liberty or classroom rules. All opinions were considered and students were equally respected. These factors were necessarily beneficial to develop democracy concepts and critical thinking abilities of secondary school students.

## **Conclusion**

The instruction using case study method has the potential to develop democracy concepts and critical thinking abilities of secondary school students. Case study method also enhances the classroom participation. Students were trained to analyze and synthesize information before conclusion through case studies. Additionally, future researches may wish to implement a case study to increase creativity, problem solving and communication skills.

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***Learning to Talk, Talking to Learn: An Action Research Project to Investigate How Practitioners' Interactions with Children Under Six Support the Development of Language and Communication Skills through a Play based Approach to Learning within a Formalised School Environment***

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**Abstract**

Adult-child interaction during play as an approach to teaching and learning with children from 3 to 6 years of age in a formalised school environment is described in an Action Research study. The study was carried out in an independent school in the Northwest of England where focus groups were used to encourage self-reflection and group discussions with the aim of provoking change in practice. The answers to the key questions asked during the discussions generated data that determined how participants felt about using play as a hands-on approach to learning. Following a period of trialling of play as a strategy, it was concluded that there was a place for play as a teaching and learning strategy in a formalised school environment. However, it was also noticed that instructional delivery of concepts was still a curriculum expectation. The findings showed how adult-child interaction could have an impact on the development of language and communication skills. It was also confirmed that participants benefited by discussing own practice and how a support network was created during the focus group discussions. The fact that participants knew one another provided a relaxed environment that encouraged dialogue with a common aim in mind. Participants questioned whether formal teaching and learning was a parental expectation in an independent school. It was identified that further research was needed with the aim of sharing with parents the benefits play can have on the development of children's language and communication skills. The trialling of play strategies was carried out by each of the seven participants in a relaxed manner that fitted in with the regular day to day life of the school. This confirmed the need for further research to study the impact specific play strategies may have on the development of individual children over a period of time.

Keywords: independent school, parental expectations, hands-on approach, play, environment, adult-child interaction, communication and language, Action Research, focus groups and reflective practice.

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## Introduction

This paper presents the action research study that was carried out within an independent school context and defines what each chapter includes. The context and background to the study are described to give a real perspective as a starting point to the research.

It also explains the reasons why the topic of adult-child interaction through play was chosen having considered previous research studies (Vygotsky, 1978; Hrnecir, 1989; Irenson & Blay, 1999; Smilansky & Shefatya, 1990) and two government policies (DfE, 2013; DfE, 2014).

## Context and background to the Study

Although I have written unpublished essays, articles and training sessions for use in practice; it was the interactions between myself and a 3 year old child which led me to plan a research study to investigate the purpose of adult-child interaction during meaningful play (Robert-Holmes, 2012).

As described by Kincheloe (2003), prior to any real investigation a meaningful scenario must be created so that those taking part in the study can see themselves in the picture. His angle on the use of Action Research directed my thoughts to a point of reflection about the way play was being approached in the school I worked for. Conclusively, the focus became the type of practice and the participants any of the practitioners working with children from 3 to 6 years of age. The interesting challenge would be to bring people together to discuss own practice and as a group reflect on experiences with children as play had been used as an approach to learning (Ahsam et al. 2006).

In section, I introduce the study. Furthermore, an analysis of previous literature can be studied in a detailed investigation carried out as piece of research for the University of Sheffield which I carried out for my MA dissertation. The perspective I explored looks at the relevance of play as an approach to teaching and learning as I consider Tozer's (2016) perspective. How independent schools have been defined through history and the current definition of what they offer is also briefly explored in this chapter. The use of play as a teaching and learning strategy is described as I analyse the impact it can have on the development of language and communication skills. The analysis of key research confirms the benefits of adult-child interaction during play expanding on Vygotsky's (1978) scaffolding theory. The study of learning through play as individual stages of development are considered and is then related to the findings of Irenson & Blay (1999); Smilansky & Shefatya (1990); Isenberg & Quisenberry (2002); Walsh & Gardner (2005); Robert-Holmes, (2012) and McInnes et al. (2013).

The study also examines the use of Action Research as the methodology used to identify whether there is a place for play as a hands-on approach to learning in an independent school. It also justifies the use of Focus Groups to encourage reflection and dialogue amongst participants as Wellington (2000) and Sagor (2005) suggest. This chapter also shows how individual and group reflections can be the key to acknowledge the need for change (Öztok, 2016). Furthermore, it analyses the data

collected during three focus groups discussions as it relates it to the concepts of adult-child interaction, learning through play and the learning environment. It then mentions how instructional teaching was brought to the discussion as participants connected with each other during the process of reflection.

The final section of the study analyses the conclusions reached from the focus group discussions as participants' responses are grouped in three main sections – Adult-child interaction, Learning through play and The learning environment- in order to answer the research question.

### **Research Question**

Rather than defining the ideology of a school of thought, and bearing in mind that the participants were open to highly purposeful teaching and learning strategies; it seemed like a convenient time to trial varied hands-on strategies to initiate a cycle of reflection (Grieshaber & Ryan, 2015). This small scale study reflects on the impact adult-child interaction can have on the development of children's language and communication skills as they learn through play.

Whilst this study aims to analyse how participants use adult-child interaction during play to promote the development of language and communication skills (Fisher, 2011), it is hoped that Action Research will provoke a sense of reflection needed to provoke change in practice (McNiff, 2014).

Having considered the option of studying the development of a 3 year old girl in particular in an attempt to demonstrate how play could provide what she needed to support the development of her language and communication skills, I reflected on my own practice and discovered that trialling a series of playful activities with one child over a period of time might not provide enough evidence to influence change in practice. Therefore, a period of self-assessment to analyse the reasons why I believed play could have such an impact on the development of language and communication skills was needed (Cullen et al. 2009).

Following this period of self-reflection, I put together the following research question: *Can practitioners' interactions with children under six support the development of language and communication skills through a play based approach to learning within a formalised school environment?*

Throughout the five chapters in this small scale study, I analyse the impact that adult-child interaction can have on the development of children's language and communication skills, as argued by Hrnčíř (1989); Irenson and Blay (1999) and Bruce (1994). How play can be used to facilitate learning is also explored according to Vygotsky (1978); Isenberg & Quisenberry (2002) and Robert-Holmes (2012). Furthermore, I examine the purpose of an enabling environment as I refer to the Early Years Foundation Stage Framework (EYFS) (DfE, 2014) and Walsh & Gardner's (2005) perspective on adapting the environment according to children's needs. The study also analyses the expectations of the Primary National Curriculum (DfE, 2013) as the Spoken Language Statutory Requirements are related to the Communication & Language Early Learning Goals included in the EYFS Framework (DfE, 2014). This is followed by the analysis of the way play can be adapted to provide for individual



children's needs as suggested by Trawick-Smith & Dziurgot (2010) and Fisher (2011).

The use of focus groups is explored according to Krueger & Casey (2015), Cullent et al. (2009) and Cohen et al. (2015) as participants learned to relate to each other during a process of reflection and analysis of own practice over a period of ten weeks. How this small scale Action Research study used those reflections to influence change is also analysed using Creswell (2013) and Van Manen (1990) perspectives.

## **Conclusion**

This section summarises the whole study and it describes how an Action Research approach enabled participants in this study to explore the use of a hands-on approach to play. It also identifies how the use of focus groups facilitated the opportunity for participants to discuss and reflect on aspects of their own practice which in turn helped to increase their confidence as they begun to develop a shared understanding.

## **Action research**

Action Research provided a suitable methodological approach to the 'change' which I had intended to examine when I embarked on this study. Self-reflection was central to my own thinking. The plan was through the use of focus groups to discuss and analyse the perspectives of the participants on 'play' so that an agreed action could be put into place and then analysed within a cycle of reflection and hopefully a change in practice. This way, participants would actually be suggesting the changes themselves as Wellington (2000) suggests.

I envisaged at the starting point of my investigation that the participants might feel unsure as to what was expected from them and may feel daunted by the task (Cullen et al. 2009). Furthermore, I fully acknowledge that forms of play did already take place within daily practice. Therefore, there was a dilemma for me from the outset as I needed to explain to the likely participants why I considered there was a need to explore the effects of play on children's developing language and communication skills without influencing the adult's thinking (Grieshaber & Ryan, 2015). In order to provide answers to all possible questions before hand, the information sheet included a detailed explanation of what was expected from participants. This was followed by opportunities for individual discussions with me about any specific aspects before any participants agreed to take part in the research. One person queried whether the quality of her practice was being questioned. This aspect was clarified with the support of the Headmistress who had agreed for the research to be carried out. This is not an unusual concern when participants are approached to take part in research about their own practice. I understood that despite a willingness to participate it was entirely to be expected that some participants may feel unsettled and require further information about the aims and objectives of the study and the impact it might have upon them. Gaining informed consent requires the researcher to be able to be ethical in all aspects of the research from beginning to end and beyond (Braun & Clarke, 2013) As Krueger & Casey (2015) suggest, a relaxed and comfortable environment where each participant felt their voice mattered was provided. All participants engaged in conversation although at times, some participants overpowered the conversation. As the facilitator, I redirected the discussion to include those

participants who showed signs of reluctance to join in. It could be argued that because we are all white women there was a sense of inclusion (Smithson, 2000). However, as Krueger & Casey (2015) argues there is a danger in assuming that all participants would provide similar perspectives since they might have had experiences outside the school circle the moderator was not aware of. The variety of perspectives discussed enabled me, as the researcher, to observe participant's body language as they engaged in conversation. When I listened to the audio recordings, I was also listening not just to what they said but the way they said it. I recalled their facial expressions and the way participants looked at each other contributed to my later analysis of the transcripts. As recognised by Cohen et al. (2015), being able to moderate a discussion so that behaviour can also be interpreted is a crucial part of analysing qualitative data. The few signs of concern that had appeared before the research slowly disappeared as the participants were given equal opportunity to discuss each other's practice. The discussions became more of a support network for participants, and even those that had found it a challenge not to dominate the talk, eventually listened and commented on their own practice in relation to others', as suggested by Morgan (1988).

As the participants interacted with each other their thoughts and current practice were discussed openly with some moderated direction when needed and there was a sense that the participants enjoyed the process of self-reflection. I did find it difficult not to agree or disagree with some of the responses as Krueger & Casey (2015) identified might happen. However, I reminded myself it was important to take a neutral role in the discussion and simply support the participants so they would all have an opportunity to talk about their own practice. These were observations I made during the focus groups discussions but when brief comments about their own practice were made over a cup of coffee in the staff room, I realised how much the methodology was having an impact on the way participants talked about their own practice in public. This confirmed that Action research through focus groups discussions was fulfilling the purpose of this research. The self-reflective nature of the methodology impacted on the participants' ability to reflect on their own practice in relation to the development of children's language and communication skills. As the focus groups continued, the participants willingly shared strategies that had either worked well or not so well. As described by Clough & Nutbrown (2012), being able to meet on more than one occasion made the interactions between participants more purposeful. As I began to analyse participants' responses I became aware of the impact this piece of research was having on the participants. As identified by Holly (1989), reflecting and sharing daily practice were the key elements that influenced change. By drawing on participants' own experiences meant they were sharing the highs and lows, the challenges and dilemmas and enabled them to feel less judgemental of one another and of themselves which often came to light during times of pressure. My role became to ensure the environment felt secure. I went through a process of self-reflection myself and concluded that by ensuring participants felt comfortable, I was enabling the environment. I was making sure participants had opportunities to further their knowledge as they shared their own experiences.

On reflection, I could have asked for specific details about a particular child in each class. This would have provided me with examples of the impact a hands-on approach through play could have on the development of language and communication skills. As it happened, the examples that participants provided were generic and described the impact that had been noticed on the whole group of children. My initial idea of

observing a child's reactions as predetermined strategies were applied, as suggested by Knottnerus & Tugwell (2010) could have been brought into the research. Although such close observations would have added another dimension to the study it would have required a longer period of time to prepare which I did not have.

The findings of this small scale study did not show whether the selection of participants were diverse enough to have a big impact on the overall teaching strategies that were used in the school. There was not enough data to make any generalised claims about whether a hands-on approach to play has a place in all independent school. Nevertheless, this study was set up specifically to consider the practice within my own school and therefore as previously discussed, using an action research approach did facilitate a change in the way participants enable the environment so that children have opportunities to apply the knowledge acquired after periods of instructional teaching.

### **The research question**

Whilst I could have justified the reasons why play could be so beneficial, that was something individual practitioners could find out for themselves. Therefore, I chose to bring people together so that good practice could be discussed, shared and developed even further.

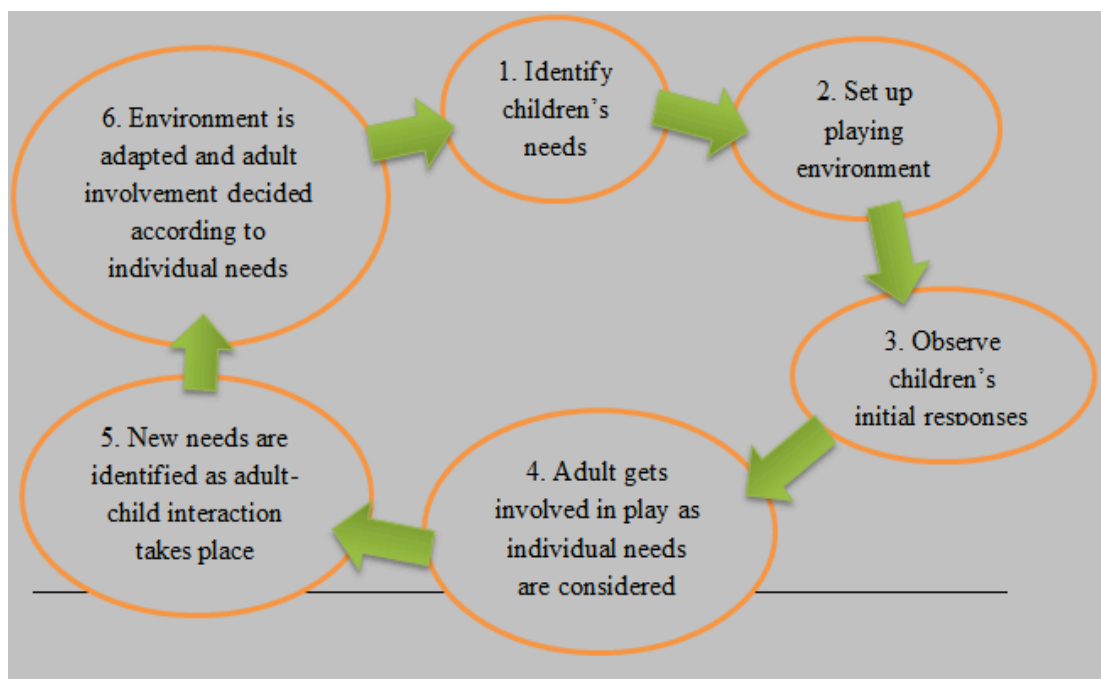
I reflected on the relationship I developed with a 3 year old who in my practice had taught me to listen so that I could understand where she was at and what she needed. The powerful moments of interaction that we shared together were the starting point for this project and were central to my ideas about the role of the adult-child interaction during play. As a result I constructed the following research question:

*Can practitioners' interactions with children under six support the development of language and communication skills through a play based approach to learning within a formalised school environment?*

The research question was planned while working in an independent school. I chose to build on the subtle changes that the school had begun to undertake. I wanted to discover whether play had a place in a formalised school environment and an action research approach enabled members of the team to be included in the research in participation with me as opposed to have research done to them (Smithson, 2010).

### **Summary of Findings**

Based on the findings of this study participants did realise that open-ended activities that encouraged spontaneous adult-child interactions could be beneficial to children from 3 to 6 years of age, as identified by Ireson and Blay (1999). They also concluded that the interactions could be planned according to what children were ready for and needed, as suggested by Trawik-Smith (2010) and Vygotsky (1978). This supports the interpretation of the cycle of learning described in the Circle of responsive behaviour below (Blanco-Bayo, 2016)



When participants discussed how children were showing more confidence when they were allowed to interact during more open-ended activities, it became clear that they felt child initiated learning had a place in their classrooms; as identified by Fisher (2011). However, they also said they felt time to teach concepts was needed. This could be due to the way terminology is used in the Primary National Curriculum (DfE, 2013) that refers to the Spoken Language Statutory Requirements as skills that should be taught. I did notice that participants interpreted some of the curriculum expectations as the instructional delivery of concepts. This continues to question how much of the hands-on approach to play can be implemented with the independent school sector.

### Conclusions and further research

This research became an opportunity to share good practice and learn to reflect on some of the approaches that can have a bigger impact on the development of children's language and communication skills. Robert-Holmes (2012) defines reflective practice as the strategy that can have an impact on the development of new systems, and I can see how this occurred throughout this research. Participants showed a willingness to use hands-on approaches during a variety of lessons and the depth of their reflections was such, some of them made suggestions as to what should change within the school to make learning more practical. There was, however, a concern about what parental expectations may be and that made participants believe that some instructional whole class teaching was expected in an independent school which fits in with Wood's assertion in Brooker (2012b), "... parents who, for a variety of reasons, are unconvinced that playful activities are as effective as didactic ones..." (p.27-28).

From a researcher's perspective and listening to participants' voices, I can foresee the need for future discussions aimed at sharing examples with parents of the impact play can have on the development of children's language and communication skills. All participants were in favour of using a hands-on approach to learning through play in

their classrooms. However, they questioned whether an independent school that had been known as a Grammar School for over 500 years was ready for it on a more permanent basis?

Further discussions are also advised if the intention is to change the approaches used on a more permanent basis. If adult-child interaction during play was brought into an enabled environment as a hands-on approach to learning, as suggested by Fisher (2011), it could provide what children need throughout the Foundation Stage and Key Stage 1. Participants were able to see it for themselves over a short period of time. However, gauging and changing the views of parents is an area that could be explored as the new generations of parents are faced with a more modern approach to independent education.

Further research with a range of participants from several independent schools of similar characteristics who could trial very specific strategies with certain type of children is worthy of further investigation.

A larger scale research should also be carried out so that adult-child interactions, play and the learning environment in a range of independent schools can be studied in more detail.

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***The Dynamics for Differential Performance of Secondary School Students in Mathematics***

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**Abstract**

The study reconnoitered the dynamics for differential performance of secondary school students in mathematics. Two hundred and fifty (250) secondary school students are randomly selected from twenty five (25) senior secondary schools transversely nine local government areas in the three senatorial districts of Ekiti State which comprises of fifteen (15) public schools and ten (10) private schools. A general question was generated and answered descriptively, while three hypotheses were formulated and tested using t-test and ANOVA statistics. The result show that significant difference existed between male and female performance as well as their attitude with respect to their academic performance in mathematics. Significant difference equally existed in the views of students across different age groups on the variation in differential performance of secondary school students in mathematics at  $p < 0.05$ . It is recommended that government at all level as well as the stakeholders should provide more teaching – learning facilities in schools to make the learning environment more attractive and that teachers should diversify their methods of teaching in order to embrace individual differences.

Keywords: Dynamics, gender, mathematics, attitude, age, performance, secondary schools.

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## 1 Introduction

Mathematics is used throughout the world as an essential tool in many fields, including natural science, engineering, medicine, finance and the social sciences. According to Lassa (1999), mathematics is used in finding the answers to questions and problems which arise in everyday life and in trade and professions. Mathematics therefore is about general objective and not just about numbers as it helps to study the happenings and situations in greater details, with the use of well-defined notations or symbols.

Right from the onset, there has been some students that perform very well in mathematics and there are some with low expectation. That is, their performances are very low and not encouraging. There are several factors that are responsible for this dynamics in differential performance of students academically.

Academic performance connotes the actions of a person or group when given a learning task. It was argued that academic performance of a student depends on his learning style by Awotunde (1997) who opined that academic performance is the behaviour exhibited by an individual, which was noticeable after one has undergone a stipulated programme in the school. This programme could be a course work for a particular class, period of time or a whole school periods.

Abe (2003) argued that academic achievement is the level of performance that is exhibited by an individual, that is, the extent to which one is able to accomplish a task, trade, profession, training or learning. It was equally viewed as the level of proficiency and knowledge demonstrated by an individual after learning has occurred.

Abe & Gbore (2003) in their study on comparability of students' performance in multiple choice and true – false mathematics achievement test, found that there was no significant difference between the performance of boys and girls on multiple choice and true – false test format. In another study, Adebayo & Adams (1983) attempted to establish the impact of sex and school types in the biology achievement test, 150 forms were given to students using 50 multiple choice questions. The result showed that there was no significant difference in the scores of boys and girls respectively.

Daramola (1982) investigated the influence of location and sex difference on the knowledge of basic physics by senior secondary school 3 students in Kwara State. The sample for the study consisted of 172 boys and 110 girls making a total of 282 students. The result of the study revealed that male and female students' scores on the test were not significantly different. Famejuro (1986) & Okonwo (1983) showed the difference between cognitive structure and gender of students in mathematics and sciences, looking at the issue closely, development of sex difference is intricately facilitated and interwoven with the gradual process of socialization of many families, peer group and age, grades, religious institutions, schools and mass media. Thus, sex differential, connotes the acquisition of distinct sex roles for boys and girls

Factors like the child's attitude towards mathematics and science subjects, his/her socio-economic status and heredity have been forwarded as having effect on the performances of students in mathematics. In addition, parents assume that their children will be uninterested in a school subject just because they weren't when they were younger.

Interest they say is the bedrock of any meaningful achievement and interest which is related to attitude seems to be the most important thing that leads to success. The learners' attitudes surely affect their academic performance because it is what learners are interested in that they can perform better in. Aminu (1987) observed that performance of learners can be assumed to be the cumulative effect of the teacher's effort. In teaching, this means that academic performance is the result of what teacher has been teaching which has been evaluated through acquired knowledge of the learners' performance is the notable action or degree of achievement that boys and girls show about the same like for mathematics but girls show greater dislike for calculating numerically.

The performance of students in mathematics have not been sufficiently researched in the country. The age of the learner also affect the performance of the learner. According to Piaget, the major developmental change in cognition is that the cognitive process become shaper and more elaborate with age. As he has pointed out in school setting, male and female adolescence are able to have abstract concepts and complexity rules more easily than younger children. Their capacity to deal with mathematical work and to abstract propositions increase. This is partly due to maturation process, increasing practice and experience in those areas that occur as children climb up the educational ladder.

There are numerous debates on the association between gender and their respective performances in mathematics. Gray (1975) determined the existence of sex difference in intellectual development performance and she concluded that boys are more successful than girls in science. Canon (1980) also found that boys performed better in numerical ability compare to the girls counterparts. Niemivirta (1997) reported that there is a difference in academic interest between genders. The research highlighted that males are more extrinsically motivated while females are more intrinsically motivated in terms of furthering their education.

However, given the same opportunity with adequate motivations, it is yet to be proved either biologically or psychologically, why boys could perform better than girls in mathematics. It is on the basis of this argument that this study was carried out to find out the extent to which sex factor affected the academic performance of students in mathematics.

### **1.1 Purpose of the Study**

The study sets out clearly to investigate the dynamics for differential performance of secondary school students in mathematics in Ekiti State, Nigeria. Based on these, three research questions were formulated to assist the study.

## 1.2 Research Questions

From the purpose of the study stated above, the following three research questions were formulated for the study.

1. Is there any significant difference between male and female students in their academic performance in mathematics?
2. Is there any significant difference in the attitude of male and female students in private and public schools towards their academic performance in mathematics?
3. Is there any significant difference in the performance of male and female students in mathematics with respect to their ages?

## 1.3 Hypotheses

Based on the research questions above, the following hypotheses were formulated to guide the study.

**H<sub>1</sub>:** There is no significant difference between male and female students in their academic performance in mathematics

**H<sub>2</sub>:** There is no significant difference in the attitude of male and female students in private and public schools towards their academic performance in mathematics

**H<sub>3</sub>:** There is no significant difference in the performance of male and female students in mathematics with respect to their ages

## 1.4 Methodology

The study is a descriptive research of survey type which elaborate firmly the dynamics for differential performance of secondary school students in mathematics. It is a survey type which aimed at collecting data on and describing in a systematic manner the characteristics, features or facts about a given population.

## 1.5 Population

The target population for the study consist of all public and private secondary schools in Ekiti State totaled three hundred and twenty (320) secondary schools which comprise of two hundred (200) public and one hundred and twenty (120) private secondary schools.

## 1.6 Sample and Sampling Techniques

A sample of two hundred and fifty (250) secondary school students was randomly selected from twenty five (25) senior secondary schools. The twenty five (25) schools were purposively selected from the three hundred and twenty (320) public and private schools in both rural and urban areas from nine (9) local government areas across the three senatorial districts of Ekiti State.

## 1.7 Instrument

The instruments used for the study is a questionnaire designed to collect the opinion of students on the dynamics for differential performance of secondary school students in mathematics in Ekiti State. The instrument was prepared by the researchers and modified based on some attitudinal variables of students towards mathematics. Respondents were asked to respond by ticking the appropriate response using the adaptation of 4 point likert scale ((strongly agree (SA), agree (A), disagree (D), strongly disagree (SD))

## 1.8 Validity of Instrument

The face and content validities were established by three test and measurement experts from mathematics department, College of Education, Ikere – Ekiti and it was represented to two test and measurement experts from the Institute of Education, Ekiti State University, Ado – Ekiti. While the construct validity and reliability was determined by the researcher using Cronbach Alpha. The result of the estimate was 0.72 and this index is considered high and significant enough for this kind of study and it corroborate the stance of Macintosh (1974) who argued that reliability coefficient of any instrument should range between 0.50 – 0.85 and above. The completed questionnaire were collected from the respondents and analyzed accordingly. There was no instrument mortality.

## 1.9 Data Analysis

The data collected were analyzed descriptively to answer the general question while *t-test* statistic and ANOVA was used to test the three hypotheses formulated at 0.05 level of significance using SPSS version 20.

## 2 Results

This section explains the descriptive analysis and the hypotheses using *t-test* statistic and ANOVA. The test statistics were used to test the six hypotheses formulated at  $p < 0.05$ .

**Table 1: View of the students on the dynamics for differential performance of students in mathematics.**

S/N	ITEMS	RESPONSES				DECISION
		SA %	A %	D %	SD %	
1	Sex has effect on the performance of students in mathematics	22 22	32 32	34 34	12 12	Disagree
2	Students like solving mathematics on their own	9 9	23 23	46 46	22 22	Disagree
3	Attitude of boys and girls affects their performance in mathematics	18 18	39 39	25 25	18 18	Agree

4	Age differences had effect on the performance of boys and girls in mathematics	22 22	38 38	25 25	15 15	Agree
5	Students perceived mathematics as a less difficult subject	10 10	30 30	43 43	17 17	Disagree
6	Students will be happy if mathematics teachers organize extra lessons apart from school time	27 27	38 38	19 19	16 16	Agree
7	Students would like mathematics to be made optional to every students	18 18	40 40	24 24	18 18	Agree
8	Students should not be allowed to use the internet whenever they have mathematics problems	19 19	29 29	30 30	22 22	Disagree
9	Students are of the opinion that only science students should offer mathematics	26 26	28 28	29 29	17 17	Disagree
10	Students have a general idea that mathematics is the most difficult subject	32 32	36 36	13 13	19 19	Agree

## 2.1 General Question

What is the general view of students on the dynamics for differential performance of secondary school students in mathematics in Ekiti State?

Table 1 above show that the respondents indicate agree to items 3, 4, 6, 7 & 10 while the respondents opinion is centered on disagree to items 1, 2, 5, 8, & 9.

## 2.2 Hypotheses Testing

**H<sub>01</sub>:** There is no significant difference between male and female students in their academic performance in mathematics

**Table 2: *t* – test analysis of the response of male and female students**

Sex	N	Mean	SD	df	t <sub>(cal)</sub>	t <sub>(tab)</sub>	Decision
Male	130	35.02	5.08	248	2.126	1.96	S
Female	120	35.73	6.32				

*p* < 0.05 level of significance. S = Significant.

The mean view of male students is (35.02) which is less than the mean view of female students (35.73) with a mean difference of (0.71) which is marginal. Its measure of variability has difference of (1.24). The *t-test* analysis show that  $t_{(cal)}$  (2.13) is greater than the  $t_{(tab)}$  (1.96) at  $p < 0.05$  level of significance. This implies that there is significant difference between the views of male and female students in their academic performance in mathematics hence the null hypothesis is not upheld.

**H<sub>02</sub>:** There is no significant difference in the attitude of male and female students in private and public schools towards their academic performance in mathematics

**Table 3: *t* – test analysis of the response of male and female students**

Sch.	N	Mean	SD	df	$t_{(cal)}$	$t_{(tab)}$	Decision
Private	110	19.17	5.861	248	3.002	1.96	S
Public	140	15.25	4.862				

$p < 0.05$  level of significance. *S* = Significant.

The mean view of students in private schools is (19.17) which is greater than the mean view of students in public schools (15.25) with a mean difference of (3.92). Its measure of variability has difference of (0.999). The *t-test* analysis show that  $t_{(cal)}$  (3.002) is greater than the  $t_{(tab)}$  (1.96) at  $p < 0.05$  level of significance. This implies that significant difference exist between the views of students in private and public schools with respect to the attitude of male and female students in their academic performance in mathematics hence the null hypothesis is not upheld.

**H<sub>03</sub>:** There is no significant difference in the performance of male and female students in mathematics with respect to their ages

**Table 4: ANOVA analysis of views on age difference of students**

Groups	Sum of squares	Df	Mean of squares	$f_{(cal)}$	$f_{(tab)}$	Decision
Between Groups	71.23	2	35.62	4.14	3.07	S
Within Groups	832.08	247	8.58			
Total	903.31	249				

$P < 0.05$  level of significance. *S* = Significant

The sum of squares between groups (71.23) is less than the sum of squares within groups (832.08) with a difference of (760.85). The ANOVA statistical analysis show that  $f_{(cal)}$  (4.14) exceed  $f_{(tab)}$  (3.07) at  $p < 0.05$  level of significance. This imply that there is significant difference in the views of students across different age groups on the variation in differential performance of secondary school students in mathematics, hence the null hypothesis is not upheld.

### 3 Discussions of Findings

The following were found from the descriptive analysis from Table 1. It is shown that 34% of the respondents disagree that sex does not have effect on the academic performance of students in mathematics, which therefore indicated that sex is a major factor among others in determining the performance of students in mathematics. 46% disagree that that students like solving mathematics questions on their own. 39% agree that attitude of boys and girls affects their performance in mathematics, 38% agree that age difference plays a significant role in the performance of boys and girls in mathematics. 43% disagree that students perceived mathematics as a less difficult subject, 38% agree that students will be happy if mathematics teachers organize extra lessons apart from the usual school time. 40% agree that students would like mathematics to be made optional to every students, 30% disagree that students should not be allowed to use the internet whenever they have mathematics problem, by implication the use of internet should be encouraged as it will serve as a motivation to arouse the interest of students in mathematics. 29% disagree that students are of the opinion that only science students should offer mathematics while 36% agree that students have a general idea that mathematics is the most difficult subject.

It was equally discovered from the study that, at  $p < 0.05$  there is significant difference between male and female students in their academic performance in mathematics and also there is variation in their mean perception (0.71). The mean perception of male students (35.02) is less than the mean view of female students (35.73) with the mean variation of (0.71) which is marginal. Its measure of variability has difference of (1.24). Also, significant difference exist between the perception of students in private and public schools with respect to the attitude of male and female students in their academic performance in mathematics. This findings agreed with that of Jonah K.K et al (2013) who reported that majority of the students (boys and girls) in his study had a positive attitude towards learning mathematics. However, when comparing the attitudes of boys and girls, the results demonstrated that boys were more inclined to positive attitudes than girls. It can be inferred that the attitudes of the respondents were dependent on their gender. This study is equally supported by the findings of Perie, Moran & Luktus (2005), Forgasz, Leder & Vale (2000), Fennema (2000) and Asante (2010). However, this study is at variance with the findings of Ogunkunle (2007), John T.A et al (2015) and Hydea & Mertz (2009) which concluded that girls have reached parity with boys in mathematics. The findings of this study further revealed that significant difference existed in the performance of students in mathematics due to age factor. This is corroborated by the findings of Cahan & Cohen (1989), Artman, Cahan & Avni-Babad (2006) and Luyten (2006) which reported that the age of a learner also affect the performance of the learner.

### 4 Conclusion

Students like and dislike mathematics differently during the study. The steady decline in the girls' fondness of mathematics perhaps account for the corresponding decline in their performance in the subject over the years. In almost a similar degree to the boys, the girls seem to feel that mathematics is important to their future while the boys perceived it as

their area of strength. The pupils' perception on the importance of mathematics accounts for the gender differences and attitudes towards learning of mathematics. From the findings, it can be seen that amongst pupils who had positive attitudes, more boys than girls perceived that their peers thought mathematics was an important subject. The findings also show that there were more girls who had negative attitudes towards learning of mathematics and perceived that their peers thought mathematics was not an important subject. The results obtained showed that majority of the students (boys and girls) had a positive attitude towards learning of mathematics. The maturity stage of the students also played a significant role as age was seen as a major factor in achieving good academic performance in mathematics. It takes some level of maturity for a student to be able to comprehend some abstractness of mathematics concepts.

However, when comparing the attitudes of boys and girls, the results demonstrated that boys were more disposed to positive attitudes than girls. From these findings, it can be inferred that the attitudes of the respondents were dependent on their gender. Relatively, it can be concluded from the responses of this study that the significance or insignificance of mathematics to the students' future career in the modern technological world affects their attitudes towards learning of mathematics.

## **5.0 Recommendation**

Sequel to reviews made, facts encountered and the findings of this study, the following recommendations were offered.

There is need for both state and federal ministries of education and NERDC to improve the quality of mathematics teachers nationwide by regular training and retraining as this will positively enhance the teaching of Mathematics in various secondary schools for maximum academic output.

Mathematics teachers also need to diversify their methods of teaching. This is because teaching methods plays a dominant role in building, promoting and determining students' attitude towards mathematics and it brings parity between male and female students.

Government, communities and school administrators should ensure that all the secondary schools in the state and the nation at large are fully equipped with good facilities. Modern and internet linked libraries must be built in the schools as internet is relevant in stimulating the students' interest in learning mathematics, Abe T.O & Popoola O.E (2015).

Only the competent, experienced and qualified mathematics teachers should be allowed to teach in secondary school with proper remuneration.



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***Impact of Semiotic Analysis of Images on Students: A Case Study of Images  
Published in Time Magazine, Asia***

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**Abstract**

The purpose of this research is to explore impact of semiotic analysis of images on students during their learning and teaching phase for which images published in TIME magazine, Asia during the period from 2014-2015 were taken as sample. Semiotics is an in-depth study of images by minutely examining their elements. The composition and construction of images were also a part of this research. This study also analyses the bias and stereotypes which are created through different images and how these biased images affect the students. Qualitative and quantitative approach was applied to conduct this research. Literary theories and questionnaires were filled up by the target population. The results found out that students are affected in a very negative way as some images conveyed immense biased effects. This research also discusses the theory of 'US AND THEM'. Some images also conveyed the message of depravity of third world countries and the superiority of western world over them. This research would help the researchers who want to excel in the field of semiotics in order to understand the concept of composition of images and its elements. It also contains an insight into how images are used to change the mindset of our society.

Keywords. Semiotic Analysis, Images, Composition and construction of images

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## Introduction

Technology has become an important part of our lives. The knowledge of science has directed mankind to perform wonders in the world. The solution to each and every problem is now available in the market. This technology has led us to believe and like what is visually shown rather than what is portrayed in the text. Images play a very important role in the society of our time. Visual communication has become an important tool of our daily life. Arthur Brisbane published these words in his newspaper in 1911, “A picture is worth a thousand words.” (Brisbane). It is a proverb that refers to the fact that an image can sometimes be more influential and effective than the text. It also symbolizes the goal of visualization in our society. If I take the example of educational institutions, visuals are a major part of the courses as they help in the understanding and learning of students. A simple phenomenon of evaporation can be better understood with the help of diagrams rather than that from written books. Even a sweet has images of cartoons on its wrapper to attract the children. From television to magazines, newspapers to advertisement boards and media to books, everything contains images. The National Education Association has also declared that, “Western civilization has become more dependent than ever on visual culture, visual artifacts, and visual communication as a mode of discourse and a means of developing a social and cultural identity.” (Gentry). Generally people preserve information more quickly with the help of images. Those people who work in offices use images to give presentations. Images enhance the level of understanding to a great extent. Religious images affect our society to a significant extent. Religious images are those which represent a religious theme, purpose and a perspective. Almost every religion in this world has specific images related to it and each society admires them on individual and collective basis too. Worshipping an image is also very common in Hinduism. This shows that images have become a primary medium for explaining and absorbing ideas in societies. The images of KhanaKaaba, names of Allah, and verses bring about great satisfaction to the Muslims. Similarly, the Christians have their own images of Jesus Christ which holds a very significant place in their houses as well as in their hearts. These images are often used as a trick to make people sentimental and spend lots of money on them. These images are sometimes used in order to play with the emotions of people who are religiously so blind that they do whatever they are told to do. Our society appreciates images very much. We always prefer television over radio because of the visuals. Though I agree that when only radios existed and televisions were found only in a few houses, the imaginative quality of people was very strong. But it is today’s demand that our society is making a quest for the best. Television gives them an opportunity to enjoy the advertisements, news, drama serials more. Most of the learning that takes place in our society and most of the knowledge that people have gained is a result of visual communication. The term Semiotics was originally introduced by John Locke in the English language for the first time (Semiotics). It was termed as a synonym for “doctrine of signs”. Semiology is the study of signs and the processes which indicate the signs. It also involves symbolism, signification and communication. Semiology is just another name used for Semiotics. It is that branch of science that deals with sign language, how signs are used in signaling the messages and how symbols play their part in the society. Semiotics is very close to the study of linguistics because in

linguistics we study the structure and meaning of language in detail and in semiotics we try to find out the relationship between society and images and meaning of signs in a detailed way. So more or less, these two fields are similar to each other. The only difference is that semiotics studies the non-linguistic features in the system too.

### **Research Methodology**

Compositional interpretation is the method which has been used for this research. This method includes the careful analysis of images and their composition. This method offers a way of looking minutely at the content and formation of images. A close reading of images is done through the compositional interpretation. But when using this method, it depends on element of intuition and sensibility. The word “composition” represents how an image is composed with the help of different elements. Though the aim of this method is to describe an image completely and as attentively as possible, still the notion of composition can be divided into several elements. The first part is the content of the image and the know-how of what it is showing. Sometimes it is very obvious what is shown through an image but many a times, one does not interpret the actual meaning of the image. Some images hold certain kind of symbols which need to be understood. The second important element of an image is the use of colors. The color itself describes the intensity or the value of the image. They may be used to highlight a certain fact in the image. These colors also develop relationships between two or more parts of the image. The internal organization of the image is also a very important part of this study. The background often creates a balance with other components of the image. The depth of an image can be seen through its internal organization. The organization of an image offers a specific view to the viewers. The compositional interpretation also talks about the effects of the images on the spectators. It is highly formalist in its approach and focuses on the entire image. There is no inter-relation between the text and the image, rather only the image is discussed in this method. It also addresses how an image might be used and interpreted by the viewers.

### **Analysis**

Semiotics is a philosophical theory of signs and symbols that deal with the functions in both artificially constructed and natural languages and comprises mainly of syntactics, semantics and pragmatics (Pedersen). Semiotics is very helpful in media. It allows the media to study and read texts and images analytically and better understanding of the audience. Semioticians often place signs and their systems in the relationship in which they are transmitted. The way meaning is transmitted depends upon different things, for instance, the body movements of a person, the discourse uttered by someone or even by the facial expressions of a person. In order to create a word for a thing, our society needs to agree upon the simple or denotative meaning within its language. But when such a word is formed, it can convey the meaning only within the limits of the language’s grammatical structures and its codes because codes are the representatives of the values, norms and the culture of the society. They can always add new shades to the connotations of different words and sentences in every

field of life. Semiotics magnifies the range of sign systems and their relations and enhances the definition of a language in a different manner.

There is another type of semiotics that is called Pictorial semiotics. This type of semiotics is related to art history and theory. But this pictorial art has delimited its analysis of images to a particular number which is later called the work of art. They only analyze some particular images which have more significance over the rest. Pictorial semiotics focuses on the properties of pictures and how these properties help in conveying the meaning to the audience. (Saussure)

Visual semiotics is also a form of semiotics that is related to the analysis of visual signs and images. The study of meaning erupted from semiotics which is also a philosophical approach of a semiotician in order to interpret messages in accordance with their signs and structure. The study of semiotics has been greatly successful and progressive in France regarding the literary and linguistic context (Alan M. MacEachren). Ferdinand de Saussure is one of the most important linguists in this field. According to him a sign can be anything. It can be a word or an utterance or even a sound and visual things. He divided the sign into two components, that is the signified and the signifier. I have already discussed these concepts earlier. Berger also states this in his work that the consequence of finding meaning always arises from the fact that the relationship between the signifier and the signified is typically conventional. In simple words, he means that every sign is assigned a meaning by the mutual understanding of the society and whatever meaning they feel is appropriate is given to the word. So when we agree upon a meaning, we claim it to be the ultimate meaning whereas there can be different shades of meaning as I have already mentioned. Different words can mean different things for different people. Even the visual signs can have hundreds of different meanings. For example, rose is a symbol of love and passion but it is possible that it might be just a simple flower for many people. Similarly, susu is a term used for milk in Indonesian language (bhasa Indonesia) but in Urdu language it is used for urination. So, different words can have different meanings for different people belonging to different regions and countries. An association known as The International Association of Visual Semiotics was formed in 1989. This association holds an international status in the world so it recognizes only three official languages. These include French, Spanish and English. This organization works mainly in art and its theory for the progress of visual semiotics and works.

Apart from adjusting and justifying the nature of pictorial signs, semiotics also tells us about the way every sign differs from another. A pictorial sign is always different from a painting or a drawing. The signs make them differ from each other. A pictorial image usually conveys a message and holds a certain meaning.

Semiotics is basically an umbrella term used to describe both the two leading figures in the field of linguistics, Ferdinand de Saussure and Charles Sanders Peirce. Semiotics can be applied on anything. May it be the mass media, radio, films or even magazines and posters. It is actually a media research technique. Before conducting a semiotic analysis, it is compulsory to find out the nature of signs so that a theoretical

framework is formed on which the whole research is based. Branston and Stafford presented their ideas in this way, “Semiotics, also sometimes referred to as 'semiology' is the study of signs - or the 'theory of signs' the social production of meaning by sign systems” (Stafford). Since Saussure was a very dominant linguist in the field of linguistics, so this sort of study is based heavily on the linguistic concepts as many of the terms that I have used are the linguistic ones. Images are known to be the representative of reality. They often change the whole scenario of the world. The significance of my research is that we come to know the key strategies for the construction and presentation of any image. This study also helps in providing information about how ideological bias exists in the images. The element of bias is mostly presented in different images but the audience does not always perceive it in that way. The very minute details in an image can convey messages that are either stereotyped or biased. My research would help other researchers understand the concept of bias conveyed through images and also how the image is constructed in order to manipulate the society. A total of fifty images were studied for this research. A few are discussed below.



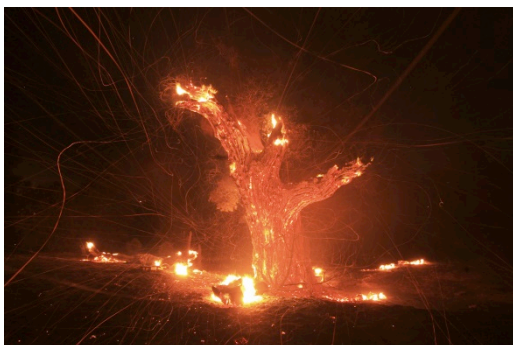
This image is of Japanese women, all standing in proper rows, wearing uniforms and of course showing uniformity. There is a stereotype about the people of Japan that they are very reserved, shy, and serious in nature. This stereotypical view can be seen in many advertisements on the television and even jokes are cracked about the seriousness of the Japanese now. Whenever a Japanese person is shown in movies or advertisements, he is portrayed as a very reserved and sophisticated person. The reality is quite opposite. The Japanese are very hard working and focused. They are as friendly as any other nation fellows and very welcoming too. Secondly, women are always stereotyped in the manner that they are weak, fragile and not capable of competing with men in the practical world. It has always been a hot issue whether women are as capable as men. This issue has been solved to a great extent because now women are working in the same manner as men are and they are facing the same challenges as the men. The picture shows these two stereotypes and is actually supporting the stereotypical view about women in the world. The women standing together in the image as one show the strength and uniformity of the Japanese women. They are wearing the same clothes which are more like a uniform. This shows their equivalence to men in being disciplined and one can see the association with the army and that the army is a male dominated area shows that a conclusion can be drawn that the women in the picture are being shown as equivalent to men in discipline. The consistency and evenness can be seen in their bright eyes which convey a promise that



they would do something benefiting for their gender and nation as well. They are all looking in the same direction which shows that their focus is on the same goal and together they would achieve it on any cost. The identity cards that each one of them is wearing depicts that they belong to one organization and they have all joined hands in order to accomplish their goal. Their vision is the same and they would do wonders when composed in this way.



This image is one of the scenic beauties of nature. The photographer has captured multiple lightning strikes in a single image which is a very rare accomplishment. A thunderstorm began building at Grand Canyon on August, 30. The photographer captured the beautiful moment of lightning striking three places at the same time and recorded this ferocious barrage in his camera. The image shows a contrast of light and darkness. More precisely it shows light in darkness. Chiaroscuro is an art that deals with the very strong contrast between the light and dark. In this image, the light is shown in patches between clouds too. The significance of light would not be realized if there is no darkness. So the light here can be interpreted as a symbol of hope in the times of darkness. Nature is always a hope to mankind as it saves us from many lethal substances and provides shelter too. The different aspects of nature have been shown in this image. Clouds, lightning, mountains, trees, and the sky add to the beauty of nature. Another important thing is that there is no man-made machine or any technological development shown in the image. Everything that can be seen is natural. It is shown as a place where the humans have not yet reached. The purity of nature has been depicted in this image.



Another image shows a tree that is on fire. It has been called a flame tree. The image was taken in California. It is an ancient oak tree that has been burning in the silver fire for quite some time. The tree is a symbol of life and life has been burning in our world. Innocent lives are burned to death in our society. The image conveys a

message that human beings are the cause of the destruction of nature. Mankind is progressing day by day but they are making a progress against the nature. Every year, California faces huge fire burns. This happens because of the development of science which affects the atmosphere so much that the forests catch fire and nature burns down.



The scene of courage and struggle has been shown in this image. The true human spirit and effort for freedom has been conveyed through this image. The image shows a demonstrator protesting against the government of turkey in Istanbul. The scene of riot has been shown here. The man standing on top of all the steel rods and gates that are on the ground is waving a flag. This shows his continuous efforts to get their goal. The fluttering flag also connotes the struggle of the protestors and their will power. The man is totally exposed to the tear gas as he struggles in the middle of the riot. His fellow men are also shown in the background but they have masks over their face to protect themselves from the tear gas. A contrast has been shown here. The man with the flag in his hand is shown as the true patriot of his nation. His actions evoke feelings of sympathy and support in the hearts of the viewers. This image also shows that the government is the one causing all the destruction and the innocent people are suffering its actions. Every nation usually faces these kinds of problems. But here specifically, the bad side of the government is shown. The strength of a common man is conveyed in this picture



Another image of nature has been shown through this picture. The nature is shown to be very powerful here as strong waves of a sea have been shown here. Some people are standing on the field house watching the amazing ride of an American pro-surfer Garret Mcnamara also known as GMAC. This wild ride took place in Portugal and the amazing wave is at least a 30 meter wave. The man is weak in front of nature but still the American surfer survives this wave and enjoys his ride. The message conveyed

through this image is that man is weak in contrast to nature but somehow we still survive in this world of nature.

## **Results/Findings**

The aim of my research was to analyze the construction of images and how different images contain stereotypes and biases in them. I selected particular images published in a very prestigious and fan-oriented magazine, TIME, Asia. My research consists of analysis of different types of images. These images are political, ideological, natural and social. I have also focused on how images are created and what message they convey to the audience. Images have some characteristics like colors, contrast, and background, according to which they are published. These characteristics help us understand the actual meaning of the image. Through images, typical stereotypes and biases are presented in a euphemized way. The images which I have analyzed clearly show that the bias against the Muslim countries is presented and superiority of the west is depicted through those images. One of the images was related to the Korean government it clearly explained that the USA is a supreme authority and it has been oppressing the Koreans because of their nuclear weapons and dictatorship and images that bring out only the dictatorship and strict state control are related to the country thereby promoting negative feelings against the country. Another image was related to car racing where the blacks were shown to be a part of the game while earlier they were not allowed to participate in such games. So in a way, the good side of the whites is brought to the front that whites are so caring and concerned about the equal rights of blacks. Here nominal representation of the African Americans is foregrounded to cover their victimization. Another image depicted the story of how a Russian terrorist was arrested in Boston. A clear bias can be seen against the terrorist as his identity is revealed on the spot. If it had been an American citizen, the identity would have been kept hidden by the government officials just because the criminal was a native citizen. Even when a beautiful scenic view of nature is published, it is shown in the western part of the world as if the only beautiful places exist there and nowhere else. Another image shows the satellite view of Pearl Qatar which is an artificial island in Doha. That image also shows that power and wealth only belongs to the Arabic people in this world. The stereotypical view is presented that only the Arabs are rich. The images where the load shedding of electricity is shown in Pakistan are all shown to be dark. This shows a stereotypical view of the west that east is still in the dark and they are somewhere far behind the west in development. Some images show the destruction and dead bodies of people lying in the rubble. Now, the story of survivors could have been portrayed through the images too but the photographer presented the story of the one who passed away in the disasters. The hopelessness and loss of identity is shown through these images. These kinds of images also prove the stereotypical view about our country that only destruction is what our nation would face ahead. Even the people of Pakistan are shown sitting idle in these images. So the bias against our people is clearly depicted in these images. The angle from which the image is taken is also very significant. The photographer always presents every image from a unique point of view. Sometimes, it is done to show the power of an object, sometimes to point out the weaknesses and sometimes to hide the weaknesses. One of the images was related to the construction and working of oil

wells. The angle from which the image was taken hid the background which was nature. This was purposefully done in order to prevent the environmentalists from making an issue about how oil wells are destroying the nature. On the other hand, nature is presented to be very powerful and human is presented as weak. Nature is presented to be present where no human has any access. Even the king of the jungle, lion, is shown as a very powerful species of nature and the view of a prey is also presented as very weak and that there is no escape possible for it. The terror and strength is conveyed through these images. The angle of the images is deliberately settled most of the times to create meaning.

The research also analyzed the contrasts of different aspects in many images like that of light and dark or fire and water. These contrasts are involved to make the audience realize the importance of a specific feature in the image. For example, if darkness is not there, the significance of light cannot be realized. The same goes for the other contrasting features. The background of the images also plays a significant part in making the image intensely powerful. The image of the Korean government shows only the government oriented people in it. No civilian is shown in the image. This shows the audience that these images were taken on a planned trip. The devastated building images show iron rods scattered in the background which is interpreted as the downfall from strength to pieces. The image is propagandist as it promotes the view that the people of the country are under strong dictatorial control of the government and the regime is repressive. The image seems to be the mouthpiece of the US government in its endorsement of the western view of North Korea. This research can be very productive as it would help the teachers who teach in their institutions with the help of images, understand the characteristics of images and it would also help them select the appropriate images to teach in the classrooms. This research would also help other researchers to comprehend the study of semiotics in a better way. The study of nature can be taught as an individual subject in institutions once they get a grip over the knowledge of characteristics of images.

This study would open a new horizon for the students of English studies. The study shows that the fields of images and media are not off limits to the students of English. They have a lot to offer the world in terms of the analysis of the images and particularly how meaning is constructed in images to create a hegemonic view of the issue.

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***ASEAN Economic Community: An Analysis of Trends and Challenges For Thai Higher Education Institutions***

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**Abstract**

This article seeks to identify key trends and challenges of the AEC for the Thai higher education system by reviewing current research in the AEC, and official reports from the Thai Government and relevant international organisations. Demographic change, energy demands and the environment, future employment, decentralization of the country and development of local administrative bodies among many other trends will influence the Thai higher education system. This article considers four trends that result from the ASEAN Economic Integration and speculates on further trends covering the increasing importance of English language, restructuring of HEIs, programs in eight professions and the research-intensive universities.

Keywords: AEC 2015, the ASEAN Community, Thai Higher Education system, challenges and reforms

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The ASEAN Economic Integration (AEC) is a step toward the convergence of ASEAN member states in terms of economic integration. The AEC integration leads to the introduction of a single market and a production base of the ASEAN member states, the free movement of goods, services, investment, capital and skilled labor, along with the establishment of the emerging CLMV economies, known as ASEAN - 4 countries: Cambodia, Laos, Myanmar and Vietnam (ASEAN Secretariat, 2011). This potentially makes the AEC a new emerging economy powerhouse in Asia. However, there are some concerns in the management of the influx of immigrants, erosion of culture and national identity, skill recognition and transfer, and high competition among the member states.

Higher education is often challenged by forces within and from outside the country. As the discourse on globalization and knowledge-based communities becomes more significant in the contemporary world, many universities commonly adopt and reinvent global models to suit their individual needs and capacity (Beerkens, 2008). Many higher education institutions (HEIs) are aware of the changes and the need to adapt themselves to survive. Scott (2000) concluded that in the transformation of globalization in higher education in the intense challenges of globalization and the volatility of the late-modern (or post-modern) society, they [HEIs] “have to develop a new capacity not simply to build alliances with other institutions but to reinvent, reengineer and re-enchant themselves, to compromise their own integrity in order to allow a new configuration of “knowledge” institutions to develop” (pp.9-10). Stromquist (2007) argues that HEIs interpret globalization based on their cultural and environmental processes, and thus create differences in adoption to new environments. It cannot be overlooked that universities are strongly tied to the national context as most universities are state institutions (Scott, 2000). This is true for Thailand where public universities are often governed by a state ordained bureaucratic system. Nevertheless, Thai higher education system cannot evade the external changes from neoliberalism and the AEC convergence (see for example the economic boom in the 1990s). Consequently, the “drive toward greater efficiency” is emphasized (Scott, 2003, p. 303). Universities are required to manage their resources and processes e.g. in academic and organizational areas in order to achieve the maximum cost-effectiveness. Universities are operating in an entrepreneurial mode despite being public organizations. They are even required to “sell” their academic programs to prospective students and to establish “customer care” and “aftercare” standards (Scott, 2003, p. 303).

The higher education system is susceptible to external economic forces. For instance, the financial crisis of 1997 severely affected Thai higher education through cuts in public spending expenditure. The 2008 economic crisis resulted in a slow recovery of the global economy. The recession resulted in financial difficulties for the higher education sector. Shin and Harman (2009) speculate that many private higher education institutions (HEIs) will continue to face serious financial constraints. HEIs which provide higher quality with lower costs will survive the highly competitive environment. Lower costs may therefore be the sign of competitiveness in the future, whereas higher costs have been a sign of quality previously in the same institutions. Despite the Royal Thai government providing substantial funding for education, the

outcomes are disappointing. Fry and Bi (2013) term it a “Thailand educational paradox” (p. 305). The Thai government allocated approximately 520 billion Baht which is approximately 15 billion USD to the Ministry of Education in 2016 (Thailand. Bureau of the Budget, 2016). The country also has a body of qualified and well-educated school teachers and impressive physical infrastructure for education. The results, however, are disappointing. Thai students’ score at ONET examinations (Ordinary National Educational Test) are below average. Similar results are seen in the global competitive report, Thailand was listed 33 from 144 countries (World Economic Forum, 2015). The problems mentioned is a part of a quantitative expansion of higher education especially in teacher education as well as post-graduate and doctoral courses. There are many positions that are not relevant to teaching and learning function in HEIs and government organizations. This bureaucratic system illustrates a welfare system in Thai higher education or a “patronage system.” Next, the executives and the governing board often put most of financial resources into facilities and infrastructure rather than to use them to improve the quality of teaching and learning. Lastly, reforms were often project-based and often sporadic. HEIs cannot reap the full benefits of the reforms. Only a handful of bureaucrats and politicians fully benefit from such reforms while other stakeholders were excluded from these schemes. The bureaucratic system in education contributes to a part of the under-achievement in Thailand’s educational performance.

### **ASEAN Economic Community**

The AEC is the result from the Declaration of ASEAN Concord II (Bali Concord II) in 2003 which seeks to establish a single market and production base with aspiration to transform ASEAN into a stable, prosperous and highly-competitive region with equitable economic development, reduced poverty, and socio-economic disparities, progressing in tandem with the establishment of the ASEAN Political Security Community (APSC) and the ASEAN Socio-Cultural Community (ASCC) (ASEAN Secretariat, 2015b). The three pillars of ASEAN Community were built on different aims and road maps. Thailand has been an advocate of ASEAN integration since the forming of the concept.

Originally, the AEC and ASEAN community was intended to be launched in 2020. The AEC blueprint was initiated earlier in 2015 to be in line with the ASEAN Vision 2020 and the ASEAN Concord II. The Acceleration of the Establishment of an ASEAN Community was signed at the Cebu Declaration in 2007 with the main aim to transform ASEAN into a region with free movement of goods, services, investment, skilled labor, and freer flow of capital (ASEAN Secretariat, 2008). The main aim of the AEC is described below:

The AEC will establish ASEAN as a single market and production base making ASEAN more dynamic and competitive with new mechanisms and measures to strengthen the implementation of its existing economic initiatives; accelerating regional integration in the priority sectors; facilitating movement of business persons, skilled labor and talents; and strengthening the institutional mechanisms of ASEAN.  
(ASEAN Secretariat, 2008, p. 5)

The AEC has the objectives in developing human resources as a key to develop the nations to become knowledge-based economies within a globalized world. It aspires to develop the consortia of Southeast Asia countries in the similar approach of the European Union (EU). The AEC allows the transfer of skilled labor in eight professions, i.e. Medicine, Nursing, Engineering, Accounting, Architecture, Surveying, and Hospitality and Tourism (Sinhant & Fu, 2015). Regional organizations such as SEAMEO RIHED and Asean University Network (AUN) promote the integration of education in Asean. The aims are to promote education networking, and enhance and support students and staff exchanges and professional development through creating research clusters among the ASEAN institutions of higher learning. The necessary missions for HEIs in the AEC encapsulate regional accreditation system, improvement in the quality of education, promotion of universal education and an increase in English language usage at every education level (Yaakub, n.d.).

The Office of Higher Education Commission (OHEC) (2010) published the broad strategic cooperation framework to prepare Thai Higher Education Institutions for the ASEAN Community. The framework addresses the challenges of the AEC that lead to a free flow of academic staff and students, free flow of trade and service and free flow of knowledge, culture and language as follows: increasing the ability and quality of the graduates to reach international standards; increasing the strength of educational institutions to develop ASEAN as a powerful economic region; and supporting the role of Thai higher education in ASEAN.

Thailand also aims to be a regional hub of higher education and attract up to 100,000 international students rising from the current number of 20,000. The international standard as well as rigorous quality assurance processes have been imposed in recent decades. The AEC would offer the opportunity for Thai HEIs to attract international students from the other ASEAN countries. ICT structure has been improved to ensure the quality of higher education and regional cooperation e.g. the Inter-University Network, Thailand Cyber University, the e-library ThaiLis and the National Education Network (Ned-Net) (Yaakub, n.d.).

Although the opportunities of the AEC do not come without challenges, ASEAN economic integration brings along complications for HEIs. While many issues on the AEC integration were also reported (Barbin & Nicholls, 2013; Vongchavalitkul, 2012; Yaakub, n.d.), most studies point out the unpreparedness of workers and students (Barbin & Nicholls, 2013; Nguyen, 2015). These issues are education-related. For instance, the majority of the workers are low-skilled with education below

lower secondary. A large percentage of skilled workers are clustered in the agriculture and fishery sectors rather than manufacturing; university graduates experience high unemployment rates, and lastly Thai economic productivity is low because of poor English proficiency among Thai workers (Nguyen, 2015). Barbin and Nicholls (2013) reported that Thai university students in a private university have a low level of knowledge of the AEC and thus are not well-prepared for its commencement. The results, however, indicate that students have high level of acceptance and willingness to embrace the AEC's changes. Thai higher education institutions will have to invest greater time and effort to increase awareness, knowledge and competencies in the AEC among their students.

### **Trends and challenges of the AEC for Thai Universities<sup>1</sup>**

The modern higher education sector has been profoundly affected by two main themes: massification and globalization (Shin & Harman, 2009). These themes have intensified since the 1980s when universities in Thailand offered courses to respond to the demand for a skilled workforce in many sectors. This was followed by internationalization trend in the 1990s. Internationalization of higher education in Thailand has a positive reception from students and parents as it correlated with the massive growth of the economy. On the contrary, internationalization is also met with fear of western culture dominance and lose of the local culture, changes in the internal structure of Thailand and the identity of Thai people (Lavankura, 2013). The AEC is considered an opportunity to internationalize and harmonize the higher education system to align with other ASEAN nation members. The phenomenon is slowly manifesting itself and scholars in various disciplines have predicted the forthcoming trends. OHEC (2008) defines seven scenarios which will be key challenges for Thailand's higher education including demographic change, energy and the environment, future employment, decentralization of the country and development of local administrative bodies, peaceful resolution of conflict and violence; postmodern/postindustrial world and His Majesty the King of Thailand's initiation of the sufficiency economy principles. It is speculated that these key scenarios are linked to the AEC 2015:

From among these scenarios, there are many issues that can develop into problems that affect universities in Thailand. In this article, the trends of the AEC involve the increasing significance of English language, intense restructuring and privatization of higher education, more programs in eight transferable skills and transformation of teaching universities into research universities.

#### **Increasing significance of English Language.**

English language is considered the principal language for communication in the ASEAN context. According to the Office of Higher Education Commission (2010), English has become very important in preparing the country for integration into the ASEAN community by 2015 (p. 69). Furthermore, the ability to communicate in English has repeatedly been cited as the most important instrument to compete with other ASEAN members on the AEC (Chongkittavorn, 2014, Online). Many studies

list English language skills as an important attribute for both university graduates and professionals (Jitpaisanwattana, Pathumcharoenwattana, & Tantawutho, 2015; Singisi, 2014; Yaakub, n.d.).

Many reasons account for the deficiencies of English education in Thailand. The most serious concern is the structural limitations that underlie the low English communication ability in Thai students. Firstly, the Ministry of Education Strategic Plan for the ASEAN Community in 2015 did not include English professional training courses. The second concern comes from the 2008 English curriculum of Thailand which lacks unity and proved difficult in achieving a sufficiently high quality control. Students who take English as a requirement of national curriculum for many years failed to achieve standard score on Thai ONET. In addition, Thailand was currently ranked 56 out of 72 countries in English First's English proficiency test. Apart from structural limitations, Thai teachers and students are reported having problems with English education achievement. Thai teachers themselves are not competent enough in areas such as writing, listening and speaking. They also have a minimal exposure to English language. For students, lack of motivation, passivity and little effort in studying contributes to their low achievement in English language. The curriculum needs revision to make it better aligned with the vision of the AEC, together with mathematics and science being delivered in English, English for specific purpose pedagogy and English provided in work after graduation (Sanonguthai, 2013).

Singisi (2014) analyzes the trends and interprets the data collected from the document analysis including the government documents and academic papers. These trends outline the staff/students, higher education institutions and freedom of movement in eight professions. The staff/students area states that English will gain greater significance as a medium of communication. Secondly, the graduate competencies that match the region's needs are also needed. In the preparation of higher education institutions, the trends are changes in the existing curriculum which need to be developed for the eight professions, awareness of ASEAN Community, STEM teaching focus, changes in existing curricula that reflect the free trade of education in the ASEAN Community, internationalization of the curriculum and academic strengths in subjects such as health sciences, tropical medicine, agriculture, agricultural industry and tourism. Lastly, the freedom of movement in eight professions within the AEC will be the trend which unfortunately will lead to shortage in certain profession e.g. doctors and nurses, the needs for dual language course in eight professions, and the common standards of transfer system of the eight professions. Jitpaisanwattana et al. (2015) suggested that English should be integrated into technical accounting professional classes. Learning methods should be diverse and creative in terms of delivery methods. While Thai higher education institutions mostly use classroom lectures to teach English courses, many overseas higher education institutions utilize a variety of other techniques e.g. classroom learning technique, self-study method and technologically-assisted learning methods. The critique of English teaching in public education is illustrated in Bangkok Post's article (Bangkok Post, January 10, 2012) that the "government-run language teaching is almost universally rote, unimaginative and presented with no motivation." Lacking

essential skills in work e.g. English competency impedes the employment opportunities for Thai workers. In some worse cases, university graduates cannot even read the job advertisements. This language deficiency contributes to the disadvantageous stance of Thailand in the AEC arena.

### **Restructuring and Privatization of higher education institutions**

Thai HEIs will face immense challenges from the AEC. As stated earlier, Scott (2000) argues that while many universities are generally bound to the state, the AEC and globalization bring opportunities for HEIs to expand their student body. With these forces comes the trend that encompasses the transition from a state bureaucratic system to independent and autonomous universities. The path of restructuring public higher education has never been an easy one. The public universities feared that they may not receive adequate funding from the government and that the faculty members were suspicious that their resources will be depleted after de-linking from the civil-service (Kirtikara, 2006 as cited in Mok, 2007, p. 280).

Fry (2013) comments that too much of the Thai educational budget is spent on this highly-centralized bureaucracy. The bureaucracy prevails at every level of Thai education from basic to higher education. This has created a “state-centered perspective by promoting a highly structured, rigid, higher education model” (as cited in Sae-Lao, 2013, p. 139). While it yields low outcomes, this phenomenon is creating more problems for Thai HEIs for its lack of efficiency in management as the budget is spent on the bureaucratic system rather than in other areas where there is greater need.

The transformation of public Thai universities into autonomous institutions officially stemmed from the 1997 ASEAN Economic Crisis and was enacted in the 1999 Education Act. The Thai Government received a contingency loan from the Asian Development Bank (ADB) and the International Monetary Fund (IMF) to reform the public organization. The details of the Act encompass the change of universities into autonomous ones together with mobilization of resources and investment in education (Upping & Oliver, 2012). Technically, autonomous HEIs will be provided an annual block grant from the government. These universities are required to look for external funding e.g. through industrial collaboration and research funding. The earliest case of autonomous university can be traced back to 1980s at King Mongkut’s University of Technology Thonburi (KMUTT). The benefits of autonomous universities include the autonomy in management of personnel, finances and resources with potential for cost reduction, higher productivity and increased efficiency. The incentive of being an autonomous institution is increasing incomes and revenues. Suranaree University of Technology, Walailak University and Mae Fah Luang were each established as an autonomous university and have flexibility in management of their resources and administration. Not all state universities are willing to become autonomous, and the Thai government made the transformation to autonomous university a voluntary choice rather than mandatory (Sangnapaboworn, 2003).

The risks for autonomous universities include the pressure of leadership and withdrawal of resources from the state. Universities which receive regular funding

from the government are considered to be in a better position than those which do not. Another issue that follows the autonomy process of higher education is accountability. It is imperative for autonomous HEIs to have good governance in practice as well as a clear vision shared by its staff. Thirdly, university ranking is considered a problem for an autonomous university. The executives of the university will put pressure on staff to publish their research and undertake other tasks which can be measured in quantitative terms to gain a better rank in the international ranking system. Quality assurance can be problematic in managing a university. These can result in an inconsistency of research output and irrelevant policies of a university (Lao, 2015).

### **Programs in Eight Transferrable Professions**

Thailand is planning to move away from being an industrialized country to a knowledge economy where highly-skilled workers and information become a mechanism for driving the economy forward. The vision of the AEC also stresses the transfer of skilled professions in eight areas. Following this, it is anticipated that universities will offer more programs in eight areas that can be transferred to other countries within ASEAN i.e. medicine, nursing, engineering, accounting, architecture, surveying, and hospitality and tourism. It is possible that more Thai and ASEAN countries' students will choose to enroll in the courses in eight transferable occupations to widen their career opportunities and mobility.

As the number of younger people in Thailand is shrinking, HEIs have to expand their sources of prospective students. Offering courses in the transferable skills will attract not only local students but also international students from ASEAN countries to enroll in such courses. By contrast, only 22.16% of public universities offer courses to support the eight AEC occupations and 12.50% of private universities offer the courses (Sinhanet & Fu, 2015). None of the public and private universities offered the supporting international courses in "surveying" and "dentistry." The courses that are most popular among Thai HEIs are clustered in hospitality and tourism.

Universities now recognize the shortage of these courses. The development and offering of these courses are now in progress. In the past, attempts in offering international programs in medicine were made by Rangsit University and Srinakharinwirot University, but it was met with opposition from the Ministry of Public Health (Thaipost, 2010, Online). Although at present universities are not convinced that international courses in these occupations are beneficial, it is anticipated that they will offer these programs in the future.

The mobility of skilled professionals is, however, limited due to a number of reasons. These problems include restrictions in terms of labour migration policy, the lack of standardized labour market tests in the same language, and the lack of information regarding the job markets in each country and in the Asean as a whole (Draper & Kamnuansilpa, 2016, Online). Moreover, cultural, language and socio-economic differences are a barrier to professional mobility (Papademetriou, Sugiyarto, Mendoza, Salant, & Asian Development Bank, 2015). Although the ASEAN member states agree on the Mutual Recognition Arrangements (MRAs) in accountancy, architecture, surveying, medicine and dentistry, these nations find it difficult to adapt

domestic policies and regulations to meet the provision of the MRAs (Sugiyarto & Agunias, 2014). Each professional practice is composed of several stakeholders that share responsibility for various aspect of the recognition process, especially where regulatory decisions are delegated to subnational actors (Bernard, 2015, Online). Thus, the changes in policy framework cannot be facilitated easily. So far, only two fields, architecture and engineering have shown some progress in selecting professionals to be appointed in a council and a committee. For other professions, such as medicine and dentistry, each member state has the authority to uphold their own regulation in managing who can practice in their countries. In Thailand, to be eligible for practicing medicine, one must hold a degree of certificate of medicine recognized by the Medical Council of Thailand and must pass the Licensing Examination (The Medical Council of Thailand, n.d.). Due to a highly technical nature of each field, the governments have to cautiously negotiate the agreements with the stakeholders and other member states in order to simplify and reduce barriers in professional practice.

The needs to develop MRAs in eight professions is necessitated. As the population age, the needs for medical and health science professionals increase progressively. Thailand will experience a massive decline in the growth of its labour force. It is best for the governments in ASEAN nations to cooperate in order to develop the ASEAN Qualification Reference Framework and benchmark skills recognition frameworks. One of the ways is to use a mediator e.g. international organizations. The governments and policy-makers are strongly advised to share best practices that can help address skill gaps problem in the region (ILO & ADB, 2014). There is also a tendency that the universities in ASEAN and overseas will collaborate in designing the programs in eight professions. This form of collaboration is often seen in dual-degrees or sandwich programs. However, there is a concern in this development due to lack of an international regulatory body that oversees the quality audit of the programs. This drawback will hinder the development of the agency that is responsible for skill transfer within ASEAN.

### **Research Intensive Universities**

Research has been one of the core missions of universities. It is woven into staff's workload<sup>1</sup>. Research intensive universities are important for the development of the economy and the knowledge transfer between universities and industry. Thai universities are forced to shift the focus from the passive traditional role as "knowledge transfer" (Suwanwela, 2006) to an active mode of research intensive. Originally, the first university of Thailand, Chulalongkorn University was established to train the civil servants to serve the needs of modernized bureaucracy and infrastructures. Thus, the original role of Thai higher education was to prepare the elite for the public sectors. After 1950s, the roles for Thai HEIs changed to knowledge dissemination to the masses. Nonetheless, today's globalized world

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<sup>1</sup> Teaching, research and community services



dictates the role of universities as a research-led knowledge creators. The National Research Universities (NRUs) project was adopted in the 2009. The original objective was to boost research activities and the linkages between universities and industries (UILs) (Siripitakchai & Miyazaki, 2015).

Currently, Thailand has nine research intensive universities, namely Chulalongkorn University, Chiang Mai University, Kasetsart University, King Mongkut's University of Technology Thonburi, Khon Kaen University, Mahidol University, Prince of Songkla University, Suranaree University of Technology and Thammasat University, (MOE, 2010). These nine universities are officially the National Research Universities and were selected by the OHEC based on their good reputations and outstanding research achievements. The criteria of selection that OHEC used are based on those of the Time Higher Education-Quacquarelli Symonds (THE-QS) and the impact factor of their publications published on Scopus Database (Siripitakchai & Miyazaki, 2015, p. 190).

Driving universities toward being a research-intensive institution is beneficial for HEIs for many reasons. First, it increases the funding from the government in form of research grants and other added benefits such as intellectual property. Public and policy makers regard the research reputation more highly as research excellence is often linked with national economic competitiveness (Marginson, 2006). The university's ranking will be higher if the research publication output is high as research excellence increases the ranking, not the quality of teaching and learning (Stromquist, 2007). Research activity strengthens the support from the private sectors. These linkages are manifest in many forms of collaboration, for example, science park, technology park and incubators; contract research; joint venture of R&D<sup>2</sup>; Cooperative R&D agreement; licensing and consultancy and technical services provision (Keerati-angkoon, 2015). These activities promote the national economic growth. In addition, quality research can be incorporated into teaching and learning of the HEI to improve its quality. The research encourages student engagement and in turn HEIs can produce more researchers for the country.

The concept of UILs has been discussed by Schiller (2006) and Schiller and Liefner (2007). The higher education system is encouraged to pursue its research mission and the linkages with industries. In the long run, universities will introduce the market element in research activities with their industrial partners. It is to keep in mind that risks exist. If HEIs do not receive enough support for resources, they will opt for less challenging consultation services and undergraduate teaching (Schiller & Liefner, 2007, p. 554). Other important factors that contribute to successful technology transfer include the strong network of the University Technology Transfer Office and private sector, rewards and an incentives policy for the research (Keerati-angkoon, 2015).

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<sup>2</sup> Research and Development

The World Bank and the Office of the National Economic and Social Development Board (2007) suggested five sets of action being implemented to support the transformation of universities into research intensive ones:

- (1) Government should give greater autonomy to universities especially public HEIs. They should be more flexible and be disciplined by competition.
  - (2) The government should increase funding such as block grants, grants for specific programs, as well as scholarships for science, math and engineering studies for Thai and for foreign student for research facilities and basic research at universities. However, it is advised that rather giving all HEIs funding, the government should select a few universities that have better competitive edge and build quality critical mass and interdisciplinary research.
  - (3) Creating science parks and incubator facilities adjacent to the selected university to maximize the likelihood of spillovers and start-ups as well as support such measure with generous incentives.
  - (4) Making university-industry linkages (UILs) more attractive for universities and firms.
  - (5) Increasing program funding for post-doctoral internship positions in participating firms.
- (pp. 117-118)

A large number of universities are embarking on the path to become research intensive institutes though, not many will be able to transform themselves from “knowledge transfer” to “knowledge creator.” Certain kinds of universities have a higher success in being research driven. For instance, public universities which have a large pool of talent and the top students, supporting policies along with adequate research grants and infrastructure tend to do better. In practice, it is difficult for most Thai private universities and Rajabhat universities to become research intensive universities since they are community-service universities (Sinlarat, 2009).

## Conclusion

The changes resulting from the inception of the AEC are slowly penetrating HEIs in the ASEAN countries. Thai HEIs cannot escape the changes from the convergence of the ASEAN nations’ economy introducing a single market valued at 2.6 trillion US Dollar in 2014 (ASEAN Secretariat, 2015a). This makes ASEAN an emerging economy of Asia with a massive market of 622 million people. Demographic change, energy and the environment, future employment, decentralization of the country and development of local administrative bodies among many other trends will influence the Thai higher education system. This article has speculated further on trends covering the importance of English language, restructuring of HEIs, programs in eight professions and the research-intensive universities.

Institutions can adopt models of innovation and reinvent themselves to fit the local situations and thus make it easy to institutionalize such models of innovation. The institutions need to be aware that the expected outcomes of the reinvented model may change from the original. This is particularly true for Thai higher education as it seeks

to borrow innovation and knowledge from overseas and eclectically select what is best suited their context. As Fry (2002) put it, Thailand has a “remarkable capability of being eclectic and selective in its attempt to balance the global with the local (p. 3).

There are many issues that HEIs have to consider. Although more and more Thai HEIs are becoming autonomous from the state, they are not entirely free from its latent bureaucratic power. Universities must gain political support from the government and the parliament as well as public understanding so that the reform can be successfully achieved (Sangnapaboworn, 2003, Conclusion, para. 3). Many problems regarding the transferring of skilled workers in eight professions include work permit and employment visa, constitutional and legal restrictions, and sectoral and occupational restrictions. These also take stakeholders into account as they play a pivotal part in designing the MRAs. The AEC will strongly need MRAs that function for skilled worker mobility. The lack of awareness of the AEC is an impediment to the public support to drive the process of the AEC forward.

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***Seeking the Meaning of Global Citizenship: Selected Findings  
From Case Study Research Within a Japanese University***

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**Abstract**

This article reports findings from case study research on Soka University Japan (SUJ). It explores how SUJ addresses global citizenship education, as seen through the various lenses of its administrators, faculty, and students. Data generated from semi-structured interviews suggest that global citizenship identity is robustly cultivated at SUJ in the presence of a normative environment in which persons valued by the students endorse global citizenship, and in which global awareness is strongly promoted. A key element of SUJ's approach lies in its development of a broad-based understanding and ethos of global citizenship, where, in the words of one participant, 'Most students, faculty, and educators on campus are seeking the meaning of global citizenship'. The wholesale appreciation for a global citizenship perspective is likely a result of the unique ethos created at SUJ, which has been described as a 'culture of care'. The present research supports the development of global citizenship curricular and co-curricular strategies in higher education that teach and empower students to actively pursue the meaning of global citizenship in their everyday interactions with others. SUJ's example of creating a culture of caring for others would be well worth exploring for its transferability to other college and university campuses around the world.

Keywords: global citizenship, Soka education, culture of care

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## Introduction

Global citizenship has chiefly emerged as an attractive construct for campaigners of worldwide peace movements, as well as for advocates of human rights, environmental sustainability, and social justice issues (Clifford & Montgomery, 2014). Although global citizenship has been addressed in academic environments since the 1950s, it has only been the subject of significant discussion over the past few decades (Snider, Reysen, & Katzarska-Miller, 2013). Current discourse on internationalization within the higher education sector has largely been fueled by pressures on colleges and universities to better prepare students for the effects of globalization (Blake, Pierce, Gibson, Reysen, & Katzarska-Miller, 2015). Stoner, Perry, Wadsworth, Stoner, and Tarrant (2014, p. 127) note that higher education has felt both internal and external demands to ensure students are able to ‘think and act globally in order to effectively address political, social, economic, and environmental problems on a global scale’. Spencer-Oatey and Dauber (2015, p.9) observe that employers are now ‘seeking/demanding/ expecting’ their new employees to be ‘globally skilled’, also referred to as interculturally competent. As a result of these various pressures, higher education institutions are developing internationalization policies and programs to respond to the continued evolution of globalization (Hanson, 2010). A number of studies report that higher education has increasingly begun to realize the importance of engaging students in global citizenship curricula to be more globally informed, prepared, responsible, and competent (Ibrahim, 2005; Lorenzini, 2013; Shultz, 2007). In the current age, notwithstanding some of the recent populist movements toward adopting a more nationalist agenda (e.g., U.K. and U.S.A.), the value of global citizenship education has been trending upward.

## Soka Education and Global Citizenship

Soka (value creating) education is a relatively new approach to humanistic education, largely unfamiliar outside of Japan, where it was developed in the early part of the 20th century by educators Tsunesaburo Makiguchi and Josei Toda. Soka education has been gradually gaining international attention through fairly recent scholarly research in a number of countries, such as the U.K., Italy, and U.S.A. (Gebert & Joffee, 2007). Daisaku Ikeda, chief architect of the modern-day interpretation of Makiguchi’s vision for Soka education, as well as founder of a system of schools based on this concept, elucidates the purpose of Soka education in a manner that resonates with the ideals of global citizenship, ‘The aim of Soka education is the happiness of oneself and others, as well as society as a whole, and peace for all humanity’ (Ikeda, 2006, p. 341). Shiohara (2006) remarks that Soka education aims to nurture students who are qualified as global citizens. Gebert and George (2000) state that Soka education is based on the premise that one of education’s chief purposes is to cultivate global-minded individuals who could be empathetically engaged with the world, while at the same time maintain their roots at the local community level.

The Soka Education school system operates primary to tertiary schools in Japan, kindergartens in Singapore, Malaysia, Hong Kong, Brazil and South Korea, a high school in Brazil, and a university in the U.S.A. My research involved a case study of S University in Japan (SUJ), exploring its approach to cultivating global citizenship identity and engagement. The focus of this article is to illuminate how the SUJ environment cultivates global citizenship, as well as to share how various constituents of the SUJ community conceptualize global citizenship.

## Purpose of This Article

In examining Soka education's approach to global citizenship education (gce), the aim of this article is to contribute to the discourse on the value of gce, and to shed light on critical approaches in higher education for cultivating and actualizing global citizenship identity and engagement.

The article begins with an overview of how global citizenship is conceptualized in the research literature, followed by an account of the methodology used for my research study. This is followed by a brief description of SUJ, and an account of my research findings at the university as they pertain to the central focus of this article.

## Conceptualizations of Global Citizenship

Global citizenship has been frequently associated with an understanding and appreciation for cultural diversity (Clifford & Montgomery, 2014; Hendershot & Sperandio, 2009; Karlberg, 2008; Nussbaum, 1997; Snider, Reysen, & Katzarska-Miller, 2013). Knowledge of other cultures, including participation in intercultural exchange, is seen as a critical element for identifying and actively engaging as a global citizen. Hendershot and Sperandio (2009) surveyed students from their university's Global Citizenship Program for perceptions of what it means to be a global citizen. Open-mindedness and acceptance of other cultures, as well as being tolerant and non-judgmental, were prominent themes expressed by the students. Nussbaum (1997, p. 68) believes that, 'Awareness of cultural difference is essential in order to promote the respect for another that is the essential underpinning for dialogue'. A respectful attitude means to presume that value exists in all cultural contexts for finding meaning and identity in that culture (Haydon, 2006).

Global citizenship has also been identified with recognition of global inter-connectedness and shared bonds among human beings, as well as with our ecosystem (Ikeda, 2010; Khoo, 2011; Noddings, 2005; Obelleiro, 2012; Pallas, 2012; Sperandio, Grudzinski-Hall, & Stewart-Gambino, 2010). Schattle's (2008, p.39) study of 157 individuals who self-identified as global citizens indicates that responsible global citizenship, 'emphasize[s] both moral accountability and solidarity toward all life on the planet'. In advocating for a 'new humanism', Bokova (2010, p. 5) stresses, 'An accomplished human being is one who recognizes coexistence and equality with all others, however far away, and who strives to find a way to live with them'. In this regard, accomplished human beings share a common trait with global citizens, who in Noddings' (2005, p. 11) view, 'consider the effects of life in one locality on the lives and wellbeing of distant others'. Nussbaum (1997, p. 10) contends that an essential criterion for the cultivation of one's humanity is to appreciate that 'human beings [are] bound to all other human beings by ties of recognition and concern'.

Additionally, global citizenship has been linked to an increased awareness and belief in social justice and respect for human rights (Burgess, Reimer-Kirkham, & Astle, 2014; Gibson, Rimmington, & Landwehr-Brown, 2008; Martin, Smolen, Oswald, & Milam, 2012; Osler & Starkey, 2003; Pallas, 2012). Gibson et al. (2008) note that global citizenship entails responsibilities that, 'require an attitude of respect for the rights of others and actions that are just for all', while Karlberg (2008) believes that global citizenship can play a significant role in creating a more peaceful and just society.

Other research has reported on prosocial global citizenship practices such as altruism, empathy, and caring for the welfare of others outside one's cultural group (Burgess et al., 2014; Ikeda, 2006; Noddings, 2005; Nussbaum, 1997; Reysen & Katzarska-Miller, 2013a), as well as taking responsibility for the global impact of one's actions (Gibson et al., 2008; Obelleiro, 2012; Reysen & Katzarska-Miller, 2013b; Snider et al., 2013). Bourke, Bamber, and Lyons (2012) report on a meta-analysis study demonstrating that the strongest predictors of engaging in citizenship activities were one's levels of conscientiousness, empathy, and helpfulness. Brunell (2013) states that gce fosters a sense of moral responsibility for global issues and for those who suffer under the weight of these challenges. An important aspect of this felt responsibility is the development of a sense of empowerment to engage in activities to improve the lives of others most affected by global problems. Ikeda (2010, p. 112) reflects on an essential element of global citizenship as, 'The compassion to maintain an imaginative empathy that reaches beyond one's immediate surroundings and extends to those suffering in distant places'.

Lastly, the literature notes that knowledge and awareness of self in relation to others, as well as critical self-reflection, are important characteristics of global citizenship (Clifford & Montgomery, 2014; Hendershot & Sperandio, 2009; Nussbaum, 1997). Nussbaum (2007, p. 38), for example, comments on 'the capacity for Socratic self-criticism and critical thought about one's own traditions', as a crucial element for engaged citizenship in a pluralistic, democratic and globalized world. Lilley, Barker, and Harris (2015) conducted interviews with 26 higher education experts located in Australia and the European Union for the purpose of exploring how universities address ethical thinking and global citizenship. By analyzing themes from the interviews, the authors developed a profile of a global citizen mindset, which includes transformative thinking, imagining other perspectives, reflexivity in questioning assumptions, thinking as the 'other', and engaging in critical and ethical thinking.

In summarizing conceptualizations of global citizenship, it is most typically understood as an orientation toward an appreciation for the worldwide inter-connection between human beings and with the environment, a respect for cultural diversity and human rights, a commitment to global social justice, a sensitivity to the suffering of people around the world, an ability to see the world as others see it, and a felt duty to take responsibility for one's own actions and on behalf of others. Most of these portrayals of global citizenship are tidily encapsulated in Reysen & Katzarska-Miller's (2013b, p. 860) definition of global citizenship as, 'Awareness, caring, and embracing cultural diversity while promoting social justice and sustainability, coupled with a sense of responsibility to act'. Schattle (2008) also recognizes awareness and responsibility as key aspects of global citizenship, however, he adds that participation is a critical element within his troika of interconnected components of global citizenship. Morais and Ogden (2011) identify social responsibility, global competence and global civic engagement as three dimensions of global citizenship that are consistently mentioned in the academic literature.

## **Research Methodology**

### ***Method***

The research findings reported in this article emanate from semi-structured interviews that I conducted with SUJ administrators, faculty members and students (current and alumni). The interview questions were aimed at generating perceptions about, and experiences with,

SUJ's global citizenship education policies and practices, as well as exploring the participants' understanding and personal experiences of global citizenship. A thematic analysis of the interview data was undertaken using Attride-Stirling's (2001) thematic network technique.

### ***Participants***

A fairly diverse participant group from the SUJ community was recruited that included a total of administrators (n=4), faculty (n=5), students (n=5), and alumni (n=5) affiliated with ten different university departments (undergraduate faculties of Education, International Liberal Arts, Law, Economics, and Letters; graduate schools of Teacher Education, Economics, Letters, and Engineering; and Soka Women's College). The largest academic discipline represented was education, with 53% of the participants identifying as administrators, teachers, current students, or alumni from the undergraduate education faculty or graduate school of education.

Ten of the interviewees were male (53%) and nine interviewees were female (47%). In terms of longevity of employment experience, the mean length of time that the nine administrator and faculty participants had been working at SUJ was 14.1 years (SD = 10.6), with a range from 2.5 to 33 years. Three faculty members and one administrator were also alumni of SUJ. The mean number of years since graduation for all nine participants who identified as SUJ alumni was 21.7 years (SD = 12.4), with a range from 2 to 40 years (including two alumni from SUJ's first graduating class). Importantly, the participants' graduation years from SUJ were from all five decades since the founding of the university in 1971, allowing for varied perspectives and experiences over the entire lifespan of the university.

Current students studying at SUJ who participated in the interviews were either at the sophomore (3<sup>rd</sup>), senior (4<sup>th</sup>), or graduate (PhD) level, and studying in one of three different faculty departments. One of the senior students was also completing SUJ's concurrent Global Citizenship Program.

### **Soka University Japan**

Makiguchi and Toda's joint vision for establishing a 'value creating' university became a reality in 1971, when Toda's successor, Daisaku Ikeda founded Soka University Japan (SUJ), a private university located in Hachioji, on the outskirts of Tokyo. Three years earlier Ikeda had established a junior and senior high school in Tokyo, the first educational institutions based on the principles of value creation. Ikeda (2010, p. 246) states that what ultimately defines value (after Makiguchi's Theory of Value), 'is whether something adds to or detracts from, advances or hinders, the human condition'. Subsequent to the founding of SUJ, Ikeda established a women's junior college and a network of kindergarten, elementary, junior and senior high schools throughout Japan, as well as schools ranging from kindergarten to university in six other countries. Together, these institutions constitute the network of schools known as the Soka Educational system. Ikeda's speech delivered at SUJ's third commencement ceremony in 1973 highlights the principal objective of the university (Ikeda, 2006, p. 27)

The name of this institution—Soka University—means a university for the creation of value. This in turn means that the basic aim of our university must be to create the kind

of value needed by society for it to become a more healthful and wholesome place. This is the kind of value that must be offered—or returned—to society. Consequently, all students here should cultivate their creative abilities in the effort to provide a rich vision for the future and contribute in a meaningful way to society.

Japan's Ministry of Education, Culture, Science, Sports and Technology (MEXT, 2016) reports that there are a total of 779 universities in Japan, of which three in every four (78%), like SUJ, are privately operated. SUJ currently houses eight undergraduate faculties (economics, business administration, law, letters, education, science and engineering, nursing, and international liberal arts) and four graduate schools (economics, law, letters, and engineering). Within the graduate studies departments a number of specialized majors are available in such areas as education, humanities, and international language education. As of 2016, SUJ's total annual enrolment was nearing 8,000 students. Since its inception, SUJ has seen over 50,000 students graduate from its various academic programs.

Recognizing the university's longstanding commitment to global learning, MEXT (2014) designated SUJ a 'Top Global University', along with 36 other universities. Selected schools are part of the Japanese government's strategy to fund world-class and innovative universities that advance the internationalization of Japanese society. SUJ's plan under this initiative is entitled, 'Global Initiative for Humanistic Education: Fostering Global Citizens for Building Peace and Sustainable Prosperity'. The project's strategy includes the internationalization of institutional governance and faculty, programs in study abroad and academic exchange, global learning, and the establishment of a center to promote internationalization in education and research, which includes the launch of graduate programs in peace and global citizenship studies (Soka University, 2016c). As of 2016, SUJ sends 12% of its students on study abroad annually, has exchange agreements with 181 universities in 54 countries, and welcomes 500 international students from 49 different countries (Soka University, 2016a).

Although the majority of its studies are conducted in the Japanese language, the university recently established the Faculty of International Liberal Arts (FILA), as well as a specialized program within the Faculty of Economics. Both initiatives were purposely developed for international students wishing to earn a bachelor's degree while taking coursework in the English language. FILA's mission appropriately reflects Soka education's commitment to global learning and engendering global competencies within its students, as its aim is to 'develop and educate global leaders with interdisciplinary perspectives and cross-cultural capabilities that will contribute to the prosperity of nations' (Soka University Faculty of International..., n.d., 'Mission statement'). An additional initiative of SUJ that is directly related to the ideals of global citizenship is the Global Program to Develop Human Resources, which runs conjointly within each of the faculties of economics, letters, and law. As well, within the purview of this initiative, the Global Citizenship Program offers an undergraduate degree that 'goes beyond the traditional scope of higher education by developing individuals with outstanding leadership skills who will lead contributive lives for the peace and betterment of society and the world' (Soka University, 2016b, 'Global program to develop...').

## Findings

In this section I report on the interview participants' conceptualizations of global citizenship, and their various perceptions of SUJ's cultivation of global citizenship. Verbatim interview

responses are used throughout. The following abbreviations are assigned to all participant's quotes to identify the participants' key affiliation within the SUJ community: Adm = senior administrator; Fac = faculty; Alu = alumni; Stu = current student. The number appearing after the abbreviation identifies the specific interview participant (e.g., Adm1 is the 1st participant in a senior administrator position at SUJ).

A dominant theme that emerged from the interviews ostensibly identified the Soka University ethos as one that strongly cultivates a global citizenship identity. The SUJ educational experience was seen as providing multiple opportunities to understand the meaning of global citizenship. As a collective, the participants offered a number of perspectives on global citizenship that are universally referenced in the research literature, such as a feeling of interconnectivity with others around the world (Khoo, 2011), having empathy for others and caring for their wellbeing (Brunell, 2013), understanding and appreciating diversity (Ikeda, 2010), and being tolerant of difference (Nussbaum, 1997). On the whole, I was impressed with the participants' level of understanding of global citizenship, and in particular the degree of concurrence with conceptualizations in the academic literature. For example, the following comments by two senior administrators capture a number of important elements that are commonly understood to represent the notion of global citizenship,

*I think it's [global citizenship] the desire to want to learn about diverse people, culture, ethnicity, history. Next, I think it's the aspect of being able to appreciate and respect those differences. Next, I would think, a certain sense of responsibility about understanding the global consequences of one's actions, such as in the environment ... and then, the empathy part. The desire to want to create a world that is more peaceful, more tolerant of differences, and more respectful of diversity. All of those things, I feel, are part of what we would say is global citizenship. (Adm2)*

*A point that I'll be making in my class today is that the world, the globe, is a system, and global citizens, global leaders, understand that we are interconnected. (Adm4)*

While it might be expected that SUJ administrators and faculty would be fairly knowledgeable about global citizenship, given their respective positions and qualifications, students and alumni also expressed a sharp understanding of this concept, as noted from the following reflections,

*I think that [global citizenship] requires the quality of embracing all humanity and understanding any suffering that is happening around the world. (Stu3)*

*I think global citizenship is a choice that we can make or an opportunity that we, each human being have, where we can think about issues around the world or issues around ourselves as our own issues and problems. (Alu2)*

One possible explanation for this uniform understanding of global citizenship across the campus is that SUJ appears to be a learning environment that was specifically created for fostering global citizens. One of the participants referred to a series of speeches delivered in 1996 by the university's founder, Ikeda. In one particular speech entitled, *Education Toward Global Citizenship*, which parenthetically, was referenced by almost half of the interviewees, Ikeda (2010, p.116) remarks, 'The work of fostering global citizens...is a vital project in which we all are participants and for which we all share responsibility'. This bond of shared responsibility was quite evident with each person I interviewed, and was often expressed in prideful ways,



*My understanding is that while there are quite a few higher education institutions in Japan that are far ahead of Soka University in terms of policy and practice level, Soka [University] is somehow special in creating a climate for promoting global citizenship. (Fac1)*

Another faculty member reflected on the holistic nature of the university's ethos of cultivating global citizenship reflexivity,

*It has always been difficult for me to find how the institution as a whole promotes or helps students develop these [global citizenship] prosocial values and behaviours. My conclusion is that it's an ethos... Everybody, not everybody, but most all students, faculty, and educators on campus are kind of seeking the meaning of global citizenship... So when you're walking around on campus, and you bump into people, or you pass somebody in the hallway, or you have to go talk to an office administrator, or you need to go talk to a professor, there seems to be this kind of broader viewpoint of why we're here on campus. (Fac5)*

Providing opportunities for self-reflection and perspectives shifting have been noted as critical aspects of global citizenship education (Clifford & Montgomery, 2014; Stoner, Tarrant, Perry, Stoner, Wearing, & Lyons, 2014). As reflected in the following participant's comment, SUJ provides many educational opportunities for students to not only contemplate the meaning of global citizenship, but to also think about possibilities for active engagement as a global citizen,

*Soka University provides us with a lot of opportunities to think about global citizenship, I'm sure. I really think that S University students are required to think and act on how well we can put these things into practice. (Stu3)*

Judging from the perspectives of the participants I interviewed at SUJ, it is evident that global citizenship is a widely well-understood concept at the university. This development likely stems from the multiple curricular and co-curricular activities afforded at the university to study global citizenship, as suggested above by Stu3. This is not so unusual at institutions of higher education that focus on global learning. However, one component of SUJ's ethos that I did find uniquely salient in its cultivation of global citizenship is its 'culture of care', which ubiquitously permeates the campus environment. This culture appears to be related to the 'kohai-senpai' (senior-junior) relationship, which is a deeply rooted socio-cultural tradition in Japanese society that is largely based on age (Takahashi, 2014). One administrator described the caring connection at SUJ in this manner,

*There is a very strong culture here on campus, a student culture of care [that] is palpable. It's older students caring and providing for younger students. That culture of care amongst students is, I think, a force to be reckoned with, that does not exist, I think, in this same fashion in other campuses.... It's present between faculty and students, but it's striking amongst students. Very, very strong bond amongst students, and it's about care. (Adm4)*

While this type of social relationship is not necessarily unique to the SUJ milieu, a number of participants commented on its distinctiveness at their campus. For example, an administrator gave her view of the senior-junior relationship dynamic, positing how its sustainability over generations of students is related to global citizenship,

*I also think that the communication that goes on between senior students and junior students is very strong here at Soka University. Why does that happen? That's also linked with global citizenship and empathy, because the senior students feel that what they gained through their university life they would like to share with the junior students. When junior students receive that kind of generosity, that kind of treatment, I notice that it is passed on from one generation to the next. It sounds so simplistic, but I have to say I've witnessed it myself over these 17 years, and it's the notion that when someone has gone out of their way and supported you, and helped you, and given information, or when you're having problems and have worked on it with you, there is so much appreciation. You experience that yourself, you're on the receiving end, so a lot of our students begin to say, 'I received so much, I want to be able to give'. That happens a lot. (Adm2)*

An alumnus provided a personal example of this dynamic in action. He spoke of his experience as a young international student who could not speak Japanese when he first entered SUJ. At that time learning the Japanese language was a requisite to continuing one's studies at the university. Despite trying many learning strategies on his own, he could not grasp the language. His struggles did not go unnoticed by a fellow student, and soon a large number of students self-initiated a study group to help him overcome his language learning challenges. Here is a portion of this alumni's narrative of his experience, illustrating the culture of care that has pervaded the university for decades since its founding,

*We would go to the cafeteria and they would teach me what had happened in the class. They would show their notes to me because I couldn't take notes. They kept encouraging me. That is how I learned Japanese. If I went to another university, I think I would have stopped, but because it was Soka University, in that environment where people really cared about each other, I was able to learn Japanese. So, I won't forget that. I shouldn't forget that. (Alu5)*

The caring aspect of the SUJ community also extends to the teacher-student relationship, and again, seems to be connected to the institution's intentional cultivation of global citizenship, as explained by this faculty member,

*I think that Soka University promotes global citizenship, or I try to promote global citizenship as an instructor, by cherishing each student. The university has a great policy where students come first. As an institution, I think, the university tries very hard to promote cherishing and caring for the [students'] wellbeing—not just teaching and scholarship—but definitely cherishing each student as an individual. (Fac5)*

A final example that demonstrates the SUJ culture of caring comes from a student enrolled in SUJ's Global Citizenship Program (GCP), who expressed gratitude for the care provided by the teachers in this program,

*I got many influences from especially the teachers of the GCP program. I think they are global citizens. They have not only the skills to teach, but also they really try to support us, try to foster us, try to help us. Even though they have a lot of work, a lot to do, and they don't have much time, they don't hesitate to spend time with us to support us. They think globally, they think from many perspectives, and they are really passionate to help people. (Stu1)*

To conclude, for the most part, reflections from the interview participants indicate that SUJ robustly cultivates a global citizenship normative environment and promotes global awareness. Normative environment refers to the influential effects of the beliefs and behaviours of people we encounter and value in our everyday lives. Global awareness refers to knowledge of global issues and one's interconnectedness with others (Reysen & Katzarska-Miller, 2013a). Past research has shown that the degree to which global awareness is supported within one's normative environment greatly impacts the strength of one's identity as a global citizen (Reysen & Katzarska-Miller, 2013b). To the extent that a global citizenship ethos is infused within one's educational environment, and others within that environment endorse global citizenship ideals, one can expect to find a higher degree of identification with global citizenship (Reysen & Katzarska-Miller, 2013a). Additional aspects of my research with SUJ, to be explored in future publications, suggest that SUJ students strongly identify as global citizens; a perspective that evolves during the course of their studies at the university, and is sustained well into their alumni years.

## Discussion

As modern globalization has rendered the world an increasingly interrelated society, the notion of global citizenship has resurfaced as a progressive contemporary response for navigating the impact of greater global interdependence (Sherman, 2016). It is well documented in the research literature that over the past few decades globalization has impacted higher education policy and curricula worldwide, with an increased focus on new internationalization agendas and activities (Hanson, 2010; Khoo, 2011; Maringe, 2012). Strategies and ensuing curricula are being explored that address the needs of students to be better prepared for living and working in a world in which global awareness, and perhaps even global identity, are requisites for success.

Reysen and Katzarska-Miller (2013b) propose that one's environmental context and global awareness are key determinants to one's identification as a global citizen, and that a university's culture of supporting global citizenship values, for example, can influence student global citizen identity and subsequent endorsement of related prosocial values and behaviours. Furthermore, Reysen, Larey, and Katzarska-Miller (2012) suggest that college curriculum infused with concepts related to global citizenship contributes to greater global awareness, global citizenship identification, and endorsement of prosocial values. The participants interviewed for my study uniformly demonstrated an understanding of global citizenship consistent with its conceptualization in the research literature. This wholesale appreciation for the global citizenship perspective is likely a result of the unique ethos developed at SUJ, which has been described as a 'culture of care'. SUJ's culture of care creates a platform for the university's administration, faculty, staff, and students to continually think about how to foster global citizenship. A key element of SUJ's approach is that it has created a broad-based ethos of global citizenship, where, in the words of one participant, 'Most students, faculty, and educators on campus are seeking the meaning of global citizenship'.

The findings from my research, as reported in this article, have potential implications for the implementation of programs in higher education that focus on global interconnectedness; that wish to better prepare students for effective cross-cultural interactions and understanding (Blake et al., 2015; Reysen & Katzarska-Miller, 2013c); and that seek to develop, 'the knowledge, skills, values and attitudes learners need for securing a world which is more just, peaceful, tolerant, inclusive, secure and sustainable'

(Wintersteiner, Grobbauer, Diendorfer, & Reitmair-Juárez, 2015). Soka University Japan, provides an educational model for fostering individuals who are likely to engender global citizenship ideals, endorse and engage in prosocial values and behaviours, and who are therefore, presumably, well prepared for the challenges of an increasingly interconnected world. Various components of SUJ would be worth exploring for their value in potentially strengthening higher education curricular and co-curricular activities aimed at cultivating global citizenship.

## **Conclusion**

This article explored perceptions of global citizenship by constituents of a Japanese university community. The research findings suggest that global citizenship identity is robustly cultivated at Soka University Japan in the presence of a normative environment in which persons valued by the students endorse global citizenship, and in which global awareness is strongly promoted. In its clarion call to transform the way that formal education is universally delivered, the Global Education First Initiative (United Nations Secretary-General, 2012) lists fostering global citizenship as one of its top priorities. The report recognizes that many of the important values intrinsic to global citizenship (e.g., peace, cultural diversity, justice) are not frequently cultivated within schools around the world, and in some jurisdictions, in fact, the opposite occurs (e.g., reinforcing social inequality, tolerating violence). Ndura (2007) contends that colleges and universities should work to prepare and empower citizens to produce positive social change. The present research supports the development of global citizenship curricular and co-curricular strategies in higher education that teach and empower students to actively pursue the meaning of global citizenship in their everyday interactions with others. SUJ's example of creating a culture of caring for others would be well worth exploring for its transferability to other college and university campuses around the world.

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***English Language Development and Academic Integrity - Making the Connection***

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**Abstract**

Cultural differences and language barriers have been attributed to plagiarism incidents among ESL students at university. It is a known fact that misinterpretation can occur among university students for whom English is a second language, particularly when it comes to understanding the norms of referencing and academic writing requirements. Language differences have been identified as potential barriers to academic writing which in turn is related to academic integrity (LaRay Barna 1994; Correa, 2011). Non familiarity with source use and inadequate skills to summarize and paraphrase effectively, and inability to quote sources to strengthen arguments in assignments, have been cited as reasons for poor referencing practices and plagiarism among ESL students.

This paper focusses on a teaching excellence and developmental project that investigated student understanding of academic integrity and advancing student skills in paraphrasing and referencing. The project involved conduct of workshops for students on integrating source use, and synthesis skills training and seminars for staff for increasing awareness of academic integrity among students. The project findings point to improved student learning outcomes and development of English language proficiency.

**Keywords:** Academic writing, plagiarism, paraphrasing and referencing, ESL students, raising awareness among staff and students

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## Introduction

The OECD report on the review of quality teaching in higher education highlights the role of institutions in improving the quality of teaching and consequently, the quality of the graduates (Learning our Lesson 2008). The global demand for higher education has seen an increase in international student mobility and movement of students across continents and institutions. International students constitute a large portion of the diverse student community in many western higher education sectors. For many international students, English is a second language or a foreign language. Although, there is a reasonably high English language requirement set by most institutions that students fulfil, there is a need for institutions to have quality learning support systems in place for continued student academic growth and development.

## Background

Evaluating student understanding of academic integrity and ethical scholarship enable institutions to structure effective developmental programs. This paper discusses a project that sought to advance student awareness and understanding of integrating source use, and develop academic facilitator skills. The project focussed on achieving the values underpinning principles of academic integrity that guide the academic community in its work so that students practiced responsible behaviour with reference to citing and acknowledging the work of others in their own work (Centre for Academic Integrity, 2005). The project aim was to instil better understanding of the principles of academic integrity and develop academic writing proficiency so as to minimise plagiarism incidents.

Researchers have examined plagiarism occurrences among student in higher education over a long period of time (Hart & Friesner, 2004). What construes plagiarism need to be made explicit to students right at the onset of their university experience. Building understanding in students about the concept of plagiarism is not easily achieved as it is a complex notion.

Plagiarism constitutes the act of presenting the work of others as one's own or not referencing or paraphrasing source clearly. In some cases, students may present sections of their own previously submitted work or assignments in its entirety without acknowledging their previous work and not being cognisant that it is an act of plagiarism. Once students are better trained and knowledgeable about integrating source use, instances of plagiarism could be considerably reduced.

The research objectives of the project are as follows:

1. To improve understanding of academic integrity among students.
2. To enhance academic writing practices among students with better paraphrasing, synthesis of information, and referencing.
3. To increase awareness among academic staff regarding integrating source use and synthesis skills training for pedagogical practice.
4. To help identify the resource requirements and support needed for raising academic integrity awareness in students and training for staff practices.

## **Academic Writing in an ESL Context**

Academic writing could be seen as demanding by both native and non-native speakers of English as it conforms to certain norms, standards and expectations. However, academic writing is a real challenge for non-native speakers of English, or for learners from English as a Second Language (ESL) background. The challenges faced by ESL learners in an academic context has been well documented and researched. A study carried out by the author in 2012 (Giridharan, 2012) identified critical gaps in academic writing standards in ESL students in a pre-tertiary year at university. The study ascertained that students grappled with the writing standards expected of them and were inclined to cause grammatical, structural and syntactic errors in their writing tasks. An error analysis review carried out in the study revealed that these deficiencies occurred mainly because the students had not engaged in academic discourses in writing courses in their high schools and were introduced to academic writing standards only after entry to university (Giridharan, 2012).

Research conducted in ESL writing pedagogy affirms that writing is a form of learning and that pedagogical choices made by teachers and instructors must take into account the multicultural background of students, as learning contexts are not culturally homogenous (Reid, Chapter 3, pedagogical issues in ESL writing). Therefore, facilitators in ESL writing are duty bound to be cognisant of language learning issues that originate from the cultural backgrounds of the students in addition to the linguistic backgrounds and provide instructional guidance about the target culture as well as the academic culture expectations.

Studies conducted by He & Shi (2012) show that teaching academic writing to students from ESL backgrounds may be hampered due to cultural and linguistic barriers. Other researcher maintain that instructors and facilitators play an important role in developing students' academic writing skills through continuous feedback that is both specific and encouraging (Nurmukhamedov & Kim, 2010). There are also issues of students from an ESL context being viewed through a stereotypical lens in that they are seen as the group that tended to plagiarise due to their English language inadequacies. In summary, it is a known fact that misinterpretation can occur at multiple levels with regards to university students for whom English is a second or is a foreign language, when it comes to understanding the norms of referencing and academic writing requirements.

## **Research Methodology**

To achieve the research objectives outlined earlier in the paper, a case study approach was taken to understand the topic being investigated. A case study offers researchers an opportunity to conduct a comprehensive investigation of issues at specific junctures and locales. In a case study design, one is able to identify the attitudes and beliefs of groups involved as well as study the interactions among the groups. Case studies are widely used in organisational studies and is regarded as a "rigorous research strategy in its own right" (Hartley, 2004, p.208). The overall focus of the project was to improve students' understanding about what constitutes acts of plagiarism and to identify and develop programs required for students and staff to enhance academic integrity, by and large.

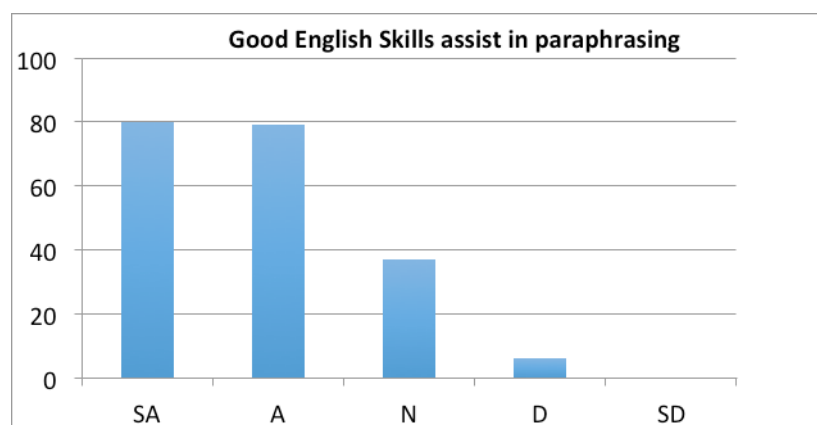
In line with the case study strategies, which allows for the gathering of both qualitative and quantitative evidence, firstly a survey was conducted among students in a first year undergraduate program at the beginning of a twelve week semester to examine students' awareness of plagiarism, and what constitutes plagiarism. Following the survey, a series of dedicated workshops and seminars were offered to students at various stages in the semester, to develop student understanding of referencing, synthesis of information, and citing from external sources accurately. In these seminars, information and guidance was provided to students about working in groups and teams, but also being able to present information individually for assignments and assessments that require individual reports, as there is a focus at the university about developing team dynamics in students. Following the seminars, a subsequent survey was administered to respondents at the end of the semester. The project also included academic training and development to academic staff for increasing awareness of academic integrity among students. Data collection and analysis were developed together in an "iterative process" (Hartley 2004, p.220) as it permits conceptual understanding that is underpinned by evidence. Complementary strategies provided the opportunity to triangulate the data (Creswell, 2003) and improve validity and reliability.

## **Findings and Discussion**

The survey was structured in two parts: the first set of questions were in a five point Likert scale format with degrees of agreement ranging from strongly agree to strongly disagree and the second part comprised of 10 multiple choice questions. The survey was administered to 300 students in a first year undergraduate program and 202 completions were achieved ( 67.3%; n= 202). The first section of the survey attempted to gain students' perception of their own English language skills and how the skills were linked to their ability to paraphrase and reference accurately. The second section of the survey focussed on measuring their understanding of what plagiarism represented, defining paraphrasing, why should students be cautious while paraphrasing and citing sources. The survey also measured their understanding of the consequences of plagiarism.

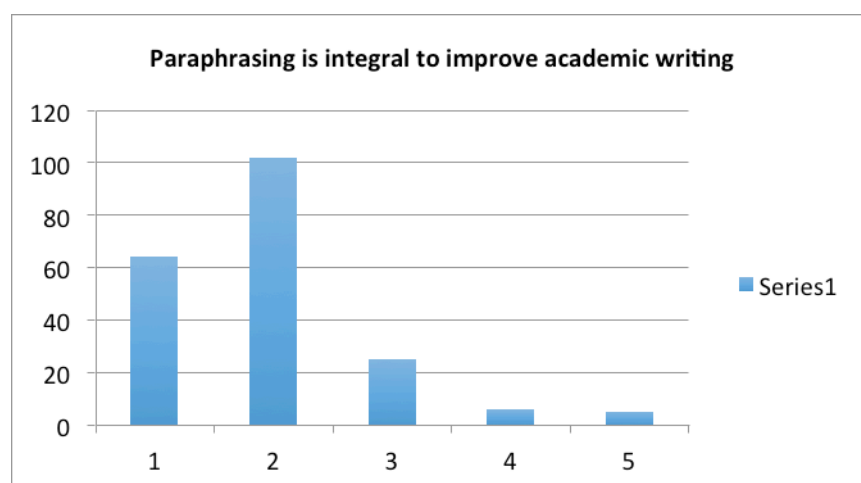
Among the students that responded to the survey, 79% agreed that having a high proficiency in English language enabled them to paraphrase better. 60% of the respondents agreed that the better a students' English language skills, the less he/she was likely to plagiarise. This finding indicate that students believed in advancing and developing their English language skills to distance themselves from plagiarism. Only 47% of the respondents agreed perceived their English language skills were sufficient for better paraphrasing as shown in table 1 below:

Table 1- English Skills Assist in Paraphrasing



60% of the respondents believed that paraphrasing was rather challenging. An overwhelming 83% of respondents agreed that learning how to paraphrase was integral to improving their academic writing capabilities. Nevertheless, only 48% expressed confidence in their own referencing skills, and synthesis of external sources within their own work.

Table 2- Paraphrasing skills integral to improving academic writing



In the follow up survey administered to 300 students with a response rate of 210 (70% response rate, n=210) after the conduct of seminars in a twelve week semester, the seminars the following findings were ascertained.

88% of the respondents were able to define plagiarism accurately, indicating that the awareness of academic integrity was relatively high among first year undergraduates. 78% of the respondents agreed that it was important to acknowledge all authors and external sources so that authors could receive the credit for their work and readers could check the original sources. When respondents were asked about their chances of getting caught for plagiarising; the respondents acknowledged that there was a 10% chance to 60% chance of getting caught with 38% agreeing to a 60% chance of being identified as plagiarising.

There are strong procedures institutionally for building awareness among students regarding academic integrity through a series of developmental programs and support systems that assisted students to gain ethical scholarship through an educative process in the first year at university. Remedial workshops and resubmission of work was permitted if a student was found to have inept referencing or had inadequate in-text citations etc. in their work during their first year in the course. Stronger penalties were applied if student academic misconduct was found to be a deliberate action.

In summary, ideals of academic integrity must be upheld and communicated to students throughout the duration of their course. It is important to provide continuous training and support for students to transition from diverse backgrounds and pathways to university and to inculcate a culture of honesty and fairness among students. It is equally significant to train academic staff to provide a supportive environment and advise students at the onset of their studies at university to encourage academic integrity.

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***Reification of Social Privilege in International Volunteerism***

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**Abstract**

International service learning programs are highly regarded in U.S. undergraduate education as an effective tool for enhancing and promoting intercultural dialogue. However, such a claim is questionable because the effects of social privilege on the volunteers and their actions while abroad are seldom analyzed critically. This study examines undergraduate volunteers' understanding of their social privilege through the reflection of their volunteering experiences. Social privilege includes the conferring of unearned assets on one party and the use of the resulting advantages to further dominate the less advantaged parties. Ten semi-structured face-to-face interviews were conducted with student volunteers in Cambodia and post trip with volunteers upon their return from sojourns in Cambodia and Thailand. The interviewees' narratives about their volunteering experiences were analyzed using grounded theory, specifically the constant comparison method. Findings revealed that international service learning alone was not sufficient to challenge institutionalized, self-mediated, and internalized social privilege. Therefore, universities interested in promoting critical cultural consciousness through service learning need to invest in follow-up instruction as part of the programs, guided critical reflection, and community outreach. The suggested actions may increase the possibility of internationally volunteering students benefiting the learning community by reducing social hierarchy.

**Keywords:** International volunteerism, service learning, social privilege, intercultural dialogue, Cambodia, outreach.

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## Introduction

International service learning (ISL) programs sponsored by U.S. colleges are supposed to enhance the personal development, civic engagement, intercultural skills, and career opportunities of the participants (Sherraden, Bopp, & Lough, 2013). The participants typically travel to underprivileged communities abroad where they engage in community projects that are supposed to benefit the hosts. At the same time, their participation accords them opportunity for academic learning and personal growth. Such praxis-oriented approach in higher education, frequently labeled as service learning (SL) programs, aim to decrease social disparities between the host communities and the visiting volunteers. As stated in their programmatic goals and mission statements, the programs are humanitarian-oriented.

While ISL programs have enjoyed substantial institutional support from universities, the effects of social privilege on the participants and their actions while abroad are seldom analyzed critically. The collective statistics on international volunteerism performed by U.S. nationals indicate that 88% of the participants were Whites; 48% were associated with a religious organization; and 1 in 3 came from a household that makes at least twice the average national income (Salisbury, Paulsen, & Pascarella, 2011; Horoszowski, 2013). Given the participants' social statuses, their experience in the ISL programs is inescapably colored by the social disparities between their own and the host communities. Furthermore, 83% of the works the participants engage in during their sojourn are physical labor that the host communities can perform on their own (Horoszowski, 2013). As such, it is unclear whether these kinds of volunteer work can structurally change the social conditions of the host communities (e.g., economy, politics, power, etc.) and thus minimize the social disparities (e.g., see King 2004; Sherraden et al., 2013; Waddington, 2001).

Through in-depth interviews with 10 U.S. undergraduate students participating in ISL programs in Thailand and Cambodia, the current study explores and attempts to understand the discourse about social privilege as it relates to international volunteerism. It is through such exploration of social privileges of participants that some of the works in ISL programs can be assessed and understood, especially in terms of the programs' effectiveness in advancing social change. In addition to enhancing intercultural dialogue, the study findings may deepen the understanding of how program participants conceptualize their international volunteering (IV) experience. By using the participants' own understanding, we hope to encourage and further engage practitioners and researchers in a critical reflection on the implications of ISL programs.

### **The theoretical framework of social privilege.**

Social privilege refers to the experience of human rights, just treatment, unearned merit, entitlement, power, and immunity solely due to a person's social group identification through birth (Black & Stone, 2005; Moahan, 2014). Privilege is inseparable from oppression, which is the normalized and systematic use of force or deprivation to subjugate people for the unearned benefit of the privileged group (Harvey, 2000; Levine-Rasky, 2011). Given that individuals possess multiple identities, they are situated within different webs of privilege and subordination (Wijeyesinghe & Jones, 2014). In her intersectionality theory Crenshaw (1991)

postulated that such situatedness is inseparable from the macro systems in the society. Therefore, the understanding of one's identities cannot be complete without commensurate understanding of the social institutions that emerge from history. Therefore, in the current study, the understanding of social privilege is contextualized in the U.S. societal systems, in which White privilege cannot be ignored.

Jones's (2000) theoretical framework for understanding how racism and oppression function in the U.S. captures the intersectionality of identities, social privilege, and oppression. By using the framework, Jones hoped to spark a national discourse on racism and introduce interventions to mitigate the impacts of racism in the U.S. healthcare system. Given the privileged social statuses of ISL program participants, the framework can be extended to demonstrate the actualization of social privilege in everyday life. Jones posited three levels for understanding racism that can be used to similarly understand social privilege: institutionalized, self-mediated, and internalized.

*Institutionalization* is privilege that is legalized and normalized by societal institutions. Institutionalized power structures thus allow individuals to be unwitting oppressors who may not personally wish to oppress others. In *self-mediation*, privileged individuals enact oppression that is condoned by institutional norms through imposition, deprivation, or inaction. Self-mediated social privilege occurs when the privileged individuals believe their prejudice and discrimination to be normal, fair, logical, or even non-existent. *Internalization* occurs when individuals identify with the messages put forth by the aforementioned levels and hence support the overall system of oppression. As demonstrated in Jones's framework, oppression sustains when the social privilege of the dominant group is multifaceted and the non-dominant group is entangled in the different intersections of the multiple identities. Dismantling the system that oppresses the disadvantaged population requires work at all three levels.

### **The actualization of social privilege in SL volunteerism.**

Studies show that SL programs in U.S. universities are ineffective at imparting knowledge about learning with others to undergraduate participants (e.g., see Endres & Gould, 2009; King, 2004). Instead, the programs serve to maintain the power structures in the dominant society, particularly by reinforcing the notion of White superiority, paternalism, and hierarchism. For example, the practices of many academic SL programs, local or international, marginalized the beneficiaries. The beneficiaries are put in a position of inferiority, in which they are assumed to be unable to provide for themselves and must rely on the generosity of the program participants (e.g., see Siem & Strürmer, 2012; Tiessen & Kumar, 2013). Though well meaning, the participants demean and objectify the people they intend to help through their volunteerism. The volunteerism, thus, reinforces the oppressor-oppressed relationship (King, 2004; also see Freire, 1970).

In fact, SL programs instill conformity to societal norms among participants. The volunteers participate in work that supports the dominant institutional structure without engaging in critical thinking about the practices employed by the program. Gorham (1992) noted that despite spending months in the host communities, student participants were unable to engage in meaningful network building with their hosts.

Indeed, Endres and Gould (2009) found that even with intensive training in understanding White privilege and Whiteness, undergraduate students participating in intercultural SL programs in the U.S. continued to believe in the power of Whiteness to benefit activism.

In the ISL context, studies suggest that while the participants often achieve personal growth from the programs, they rarely relate to community members in a meaningful way or understand their lived experiences. The host communities continue to face the same challenges long after the volunteers are gone (King, 2004). Their interventions, for the most part, do not appear to be well thought out or sustainable. In short, the participants' social privilege is perpetuated through the programmatic goals, volunteering effort, and the marginalization of the communities. Therefore, it is asked:

*RQ:* How does the ISL program participants' discourse about international volunteerism reveal their understanding of social privilege in relation to social change?

## Methods

The second researcher designed and devised a plan for this study, whereas the first researcher collected and transcribed the interview data. The first researcher began collecting data while concluding her ISL program in Siem Reap, Cambodia, and immediately upon returning to the U.S. Both researchers collaborated in analyzing the data and writing the results of the study.

The interview protocol was designed using Spradley's (1979) ethnographic interview method, which permits the participants' articulation of their experiences through symbolic means that are meaningful to them (also see Ashcraft & Kedrowicz, 2010; Schmidt, 1998). Descriptive, structural, and contrast questions, along with probes, were used to explore the participants' experiences. Four generic grand-tour questions were asked, focusing on: (a) the participants' descriptions of their own motives for engaging in their selected ISL program; (b) their expectations about the trip; (c) their understanding of the volunteering experience; and (d) the impacts of the experience on them. Chen and Chen's (2011) interview questions surveying participants' expectations and motivations for volunteering were partially modified and incorporated in the protocol.

Each interview lasted 1 to 1.5 hours. Informed consent was obtained from each participant before audio-recording the interview; no compensation was given. The interviewees ( $n_{male} = 2$ ;  $n_{female} = 8$ ) were full-time students at universities in the West Coast and the Southwest. The volunteers participated in either the Thai-Myanmar border program, which built shelters for the Karen refugees, or the Mondulkiri and Siem Reap program, which focused on elephant and turtle conservation works and some limited teaching. The study included the participants from both programs because the programs shared the curricular goals of promoting social justice in Asia and developing student leadership skills. Moreover, the volunteering locations share cultural similarities and histories. All program participants received university credits for their SL course works.

All oral data were transcribed and analyzed iteratively. The researchers separately read all transcripts multiple times using Lindlof and Taylor's (2013) constant-comparative method. They separately organized the data into meaningful segments and coded the emerging themes, and then met to reconcile any differences in coding and refine the coding categories. Last, they agreed on the themes to be reported. The reported speech presented in the Findings section is minimally edited for clarity and readability.

## Findings

### IV as a socially privileged opportunity.

All participants described IV as an opportunity that should not be missed. For example, Participant 4 said, "I would not deprive anyone of it [IV] if they wanted to do it. I feel like everyone should get that opportunity." Participant 2 concurred, adding, "I realized how easy it is to volunteer, how I don't have much of an excuse not to at least do it every once in a while."

The students' participation in ISL programs would not be possible if they were not socially privileged. Participant 9 described, "People are like 'Why would you spend \$5,000?! I don't know how much. . . like \$5,000 on plane tickets . . . [but] you just get so much from it. You get all these wonderful memories and all these different perspectives.'" Material wealth, thus, afforded her the trip, and she gained invaluable experience. A manifestation of the substantive privilege is the participants' belief that they have a right to help the impoverished communities. Being from the "developed" "first world" allowed them to help the "third world" people, who are "underdeveloped" so as "to make this world a better place." Participant 10 further emphasized, "I feel like in a developing country, it's easier to help with changing problems that are going on," when commenting on the lack of governmental structure in Thailand as opposed to the U.S. that is advanced with developed laws and policies.

Clearly, the participants believed that their social privilege gave them the right to help people who are less privileged than them. Those in need of help were assumed to, unquestionably, accept and welcome foreign aid—presumably the best corrective measure. Participant 7 exhibited this air of superiority, stating, "If you bring Euros to Thailand, it's worth a lot more, you know. Then they can really do something worthwhile [with it]." People who need help are portrayed as living in deprived communities that do not allow free agency. The Karen refugees, for example, could only leave their community if "they find someone, [to] get them a stolen passport, there's like no other way," Participant 7 alleged. It is a projection of her social privilege that she believed the refugees had no option but to resort to theft and abandon their community. The reasons why people in underprivileged communities accept help from student volunteers for mostly manual work they can easily perform themselves are never questioned.

However, Participant 1 expressed some reservations. Maintaining a respectful tone while disagreeing with the Christian missionary approach to IV, he observed, "I don't really like going into somebody else's culture and telling them what they should believe, because you can't just go in and take away someone's culture." He noted

that Western volunteers are usually able to gain access to the host communities without the community members' consent and then try to shape the local culture.

Participants also reported gaining deep appreciation for their own privilege after witnessing the sorry living conditions of the Thai and Khmer people in the villages. Participant 6 observed, "Sacrificing toilet paper is a hard thing, you know. . . . Sleeping on concrete for two three months is difficult. It's not easy. It's painful. I had bruises for a while. . ." She continued her long list for a while. What she was being deprived of during her trip in Thailand speaks volume of what she was used to (i.e., entitled) back home. Although Participant 6 rejoiced upon returning to the States, declaring, "We have so many things at our fingertips," she also noted the irony of living in a privileged society where most people were unhappy. Participants used the dearth of technology and material possessions among the Thai and Khmer people not only to highlight social disparities, but also to define their social class statuses and thus accentuate the social disparities.

Equally revealing about the participants' awareness of their social privileges was the omission of race from their discourse. The participants acknowledged their wealth and social class, but did not show any understanding of the contribution and effects of race on their social privilege. In fact, race is inseparable from social class and privilege in the U.S. As Deetz and Simpson (2004) explained, color-blindness actually supports White supremacy and oppression; it allows the racialized lived experiences of the marginalized to be dismissed, while Whiteness is assumed to be normal and is never questioned. Therefore, the historical exploitation of marginalized others (e.g., through the enslavement of Blacks, genocide of indigenous people, and Western imperialism) did not carry educational benefits in their experience, despite the valuable lessons that the powerful ought to learn from history. To a large extent, the utilization of the "third world" as an outlet to experience one's social privilege without contributing to the hosts' betterment is similar to a softer form of recolonization of the East.

Based on the discussion above, it is concluded that IV is the reification of the participants' social privilege. Jones's three levels of racism, in this case social privilege, are teased out in the participants' discourse. However, due to space limitations, only personally-mediated social privilege is described in the following subsections, since the participants' narratives largely centered on themselves as individuals and on their personal life circumstances before, during, and after their sojourns.

### **Personally-mediated social privilege.**

Despite living amongst the people and participating in the everyday activities of their host communities, the volunteers continued to see their experience and view the people and their culture through the Western (stereotypical) lens. This stereotyping further alienated the participants from the actual lived experiences of their hosts. The participants did not fully immerse themselves in the local culture or appreciate the locals' perspectives. They used English as the only language of communication; as Participant 4 noted the language barrier was "so enormous" that she was not able to engage meaningfully "with the people [and] the culture." The participants revealed

two types of stereotypes they held about the host communities: stereotypes of exaggeration and stereotypes of marginalization.

### ***Stereotypes of exaggeration.***

Participants viewed volunteering as a “risk” that they took. They used words such as “third world,” “rugged,” “crazy,” and “dangerous” to describe Thailand and Cambodia, declaring, “That’s just so amazing and so, so crazy and interesting” (Participant 4) and “This is so crazy that it’s awesome” (Participants 10). Therefore, the perceived risks included the potential for being kidnapped, getting robbed, experiencing extreme weather, being trapped in political unrest, and contracting unfamiliar illnesses. To the participants who already considered international travel as risk even before volunteering abroad, Thailand and Cambodia were “new” and “challenging” or, as Participant 7 stated, “so cool and exotic.” Participant 6 added, “Everyone [was] like you’re going to India and Thailand that, like, don’t have running water in some places! I was like, wow I’m really going to a developing country!”

The volunteers’ exaggerated stigma of “third world countries” was clearly formed before they travelled abroad. The stigma was based on insufficient knowledge of the local people and their communities. The volunteers acknowledged that, apart from their knowledge of “developing countries” differ greatly from their own communities, they knew very little about their host communities before venturing out to live amongst them. Often, they compared between the “West” and the “East.” For Participants 2, 4, and 9, the mass media were the main source of information; for Participant 6, the only point of reference about Cambodia and Thailand before travelling to the region were Thai restaurants.

Ironically, these exaggerated stereotypes were further reinforced even after the volunteers engaged directly with the community members. Participant 10 observed:

They were just so content making breakfast, and that’s all they did, every day . . . that’s definitely interesting to see . . . because it’s kind of like a part of their culture is to be happy doing what you do and you don’t need to strive for more.

In other words, the stereotype of the unsafe “third world” was now conflated with another exaggeration—that the disadvantaged, by not knowing other options, welcomed their misfortune.

### ***Stereotypes of marginalization.***

While ILS programs are driven by direct engagement, this form of learning seems to have led to further marginalization of the host communities rather than foster genuine intercultural exchanges. Volunteers who realized how little they knew from personal experience were grateful that the sojourn “really opens your eyes and changes your perspective on life” (Participant 4). Unfortunately, their newly acquired knowledge of how “our worlds are different” (e.g., participants 5, 6, and 7) only reinforced their exaggerated stereotypes of the host communities, which in turn fed into their long-held stereotypes of marginalization, notwithstanding their direct interactions with the people.



This was illustrated by Participant 4's comments that "They are all such delightful human beings, really. And, when I saw them here, that, that fact in my mind did not change at all." Participant 4's comments betrayed her privileged position in relation to her Thai hosts, as her feeling of entitlement to judge other people is a performance of paternalistic stereotypes from one who assumes power over a perceived inferior. Participant 11 similarly demonstrated the stereotype of marginalization by implying that her social privilege gives her the right to enact social change, stating:

. . . it would be really incredible to find some child that doesn't have these opportunities in his life or her life . . . like I was privileged enough to be born into in America, and to bring them to America and teach them English. . . and give them this incredible life and all of these opportunities.

Acknowledging that she was "born into" a privileged system, she could not have demonstrated unearned merit any better. Like Participant 4, she placed herself at the top of the privilege power hierarchy, implying she could enact social change quite easily. Hidden in this perspective is the assumption that the change-maker is offering help to an inferior being, who then enjoys a better life. It claims that the American way of life is an "incredible life" full of "all of these opportunities" (Participant 11).

#### **IV for Personal Growth.**

Apparently, the ISL programs provided the volunteers an outlet for realizing their self-identity with very limited social consequences. Their social privilege remained unaffected by the "risks" they faced in volunteering in Thailand and Cambodia. The students did not see contradiction in using volunteering as a means to escape their "stressful," "distracted," and "fake" lives in the U.S. Participant 1 reflected, "To come here and feel comfortable about, talking about things that I perceive as reality . . . It's really nice, like it makes me open again." In fact IV can also be viewed as a means of relaxation and entertainment for the participants. It is a place where participants can fulfill their curiosity about radically different others, as Participant 7 observed, "Comparing Southeast Asia and here [the U.S.], people there want to be whiter, but people here want to be darker. It's incredible how polar opposite it is."

The transformative nature of the sojourn also meant that the volunteers were no longer content to return home and be confined to living a "comfortable," "privileged," and "shallow" life. Participant 7 remarked, "I feel like I lose it a little bit more every day I'm not there . . . I felt a little more secure and comfortable there, than I do here." Displaying new found confidence and growth, she added, "I don't use technology at breakfast any more. . . now I just focus on what I'm eating and how I'm feeling . . . We learned from the locals [to appreciate the moment]. . . like, *be here now*."

As previously noted, it was the volunteers' choice to go live among impoverished people in Thailand and Cambodia; they then returned home to live in relative comfort and privilege while reminiscing about the "simple life" they had left behind. They did not face any negative social consequences. However, in its current format, ISL does not engage the participants in meaningful self-reflection that would foster personal growth. But the lack of self-reflection keeps the socially privileged volunteers blind to their own identities and thereby stagnating their personal development (e.g., see

McIntosh 1988). For example, despite gaining new motivation for activism since starting her volunteerism, Participant 7 resigned from the program citing scheduling complications “that kind of made it [referring to volunteering] more optional.”

Overall, the participants were very deeply touched by the extreme poverty of their Thai hosts and Karen refugees, especially when compared to their own comfortable lifestyles. However, lacking formal instructions to direct their learning, they could only reconcile their cognitive struggles with simple explanations that soothe their discomfort and allows them to bathe their experience in positive light. Reminiscing over the “simple life” of the Thai people, Participant 4 described, “These people are just genuine. They are beautiful inside and out. They’re hardworking. Every day for them is working . . . and I love that.” It seems her personal growth came from learning the most fundamental human values.

On a more positive note, the volunteer experience motivated all the participants to further engage in some form of activism. For instance, participants considered the possibility of engaging in the Cambodian de-mining operation, raising money for a school, promoting awareness on elephant conversation, starting new hobbies, and showed greater enthusiasm for enrolling in college classes. Since returning home, two participants also started a club at their school to educate future volunteers on the histories and cultures of various ISL destinations. Ultimately, by allowing the participants to experience the “real” and “raw” life of the “East,” the ISL programs also helped several volunteers to find and direct their life’s purpose. As Participant 11 concluded:

That really was what opened my eyes to, oh my god, there’s all these opportunities in the world, that I could just go and help people somewhere else and learn new things. . . especially with other people that have a different perspective on life.

The stimulating ISL experience also benefited the participants in other ways. Many are now able to handle ambiguity and stress with confidence and no longer “worry about the little things” in their lives. Others are no longer “afraid of failure” having put themselves at “big risk” and come out unscathed. Practically all the participants ended up affirming, in one way or another, that volunteerism is about helping others and for the betterment of the world, not for boosting selfish egos.

## **Discussion**

Participants in this study asserted that IV had triggered their awareness of their social privilege. However, they did not critically reflect on their experience and the associated learning. While the stated goal of ISL programs is to enact social change, this was clearly not realized meaningfully among the participants. Besides teaching English, helping with elephant conservation, and providing manual labor, the participants did not mention learning any skills for enacting social changes that the host communities consider useful. Because the programs did not offer guided post-trip reflections, the interviews conducted for this study ended up providing a platform for many of the volunteers to begin making sense of their experiences.

Although the participants reported returning home feeling rejuvenated and ready for further volunteer work, their notion of helping the less privileged might actually work to perpetuate their marginalization. Contrary to expectations, scaling up the effort may only worsen the situation and tamp down meaningful social change, such as in sustaining paternalism. Indeed, the participants' post-trip discourse contained the same old stereotypes, suggesting the volunteerism had little or no lasting impact on their core beliefs and assumptions.

For that reason, it is skeptical that ISL programs can answer the question of whether or not they do “make a difference” in the lives of disadvantaged global communities. In other words, how is social change possible through the participants' reification of their social privilege? It seems the lived experiences of people in the disadvantaged communities will remain invisible as long as the legacy of institutionalized racism found on university campuses and similar oppressive systems are approved and endorsed by higher education. In a way, ISL programs, led by the White elites in U.S. higher education—the social institution that is founded on racism—continue to recruit and benefit the socially privileged White participants. This is not to mention that the universities are populated by predominantly Whites, and academic practices imposed on all reflect White values (Hendrix & Wilson, 2014; Simpson, 2010).

In fact, ISL programs have created a structured system that rewards the most socially privileged population (i.e., predominantly, rich White students). The participants are rewarded with opportunities to travel internationally to participate in “real” and “raw” experiments in diversity. It is no wonder that even when they observed social disparities, the participants conflated the disparities or, as Participant 11 did, lessened the seriousness of the differences by reducing them to harmless sound bite, “No matter where you are in the world, we are all human beings, we're all built pretty much the exact same way.”

Therefore, without appropriate guidance and informed explanations of the people's routines and behaviors, participants could only come up with simplistic attempts at making sense of their experiences. They reduced the complexities in the observed differences to simple, universal human values and notions (e.g., “love,” “respect,” “happiness,” “satisfaction,” etc.). They conflated the tangible with the intangible, dismissing social disparities in the global power structure that, for instance, concentrates power in the hands of a privileged few (mostly White men) as “normal.” In this system, social disparities remain invisible. Since real solutions cannot be found for nonexistent problems, the social capital of these powerful individuals remains intact.

Even when guided reflection and discussion can be conducted via the ISL programs, the social privilege of the student participants will likely be maintained. For this reason, the programs that are attractive to the privileged undergraduate population will continue to support and sustain a higher education system largely based on Whiteness and White supremacy. Despite their implied promise, reflection and discussion do not really hold the participants accountable for their actions. Furthermore, the safe spaces provided for such activities do not necessarily encourage deep or critical thinking and reflection. Perhaps that is why, even after interrogating the lives and resources of the underprivileged communities, the volunteers do not feel accountable to “give back” to the communities—that is, to revisit the people and

thoughtfully contribute to meaningful structural change that the people deem useful. It seems the talk about helping others and guilt over socio-economic disparities are short lived and do not transform into long-term learning.

Besides the reality of marginalization of the disadvantaged communities, another troubling issue is the fact that privileged student volunteers are able to use their experience for personal gains academically and professionally. Participants declared that their experiences made them “unique” and gave them “an edge” when applying for scholarships, jobs, and future internship opportunities. Getting rewarded at the expense of others and without assuming any risks is the embodiment of privilege and further strengthens the oppressive system (e.g., see Endres & Gould 2009; Siem & Strürmer 2012; Tiessen & Kumar 2013). The ISL programs further provided a structured means for “bored” undergraduates to escape their reality and experiment with cultural diversity in the “East” and put their knowledge of the “developing world” to the test. Although the “East” was put on full display for the curious students to devour to their heart’s content, the hosts’ dissenting voices remain unheard (Lee, 2016).

While the reification of social privilege in the ILS programs is critiqued in this study, the findings do not necessarily mean ISL programs are purposefully oppressive. In fact, many of the participants volunteered out of curiosity and were eager to experience the exoticness of the East. Their post-trip reflections through the interviews also revealed their concern for the disadvantaged in society. However, without the appropriate pedagogy and educational instructions the participants, despite footing the expensive travel bills and tuition in exchange for credit loads, were not able to actualize a meaningful academic dialogue and learning experience.

Finally, institutional power, such as Whiteness, must be properly labeled and sufficiently interrogated in order to engage in meaningful works in dismantling the oppressor-oppressed relationship (Jones, 2000; Simpson, 2008). In essence, when the ISL programs reward only the most privileged students and universities incentivize the growth of these programs, the recolonization of the “East” and marginalization of its people will continue. Instead, engaging in genuine intercultural dialogue that does not silence the marginalized and learning *with* the host communities may be more effective. However, such an approach that involves open and respectful exchange with the hosts by understanding the hosts’ lived experiences—as situated in their social and historical realities—deserves a separate in-depth discussion, and may fall to researchers who specialize in intercultural dialogue (e.g., see Lee, 2016).

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## ***Confronting Students' Science Anxiety through "In Dialogue with Nature"***

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### **Abstract**

Science anxiety is a common phenomenon among students taking traditional science courses, including some science-related general education courses. It has been observed that science anxiety hinders students from effective scientific literacy and confident application of science skills to solve problems. "In Dialogue with Nature" (UGFN1000) is a compulsory general education course for undergraduates of The Chinese University of Hong Kong. This course encourages students to engage in reading science texts and peer discussion about science-related issues, thereby clarifying misconceptions and building up confidence in seeing things from a scientific perspective. This study aims at investigating the change in students' science anxiety after they have taken UGFN1000, hence it brings insights into pedagogical development that could reduce students' science anxiety and improve their learning efficiency. We applied the "Science Anxiety Questionnaire" (SAQ) developed by Alvaro (1978) and found that science anxiety could be related to students' gender, faculty, and the gender of the teacher. Findings from focus group interviews suggested that the primary source of science anxiety roots in the 'fear of getting it wrong'. Preliminary analysis showed that UGFN1000 had made science more 'friendly' to students, and reduced the emotional burden of reading scientific articles and developed more concern for the world scientific issues. Several aspects of Nature of Science (NOS) were brought up in focus group interviews. It was hypothesized that lower anxiety towards science might be correlated with better understanding of NOS.

Keywords: Science Anxiety, Nature of Science (NOS), core-texts, general education, classics reading.

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## 1. Introduction

### 1.1 General Education Foundation Programme

In 2012, the university curriculum changed from 3 years to 4 years in Hong Kong. Since then, a 6-unit General Education Foundation (GEF) Programme has become a compulsory component of the undergraduate curriculum at The Chinese University of Hong Kong (CUHK). GEF consists of two courses, namely “In Dialogue with Nature” (UGFN 1000) and “In Dialogue with Humanity” (UGFH 1000), in which students engage in direct dialogue with selected classics, teachers and fellow students to explore the world of science and knowledge, and to reflect on society and life. The courses are seminar-based. Every semester, all the ~3,800 students are divided into small groups of 25 each. Students discuss perennial issues brought up by the classics, which are relevant to contemporary context. Examples of issues include ‘What is truth?’ and ‘What are the laws of life?’.

### 1.2 In Dialogue with Nature (UGFN 1000) – A core-text based general education course

This course brings students on an intellectual journey through (i) Exploration of the Physical Universe, (ii) Exploration of the World of Life, and reflection on (iii) Our Understanding of Human Understanding. Examples of core texts are excerpts from Plato’s *Republic*, Charles Darwin’s *On the Origin of Species* and Henri Poincaré’s *Science and Methods*.

The assessment consists of three main components: reflective essays (50%), quizzes (25%) and participation (in-class & online discussions, 25%). By the end of the course, students are expected to be able to: (i) comprehend and discuss science-related texts, (ii) identify the essential characteristics of how human beings view nature, (iii) formulate informed personal views on the societal implications of scientific explorations, (iv) relate the developments in natural sciences highlighted in the course to contemporary human condition, and (v) evaluate the scopes of application, achievement and limitations of highlighted scientific methods using multiple perspectives.

### 1.3 Students’ difficulties

UGFN 1000 is compulsory for all undergraduate students, regardless of their academic backgrounds. Students need to read science texts, write on and discuss scientific issues. In 2013/2014, we collected students’ opinions on their learning difficulties in the course by a feedback form. It was found that their difficulties were mainly in three aspects: (i) Understanding the main ideas and details of each text, because of unfamiliar scientific concepts and terms, (ii) Language barrier of local students in reading English texts (even though the medium for teaching and in-class discussion was Cantonese) and (iii) Not being able to finish the reading before tutorial session.

In response to students’ feedback, teachers of GEF Programme developed learning aids such as the mobile app ‘DiaNable’ (with study questions, paragraph outline and mini-dictionaries) (Cheung, Hoi, Ng, Pang, & Wong, 2017) and

micro-modules (online video clips) on basic scientific knowledge. These aids assisted students in tackling the cognitive component of difficulties. However, the emotional component in science learning was also notable. Some students showed anxiety towards science. This observation was consistent with the findings of existing studies (Jeffrey V Mallow & Greenburg, 1983).

Some students experience anxiety when confronting scientific knowledge, because of their previous lack of science background. A little amount of anxiety might motivate learning (Cassady & Johnson, 2002), but in the case of students studying science, it is rare that their anxiety level is too low. Instead their performance could be severely hindered because of their anxiety toward science (Anderson & Clawson, 1992). The frustration in studying science may also lead to disliking and avoiding anything scientific (Jeffrey V Mallow, 1981), and even the lack of confidence and interest in making informed decision on scientific issues which a consumer or a citizen should do (Britner, 2008).

#### **1.4 Science Anxiety**

The phenomenon of Science Anxiety was identified by Mallow in 1977. It refers to a feeling of stress and tension that interfere with the acquisition of scientific knowledge, the development of scientific skills and abilities, and the application of science knowledge and skills, to daily life and in academic situations (Jeffrey V Mallow, 1981). This anxiety is distinct from general test or performance anxiety but manifests itself as a crippling panic on exams in science classes. Students suffering from science anxiety, however, are often calm and productive in non-science courses (Jeffrey V Mallow, 2006).

The cause of Science Anxiety is a lack of a framework of prior knowledge to help order new knowledge (Anderson & Clawson, 1992). On the other hand, it is also a mixture of baggage of poorly taught pre-college science, a lack of appropriate role models and societal prejudices. Therefore, it is indeed a baggage of cognitive and emotional burdens (Jeffrey V Mallow, 2006).

It was suggested that lower achievement in science is related to higher levels of Science Anxiety, in both genders (Chiarelott & Czerniak, 1987; Czerniak & Chiarelott, 1985). Performance in any test is better if students could approach it with confidence, and analyze the problem calmly and rationally. Therefore, the two approaches to deal with Science Anxiety are reducing level of science anxiety (emotional burden), and improving instructional learning experience on science (cognitive burden) (Anderson & Clawson, 1992).

#### **1.5 Science Anxiety Questionnaire (SAQ)** (Alvaro, 1978; Jeffrey V Mallow, 1981; Udo, Ramsey, Reynolds-Alpert, & Mallow, 2001)

It is a 44-item questionnaire with 22 science and 22 non-science analogous scenarios, such as 'Filling your bicycle tires with the right amount of air' (a science scenario) and 'Precisely inflating a balloon to be used as apparatus in a Physics experiment' (a non-science scenario). Students were asked to imagine how much they were frightened in those situations using a 5-degree Likert scale: "not at all", "a little", "a fair amount", "much" or "very much".

## 2. Results and Discussions

The following questions were thus addressed using Science Anxiety Questionnaire and focus group interviews:

1. Is there any change in students' Science Anxiety after they have taken "In Dialogue with Nature"?
2. If there is any, what are the possible factors contributing to the change?
3. What could be done to reduce their Science Anxiety and enhance their efficiency in learning?

### 2.1 Science Anxiety Questionnaire

Students in four semesters, namely 2014-15 Term 2, 2015-16 Term 1, 2015-16 Term 2, 2016-17 Term 1 were invited to fill in the SAQ twice on a voluntary basis, one at the beginning of the first lesson (Term start) and the other at the end of the last lesson (Term end). Since most students start to take the first GEF course (In Dialogue with Nature / In Dialogue with Humanity) in Term 2 of their first year, and the other in Term 1 of their second year, the students from 2014-15 Term 2 & 2015-16 Term 1 were from the same cohort, and so were those from 2015-Term 2 & 2016-17 Term 1. There are altogether 16 and 19 classes of 25 students from each cohort in the survey. Students were asked to fill in their student ID on the questionnaire, and after both term-start and term-end questionnaires were collected, only students who had completed both questionnaires were selected for data analysis.

Students who gave at least one "much" or "very much" response to any science or non-science question would be identified as generally anxious (GA); Students who gave at least one "much" or "very much" response to any science question would be regarded as science anxious (SA). The percentages of GA and SA students were calculated (Table 1).

	No. of students	% SA			% GA		
		Term start	Term end	$\Delta$ % SA	Term start	Term end	$\Delta$ % GA
<b>First Cohort</b>	265	64.91	60.00	<b>-4.91</b>	80.75	77.36	<b>-3.39</b>
<b>Second Cohort</b>	243	71.19	67.90	<b>-3.29</b>	86.83	80.66	<b>-6.17</b>

Table 1: Changes in Percentage of students who are science anxious (% SA), generally anxious (% GA), and their ratio (SA/GA), before and after taking UGFN 1000. % SA =  $100 \times (\text{No. of SA students} / \text{Total No. of students})$ ; % GA =  $100 \times (\text{No. of GA students} / \text{Total No. of students})$

On the other hand, the average number of questions being answered "much" or "very much" (generally anxious, GA), and the average number of science question being answered "much" or "very much" (science anxious, SA) were calculated respectively. In this way, we could calculate the average change of each student (Table 2).

	No. of students	Average SA (Total 22 questions)			Average GA (Total 44 questions)		
		Term start	Term end	% $\Delta$ in Average SA	Term start	Term end	% $\Delta$ in Average GA
<b>First Cohort</b>	265	2.97	2.95	<b>-0.64</b>	6.73	6.26	<b>-7.00</b>
<b>Second Cohort</b>	243	3.70	3.63	<b>-1.89</b>	7.61	7.40	<b>-2.86</b>

Table 2: Changes in average number of science questions being answered “much” or “very much” among all students (Average SA) and changes in average number of questions being answered “much” or “very much” among all students (Average GA). After performing the paired *t* tests, no significant change was found.

From the above analysis, it was found that percentages of science and generally anxious students had been slightly reduced in both cohorts after taking our course (Table 1). Students were also generally less anxious and slightly less science-anxious after taking the course, by answering “much” and “very much” in fewer questions (Table 2), although the changes were not statistically significant.

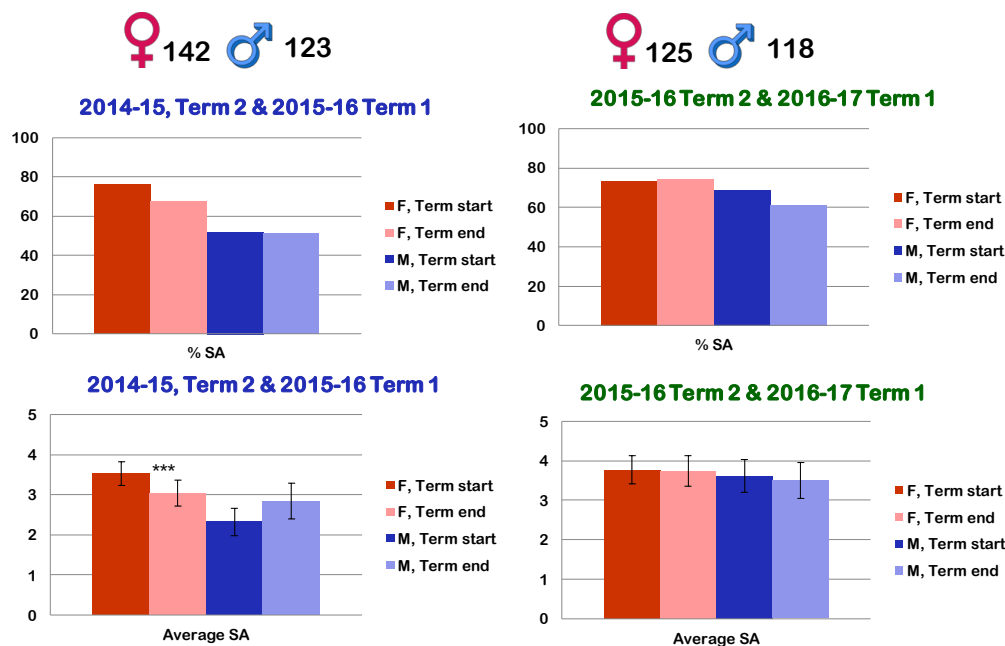


Figure 1: Percentages of SA students & Average number of SA questions being answered ‘much’ or ‘very much’ frightened by gender

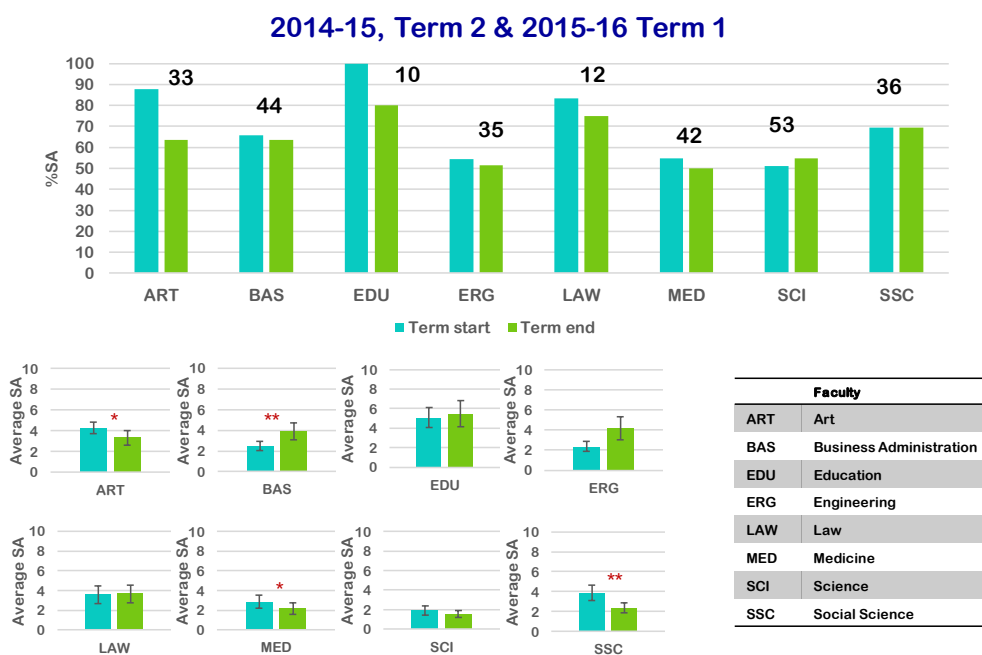


Figure 2: Percentages of SA students (top) & Average number of SA questions (bottom, left) being answered “much” or “very much” frightened by faculty in 2014-15 Term 2 & 2015-16 Term 1 (First Cohort). Numbers above the bars refer to the number of students from each faculty in the study. The abbreviations of faculties are shown (bottom, right). Paired  $t$  test of average number of SA questions was carried out, \* $p < 0.05$ , \*\* $p < 0.001$ .

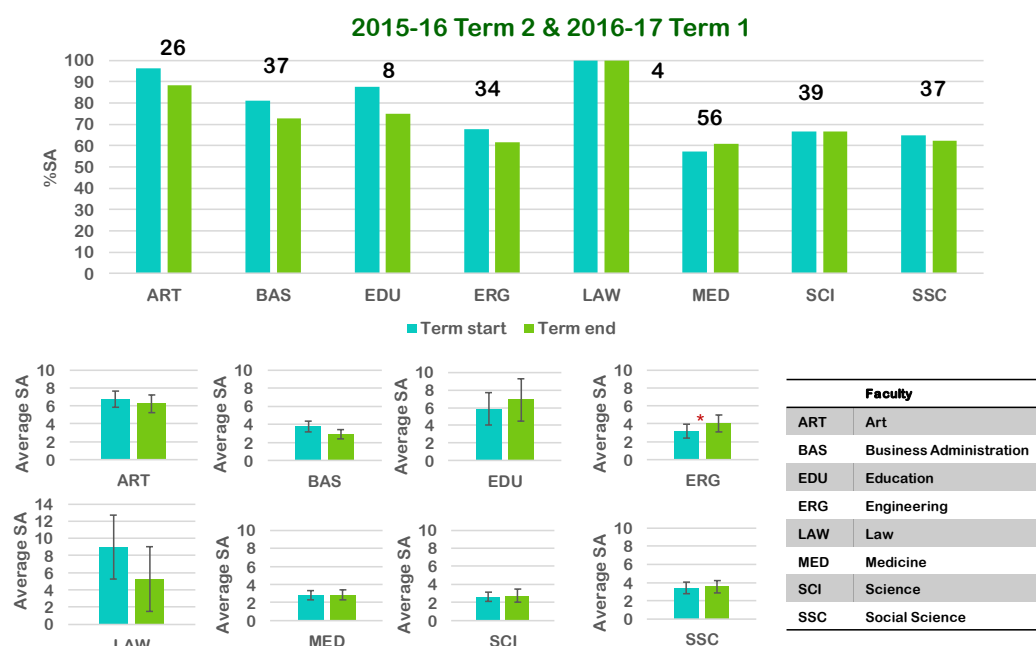


Figure 3: Percentages of SA students (top) & Average number of SA questions (bottom, left) being answered “much” or “very much” frightened by faculty in 2015-16 Term 2 & 2016-17 Term 1 (Second Cohort). Numbers above the bars refer to the number of students from each faculty in the study. The abbreviations of faculties are shown (bottom, right). Paired  $t$  test of average number of SA questions was carried out, \* $p < 0.05$ .

Female students are generally more science anxious than male students, but their science anxiety reduced more significantly after taking “In Dialogue with Nature” (Figure 1).

Fewer students from most faculties tended to have science anxiety after taking “In Dialogue with Nature” (Figure 2 & 3). Nevertheless, the number of students varied in each faculty and needed to be increased for a more comprehensive comparison.

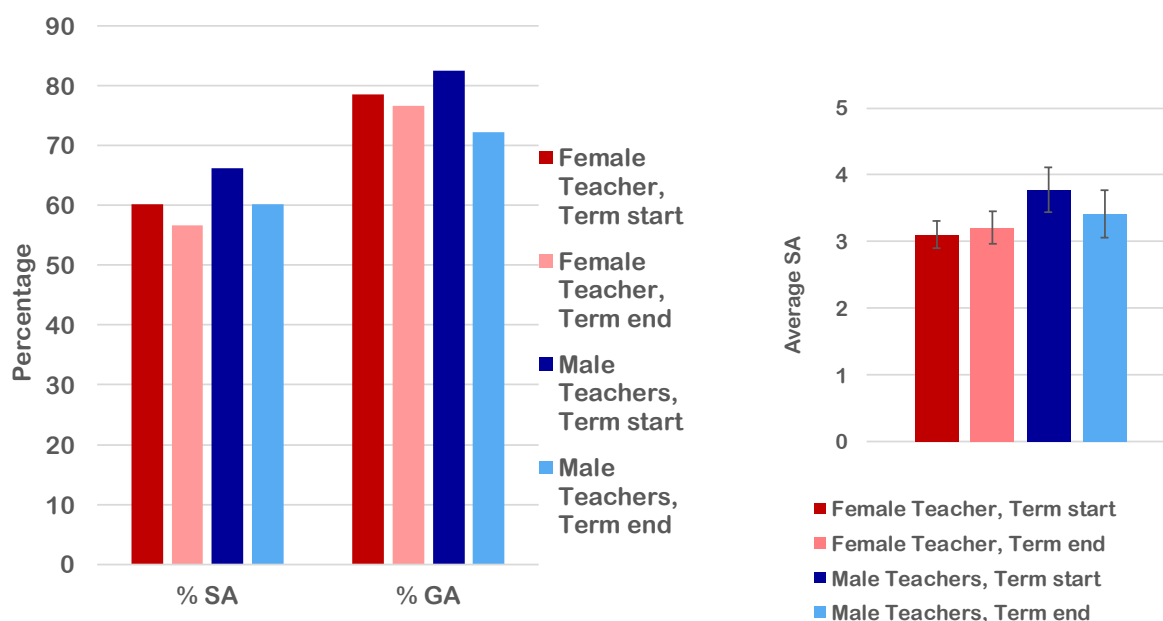


Figure 4 – Percentage of SA students & GA students, and average number of SA questions being answered “much” or “very much” frightened, by teacher’s gender in both cohorts. Number of students being taught by a female teacher was 342 and two male teachers was 166.

Whether teachers’ gender affects students’ science anxiety was also investigated. The percentages of SA and GA students reduced after taking the course, with both female and male teachers. A higher percentage of students taught by male teachers were science anxious (Figure 4, left). The average number of science questions being answered “much” and “very much” reduced after the students had taken the course taught by male teachers, although the reduction was not statistically significant (Figure 4, right). The finding also reflected the tendency of generally anxious and science anxious students in choosing male teachers for this course.

The general reduction of science anxiety could be due to their learning experience in UGFN 1000 per se or other experiences throughout the semester. A focus group interview was thus carried out to find out the students’ sources of science-related anxiety in our course specifically, and hopefully bringing insight into the pedagogical development.

## 2.2 Focus Group Interview

Seven local students (taught by three teachers) taking “In Dialogue with Nature” in 2015-16 first term were interviewed. Their information is as follows:

Identity	Gender	Year of study	Faculty
P1	Female	2	Law
P2	Male	2	Business
W1	Female	2	Business
W2	Male	2	Social Science
S1	Female	2	Social Science
S2	Male	2	Science
S3	Male	2	Engineering

Table 3 – Information of students participated in Focus group interview

The aim of this interview was:

1. To find out students’ sources of science-related anxiety in “In Dialogue with Nature”.
2. To understand how the learning activities in “In Dialogue with Nature” affect these sources of science anxiety, and how the effects are related to the background of students.

Interview questions and students’ responses – excerpt.

- **Which component of learning (or assessment) in our course generates the greatest anxiety?**

Three students answered written assignments (‘Reflective Journal & Term Paper’), three answered ‘Quizzes’, one answered ‘Group discussion’.

*S1: ‘I’m afraid of misinterpreting the ideas of the texts and making mistakes in writing papers and doing quizzes. Therefore I felt anxious working on these.’*

*P1: ‘Term paper leads to the greatest pressure. I was afraid what I had written didn’t match the requirement of questions. Same as reflective journal, reflection is crucial, but I’m not sure if mine could fulfill the criteria in this course.’*

The source of this science anxiety could be pin-pointed to the ‘**fear for getting it wrong**’. It was because wrong answer could affect their Graded Point Average (lower marks in quizzes and written assignments), as well as causing the shameful feeling in group discussion.

- **Is there any difference reading a text that will be quizzed on and reading one that won’t?**

*W2: ‘Certainly there’s a difference because the quizzes count towards my final grade...When I read the texts that didn’t need to be quizzed, I didn’t read them attentively, and I just tried to grasp the outline of the whole text...’*

*S1: ‘When there is no quiz, I can enter the classroom with doubts without feeling nervous...I felt more relaxed.’*

*W1: ‘Frankly speaking, I haven’t read all the texts in UGFN except those that needed to be quizzed.’*

It could be concluded that quizzes could increase anxiety but also the motivation to read the core-texts.

- **Is there any change in the way you feel about science after taking the course?**

S2: *'The course has given me a positive feeling about science. I used to think that science is 'professional' stuff. I just memorize the equations and stuff facts into my head. But in this course the teacher taught science in a lively way...we were exposed to different scientific issues. It allowed us to develop our interests and not to feel anxious.'*

S2: *'Now I'm more confident and motivated to read any article about neuroscience after learning related knowledge in this course. In the past I felt it was terribly hard even before I started reading.'*

S3: *'Actually some texts covered in this course are warnings to the world, e.g. GM food, Silent Spring...These texts are about damages brought about by science, and make us ponder and judge human behaviour towards Nature. I will now keep an eye on related news. With basic knowledge, maybe our generation could make some change to the world.'*

The course has made science more 'friendly' to students, and the emotional burden to read science articles has been reduced. On the other hand, they have developed more concern for scientific issues around the world.

- **What could reduce your science anxiety in taking this course? What could we do to increase your confidence?**

1. Mobile app 'DiaNable' developed by a team of teachers in General Education Foundation Programme (Cheung, et al., 2017).

W2: *'I could evaluate my understanding of texts with this app. If I've answered it wrongly, I could be reminded & make improvement. In this way I could be more sure about the messages from texts, and reduce some anxiety...This app is really helpful.'*

2. Connections between scientific knowledge and daily life.

S1: *'I remember when we learned about mechanics, our lecturer mentioned an example of 'flinging away the cockroach on your arm' to illustrate Newton's laws, it was very impressive.'*

W2: *'There was a role play discussion (about population policies under 'Social Darwinism & Eugenics') in a tutorial lesson, each group represented different stands, and we had to discuss based on our role. It would be nice to have more discussion in this style, the atmosphere would be more relaxing and engaging, not just focusing on boring texts.'*

Other suggestions include teacher's guidance on how to write a term paper, teachers being smiley and encouraging when students answer questions in front of class and

3. Peer assistance – online discussion

S3: *'When I prepared for my term paper, I viewed my classmates' replies in the online discussion board. I felt much more comfortable to find a majority of replies sharing the same view as mine.'*

Apart from the cognitive support on understanding the texts, it was remarkable that emotional components including teachers' attitude, peers sharing and their connection with science could also reduce the burden of studying science-related issues.

From the focus group interview, we have also discovered students' recognition of several aspects of **Nature of Science (NOS)**, it was hypothesized that better understanding of NOS might be related to lower anxiety towards science.



*S1: 'In the past I felt like science has an absolute truth. But then I knew that those theories that were regarded as true could be overthrown with new evidence, I feel like science is not true in full reality. I recalled the shadows in the Allegory of the Cave, although it wasn't fake, it's just not that real.'*

The scientific knowledge is both tentative and durable (**Tentativeness of Scientific Knowledge**), and both scientific laws and theories are subject to change (**Scientific Theories and Laws**) (Liang et al., 2006).

*S2: 'I remember a text was about whether we could use science to prove the existence of free will... This made me think of these questions: 'Can science explain everything? Or does it create more questions?' Science aims to be objective and precise, but subjectivity in science is unavoidable (Subjectivity and Objectivity in Science ) (Liang, et al., 2006).*

*W1: 'Some authors from the texts have spent their whole lives in research, published papers until the day they died. I studied science in high school, but I don't think I have such patience and perseverance. They could even get no result spending their whole life working on the same area, or have their theories proven after they died. I really admire this spirit and it is remarkable as a human being.'*

Science is part of social and cultural traditions (**Social and Cultural Embeddedness in Science**) (Liang, et al., 2006).

### 3. Conclusion & Recommendations

The analysis of student responses to the Science Anxiety Questionnaires showed that more than half of our students were science anxious, and the root of their anxiety seemed to be the “fear for getting it wrong”, which would affect not only their grades but also the impression on their peers.

The percentage of science anxious students dropped, and the average number of science questions being answered “much” or “very much” frightened was slightly reduced after students had taken “In Dialogue with Nature”. This suggests a room for pedagogical improvement. Some insights were brought up by students in the focus group interview. Not only the cognitive support like a mobile app with study questions, teacher's guidance on reading science core-texts and on writing are significant, the “fear for getting it wrong” could also be alleviated with affective support like teachers being supportive and encouraging, and the sense of connections between scientific knowledge and daily life. Not only teachers could provide support, the mutual influence among peers was also significant. Establishing an encouraging discussion environment and space for peers sharing is thus essential.

Inspired by the above results from our study, we propose a further study that includes the following two main components:

1. To develop a new survey tool to evaluate the relationship between students' science anxiety and other factors.

Alvaro's Science Anxiety Questionnaire (Alvaro, 1978; Jeffry V Mallow, 1981; Udo, et al., 2001) that we adopted previously contains 44 questions, some items belong to

sub-categories of science anxiety unrelated to the context of our science core-texts based course. For example 'Lighting a Bunsen burner in the preparation of an experiment' is related to 'Danger Anxiety' (Wynstra & Cummings, 1993), but there is no laboratory lesson in our course. Moreover the SAQ was designed for American students and it was therefore written in English. It was very likely that there was a language barrier for Hong Kong students, whose first language is Chinese. A new questionnaire written in Chinese, being more culturally applicable to Hong Kong students and more relevant to the context of our course, is therefore to be developed.

More information (new parameters) from students will be obtained with the new questionnaire, for instance background knowledge (whether they have studied any science-related subjects in secondary school), understanding of nature of science (NOS), their self-efficacy towards science, in addition to faculties, year of study and gender.

## 2. To design pedagogical interventions to reduce students' Science Anxiety and improve their learning efficiency.

The result obtained could let teachers better understand their students and thus adjust their pedagogical approaches for better learning efficiency, and even better scientific literacy. Examples of possible interventions include correction of science-related negative self-statements, and muscle relaxation exercises before quizzes and class discussions.

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## ***How to Support Collaboration in a Learning Community***

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### **Abstract**

Learning communities are widely used in different educational contexts. This case presents some viewpoints of using Learning Communities (LC) with adult students of Social Services at a University of Applied Sciences in Finland. The studies are carried out as blended learning, i.e. as a combination of face-to-face and online learning. After the graduation, these students can work as social services professionals and some students can also obtain the qualification to work as an early childhood educator. In both sectors, the work is often done in teams. It is also one of the aims in our studies that students learn to collaborate and reflect together as part of their studies and prepare to work in teams. The adult students coming to study at our UAS have very differing educational backgrounds. Some of them have already completed their Master's studies in some different subject and some students have taken lower-level vocational studies in social services. Some of these students have a lot of experience from the social field or from early childhood education and some students have none. The heterogeneity of the group causes some challenges but it also creates many possibilities for collaborative and reflective learning. This paper is part of a larger research-based development process that focuses on the extensive question "How to use learning communities in higher education". This article presents some first findings of the development process, concentrating on students' experiences of LCs after their first study year. The findings will show some factors that the students consider enhancing or hindering their collaborative and reflective learning in LCs.

**Keywords:** Learning community, collaboration, higher education, blended learning, development

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## Introduction

Nowadays, learning theories highlight the social aspect of learning. Several learning theories and philosophies, such as experiential learning, inquiry learning, social constructivism and sociocultural views of learning form the theoretical framework for this article. The link between all these theories is the idea that learning takes place through reflection and collaboration. On the other hand, collaboration and reflection are also important goals of learning in our context. The ability to work collaboratively and reflect critically are highly valuable both in the field of social services and early childhood education. In both sectors, it is important to collaborate with colleagues and clients and to construct a shared meaning of work and its aims.

Another aspect is the reason for talking about learning communities instead of just group work or learning in a group. Our aim is that students get involved in a learning community throughout their studies. We have big student cohorts, about sixty students in total, and in addition, there are two different cohorts starting their studies each year; one cohort in January and another in September. There are many studies showing that learning communities can foster learning in higher education (e.g. Anderson & McCune 2013; Hill & Haigh 2012). Lindfors (2010, 30) adds, that collaborative work and learning are not possible without a learning community. We have also found out that it is easier for the students in the beginning of their studies to get involved in their own learning community and first get to know this smaller group of students. In our case, one learning community has about ten students who are sometimes working in a big group and sometimes in smaller groups. However, in some of our studies we do not use group work at all.

The adult students coming to study have very differing educational backgrounds. Some of them have already completed their Master's studies in some different subject and some students have taken lower-level vocational studies in social services. Some of these students have a lot of experience from the social field or from early childhood education and some other students have none. The heterogeneity of the group causes some challenges but it also creates many possibilities for collaborative and reflective learning. Hughes (2007) has warned that there is always the danger of assuming that learner diversity is well understood. According to Anderson and McCune (2013, 285) it can be seen as a significant weakness if we do not pay enough attention to the community members' heterogeneity of motives, experiences and trajectories. These factors are also relevant in students' experiences presented in this article.

As mentioned, our studies are implemented as blended learning. The students have one week of face-to-face learning a month in school premises and three weeks both individual assignments and working online with teachers and peer groups. Online learning is both synchronous and asynchronous. Working online causes some more challenges for collaborative learning. (e.g. Hughes 2007.)

## Beginning of research-oriented development

In the beginning of year 2016, we had our first big cohort of adult students. To handle this new situation, we thought that this is the time for us to do something different from the very beginning. We did not have more teachers but we had more students, which is a global trend. We had two tutors for this cohort, who decided, with support

from our student counsellor, to create six learning communities (LC) for these sixty new adult students. Unfortunately, I need to confess that we did not have a clear plan for the role of the learning community in all studies. In addition, we did not have a shared understanding of LCs with all teachers. At first, there were many ways to use and divide these communities in smaller groups in different studies. Different teachers gave different meanings for LCs and for group work in general.

The students also gave different meanings for LCs. These meanings can vary between different students and different studies. In the beginning of their studies, students felt that they got a lot of peer support for many kinds of things. Some students were more familiar with technical questions, new software and virtual learning environments, and could help others in these questions. Some students were more familiar with writing reports and could assist others in this. Many students have told us how important it was to write a learning assignment first together and be then ready to write a report alone. Anderson and McCune (2013, 289) have presented that “students are working to find effective ways of participating within particular knowledge practices”. This is a very interesting and large question; what could be an effective way for each student, with a different background, different experiences, different interests and different conceptions of learning, to get involved in shared tasks and collaboration in higher education? There are such students in each group who feel that it would be easier and most effective for them to do all the learning assignments alone and not wait for or help others. However, doing all the assignments alone is not an option, because learning about team work is also one of the aims in our studies. The challenge is to find a balance between the time the group works together and each member individually, and how these two styles of working are connected with each other. How can we support individual learners to be involved in working in a team and to work in a learning community? Next, I will present the development process we have started in order to get answers for these questions.

After the first study year, we always interview our students to ask about their experiences of their studies. This time we also asked about the students’ experiences of working in learning communities. We heard many very good experiences but also some more concerning ones. These interviews were the start of a more systematic development. The main goal is “to improve learning community practices so that they offer optimal possibilities for students’ learning and learning to work in teams”. We had the need to make this process more transparent for both the students and teachers.

The focus in this work is in development, not in research. The research methods used make this development process more visible. In research, however, research methods are used more precisely. In research-oriented development, the aim is to get enough information to know where we are now and how to proceed. One aim is that development is a shared process between teachers and students. It is also important to ask if we are proceeding top – down or bottom – up. In this development work, we use both ways. On one hand, teachers and the curriculum provide some aims for professional development and on the other hand, the aim is that the students will develop their collaborative and reflective practices and develop as a learning community.



### **Students' experiences of the advantages and challenges in learning communities**

After interviewing the students to find out about their experiences from their first study year, we gathered these findings together and presented them for the students. The main outcome at this phase was that most students had many good experiences of working in a learning community. They told about peer support and how important it has been in the beginning of studies. Many students told us that it was much easier and quicker to get answers from other students than from teachers. The peers have supported with coping, writing, searching knowledge etc. The students felt that it has been important and rewarding to share experiences and find new friends. Another outcome was that there is also something to develop further. We talked about the aim to learn to work in teams and we discussed commitment and learning.

After presenting these findings to the students, we told them that we would like to understand their working in LCs more deeply and we asked them to write a short essay about their experiences of belonging or not-belonging to a group. Below, I present some of the findings from these essays.

Collaborative and reflective learning requires that students are ready to share their experiences, thoughts and understanding with each other in their learning community. There is also the presumption that the students are ready to build up shared meanings, joint aims and mutual understanding in different study assignments. The students' essays included some examples of this not happening. However, it is important to notice that most essays only included positive experiences and the students seemed very happy working in LCs, and only 12 students out of 60 told us some negative experiences of belonging to a group.

According to Anderson and McCune (2013, 285), the key issue for 21<sup>st</sup> century higher education institutions is to pay attention to power relations. The authors highlight that when higher education institutions often have a diverse and multicultural student body, it is important to search for the students' voices to be heard and find out ways to foster mutual respect and equity of treatment. Our students are all native Finns and mainly female, but the heterogeneity appears in many other ways. They are different ages, ranging from 23 to 54 years, different educational background, various work experiences, and different trajectories and interests. The students' stories had many examples where they pondered how the different voices are heard in a group and how open the group is. There were also many examples of peer support and its significance. Some of these findings are collected in the next two tables.

Table 1. Students' experiences about openness

good experiences about openness	bad experiences about openness
Each person has a place in a group Each person is heard in a group The atmosphere is free to breath There is fairness in a group There is permission to speak openly Openness and multivoices support learning There is permission to show one's weaknesses The group accepts you as you are The differences are seen as a strength	The group does not accept, it judges and leaves you out Decisions are not made together The group takes your energy and strength You are not allowed to reflect aloud during the groupwork There is competition inside the group The group does not share all ideas Some participants are dominating, talking too much and not listening to other participants Feeling that your own competence is questioned in the group Various educational backgrounds are not valued in the group The heterogeneity is not accepted in the group

Table 2. Students' experiences of support

Examples of support	No support
The group makes you feel safe The group supports The group is a resource, it helps in learning The group gives you motivation You can make friends in the group The group helps you to adapt in a new city	The group limits your learning motivation The group does not always support Some people make interprets in the group There is too much complaining in the group There are free riders in the group, which is annoying Too familiar a group is not concentrating on its learning assignment Correcting the mistakes of other participants takes your energy and time

Each student group might also have some students who are not very committed to their studies and just want to be ready as soon as possible. There can be different reasons for this attitude, but the challenge is how to handle these differences in motivation and commitment in a learning community. Some students also wrote that it is frustrating if the group changes too often. The research data showed experiences that students sometimes have too many different group assignments going on at the same time and it has been difficult to remember e.g. which Facebook or WhatsApp group was for which assignment.

### Workshop for students

The next step in the development process was to share the findings of the essays with the students and to have a workshop where the students were able to reflect on these issues. Some students told us that the results sound very realistic and familiar. Some students were more astonished by the existence of such negative experiences, like the feeling of not being respected. After this discussion, we had a short theoretical part

where we talked about the psychological capital, professional identity and the meaning of positive interaction.

After the theory session, the students were working in their own big learning communities with the following questions:

What kind of psychological and social capital do you have in your LC?  
How could you strengthen the positivity in your LC?  
Which aims do you set for the development of your LC?

The following table presents the aims that the students of the six LCs set for the development of their own LCs. Each LC named 2-4 aims, and these aims were partly the same and partly different between the different LCs. I do not reflect the differences between the LCs in this context, but present all the aims in one table:

Table 3: Students' developmental aims for Learning Communities

<p>More open discussion and constructive and developing feedback</p> <p>Space for individual growth and development</p> <p>Shared reflection and discussion of professional identity</p> <p>More discussion about tasks and how they are understood</p> <p>Shared reflection and evaluation of group work afterwards</p> <p>Getting to know each other and taking advantage of the various experiences and competences in a group</p> <p>Open discussion in case of problems with timetables or such</p> <p>Keeping up the positive atmosphere, peer support, striving for conscious positivity</p> <p>Reflection of our own attitudes and ways of working, and getting out of our comfort zone</p>
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Students told us that it was important to talk more about their psychological capital and to get to know each other a little bit better. For us teachers this was an important clue for realizing that this kind of a conversation could be scheduled a little bit earlier, maybe after a half-year of studies. However, it cannot be too early, because there is already so much new information the students get during the first school months.

## Conclusions

This research-based development process is still in the beginning and there are many things to learn and reflect. These first experiences have also raised new questions. What is the meaning of a learning community for a student's professional identity? I have reflected on this question in another presentation and article (in ECP 2017). In blended learning, students work virtually a lot and working online arises many new questions and challenges for collaboration. These questions also need more reflection in another context. I have shared these first findings with the other teachers in our degree programme. After discussing the various experiences of group work, we decided to expand this learning community practice in all our study groups and develop it further together. We even founded our own learning community for the

teachers. The future will show how we can find the time and enthusiasm to continue this development process together.

The philosophy behind this paper refers to postmodernism. In postmodernism, the language and knowledge are seen as relational and generative. The aim of collaborative discussion is that each participant feels that their voice is equally important, there is the freedom to present many voices, and the new knowledge is constructed based on this open dialogue. The aim is not to find or construct “the one and only truth”, but to generate new perspectives together. This kind of working is also important for social service students in client work; to listen to the clients and construct new knowledge together with them. (cf. Anderson 2007.)

It is obvious that collaborative discussion is not always easy to reach. When there are big differences between the participants’ experiences and capabilities, there is always the risk that someone is using more of an expert voice. It is also important to listen to this voice of experience, but the challenge is how to use this expert voice as one view and at the same time keep the ways open also for new and diverse ideas. How can we prevent that the expert voice does override the other voices? Anderson (2007, 34) has suggested that it might be impossible to teach someone to be collaborative, but we can invite and facilitate a collaborative and generative learning community, where there is learning taking place for all. I think that keeping the dialogue open to all voices also means that the participants need to be aware of these dangers of expert domination and of the meaning of dialogue and collaboration. This kind of working also makes demand for learning assignments. Not all the assignments give space for a dialogue. The assignment must be open enough to allow and even prefer new and innovative solutions. Anderson and McCune (2013, 290) highlight that it is important that the tasks are relevant and connected to real working life and that students can raise their own questions. The assignments need to give space for the students’ own thinking, questioning and creation of meaning.

We are creating a new curriculum for our educational programme. In this process, it is important to think about the role of learning communities and how they could best support learning and the development of students’ professional identity. Trede et al. (2012, also referring to Bauman 2009), suggest that the “identity has become slippery, flexible and always on the move”. Working life and the labor market are changing rapidly and careers are often fragmented. This means that the educators should also plan their curricula and teaching in a way that they will help students to recognize and develop their changing identity. Trede et al. (2012, 382) suggest that the curriculum should not only “teach technical skills and theoretical knowledge but also the valuable nature of the profession involved”. Valuable aims for our students would be e.g. to learn to work in teams and to collaborate with divergent people.

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***Pedagogical Credo Based on Feminist Pedagogy as a Way to Voice Personal Identities***

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**Abstract**

The underlying assumption in teacher training programs is that formulating a pedagogical identity is an integral part of the process via which an education student becomes an education professional, who can support and defend her approach and actions, and therefore become a better educator. The literature shows that developing a pedagogical credo can support a process that renders teachers. However, it is not clear how we can support this process, and how to incentivize it. Complicating this is the fact that most teachers are female, so gender power relations are yet another perspective to be considered in the positioning process of incoming teachers. This situation requires them to decide whether to change or to assimilate, and because of this, many newer teachers quit teaching or burn out early in their careers. This paper is based on semi-structured interviews with 12 female education students. The interviews examined the development of a pedagogical credo based on feminist pedagogy after one year of student teaching. The underlying assumption is that creating a space anchored in feminist principles offers female education students a significant learning experience and the opportunity for personal exploration that gives visibility and a voice to an array of personal identities. To overcome these barriers, educators need an approach that can assist incoming teachers who want to act as change agents to negotiate their voices and act according to their credos. The opportunity to implement a feminist pedagogy and philosophy and an educational method that derives therefrom might ease the indecision between change and assimilation; it also has the potential to help them strengthen their capabilities and abilities to negotiate their credos.

Keywords: Feminist pedagogy, Pedagogical credo, pedagogical authority, traditional institutional culture, change agents.

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## **Introduction**

In this short lecture I will describe the findings of a study, soon to be published in an article, which examined the development of a personal female pedagogical credo among pre-service teacher education students. The students participated in a one year pre-service practicum supervision conducted by me at 2015. These students, all female, studying towards a BA and a teaching certificate, and planning to teach in primary schools.

I designed the course – both contents and teaching methods, on feminist pedagogy principles, and on the literature-based approach that modeling which reflects my personal pedagogical credo, as their lecturer and practicum supervisor, can facilitate and accelerate the development their own pedagogical credo as future teachers', as well as their voice and the feeling that they are entitled to shape their own voice.

It is important to me as the teacher of the future teachers, to demonstrate the meaning of my feminist pedagogy that is to "walk my talk". Encouraging them to voice themselves, and "speak out". So, here today I would like to highlight the need to add gender as a topic into student training practicum. In order to address the social meaning of gender into the student's training process. I will show that it will assist them to develop their pedagogical credo, shaping their pedagogical authority while expanding their resilience resources and flexibility proficiency.

## **Theoretical background**

### **First layer- Practicum can promotes strength and resilience**

The practicum is of great importance in the teacher training process, for novice teachers (Darling-Hammond & Baratz-Snowden, 2005). It was found to contribute to developing the student's pedagogic resilience, and their flexibility in the face of situations that may be stressful, blurred, ambiguous, and even arouse feelings of apprehension and helplessness. Aware of their personal credo, and having developed greater resilience and flexibility, the pre-service student and future teacher is better equipped to explore and understand the 'why' that drives her actions and reactions. In other words, as part of the process of formulating and articulating the personal pedagogical credo the novice also develops a systematic reflexive perspective, and is able to take ownership of her formal technical knowledge and make it their own (Ylitapio-Mäntylä, 2011).

### **Second layer- gendered awareness can promotes strength and resilience**

It is an empirical fact that women make up most of the teaching and management staff in the education system, particularly, but not exclusively in primary schools. Their quick burnout is also documented. Therefore, I find it interesting that very few studies have examined the possible relationship between burnout and gender identity among teachers. Morwenna Griffiths (2006) argues that among other things, the female teacher operates in arena that is predominantly female, but patriarchal and hierarchal

in its culture. Such a space does not provide female teachers with equable conditions, which research shows are conducive for learning. Griffiths also argues that the hegemonic educational discourse is based on characteristics related to the masculinity - individualism, competitiveness and performativity. A female teacher that strives to change the educational dialogue and to foster diverse learning methods often runs the risk of eroding her resources of resilience and opposition.

This is underscored by Belenky and her colleagues (1986), whose seminal work "Women's Way of Knowing" focused on "the development of self, voice and mind". They discussed women's ability to find their voice, their personal voice, particularly in contrast to silence – and in this context "silence" does not mean an absence of speech, but rather a state of being voiceless, silence in which women experience themselves as mindless and voiceless, and subject to the whims of authority. Beverly Skeggs (2005) who examine the hierarchal spaces produce (elevate or downgrade) value, explore the conditions under which women can gain some 'respectability'. In other words, resist the self-silencing processes.

Thus the relationship between giving voice, resilience and developing a personal pedagogical credo is significant, and must be taken into consideration in the work of the pedagogic supervisor (White, 2013), particularly if she strives to foster the voice, resilience and development of the future teacher who herself seeks to be an agent of change. (Like me, for instance).

One goal of the learning and practicum process is to prepare novice teachers to negotiate and bridge contradicting narratives, particularly in situations that carry the potential to create or heighten self-doubt. More specifically in power-based dialogues, for example with the school principal, the staff, parents, and even the pupils.

It has been shown that this can be countered by gendered observation that fosters awareness of the female teacher's traditional identity position, while strengthening the relationship between her varied identity positions and the knowledge she accumulates (Luke, 1996).

Hence, my argument so far is that a novice teacher who has not yet developed this awareness may: (a) tend to be silent, feeling less worthy to "speak out" and make her voice heard, especially if this voice carries a message that is in opposition to or deviates from the institutional discourse; and (b) may comply with social norms which demand that she conduct herself as a 'good woman' – in other words a caring teacher in the sense of being nice, mother-like and devoted. Moreover, this newly developed awareness can reinforce a sense of deservedness to express their personal pedagogic credo, fostered during the practicum. Taken together these processes can reduce the likelihood that female teachers will burn out, drop out, or give up the desire to carry out significant education processes.



### **Third layer- In what ways feminist Pedagogy can promotes strength and resilience?**

To prepare students to negotiate these situations successfully, the mutual impact between professional identity and self-identity should be explored and examined throughout the education process. Students should be encouraged and guided to integrate formal pedagogical knowledge with their personal experiences, their experiences as students with their intuition and informed understanding of what will be considered pedagogically fitting. This are some of the principles that drives from feminist pedagogy:

- A. Feminist pedagogy fosters meaningful learning, defined as learning that is collaborative, non-judgmental, and part of a non-linear and non-uniform process that invites diversity in pace, style and teaching practices, as an integral part of the learning environment (Webb et al, 2002).
- B. Feminist pedagogy fosters awareness of what can be viewed as an ironic state of affairs - that an education system that tends to be comprised mainly of women, also tends to be blind to the significance of gender. In other words, feminist pedagogy can be facilitative as it connects learning to identity positions, weakened voices and learning processes (Luke, 1996).

Based on this understanding of feminist pedagogy, I assume that learning based on feminist pedagogy principles can: (1) raise awareness; (2) foster learning conditions conducive to creating change; (3) accelerate the formulation of a pedagogical credo and pedagogical resilience; (4) create the desire to provide different learning conditions for their pupils. And to these I would add what feminist pedagogy can offer to the teachers themselves, enabling them: (1) to create environments where they will face less incompatibility and suffer less burnout (2) while at the same time experiencing themselves as change agents – in other words, strive to reproduce the same learning conditions for their pupils – an environment that is non-hierarchal, non-linear and non-judgmental.

#### **My study posed two questions:**

- A. Did the fact that I discussed my pedagogical credo, formulated in the spirit of feminist pedagogy, with the participants, and modeled its principles in the course setting, methods and dialogue, demonstrate to them the need and importance of having a personal pedagogical credo, and did this motivate them to develop their own personal credo?
- B. Which, if any, of the feminist principles which they learned and experienced in the course percolate into their language and pedagogical conception?

### **A few words about the methodology- participants, procedure and ethical aspect -**

#### **The participants –**

Ten pre-service education students studying towards a BA in education and a teaching certificate, and planning to teach in primary schools. Most were from blue-collar

families, third-generation to immigrants from North Africa, Middle East and Central Asia, also known as 'Mizrahi'. Their families of origin were predominantly traditional, with a gendered division of labor, gendered expectations and sometimes also a gendered hierarchy. They tended to doubt that they were entitled to assert that they 'know', and were inclined to interpret the definition of a 'good teacher' as someone who is sensitive, caring and devoted.

While most of the participants explicitly stated that they chose to become teachers because they saw it is a mission, one-on-one conversations indicated that for some it was an 'automatic' choice, as teaching it is perceived to be a convenient occupation, especially for women. Others ultimately ended up in this study program after they experienced low academic efficacy.

#### The procedure-

As noted I designed the course curriculum and the setting based on feminist pedagogy. For example, the learning process and setting fostered collaboration and trust and was experiential, interactive, and relational. Also, students participated in what I will call peer circles conducted during the year. Reminiscent of 'consciousness or awareness raising' circles of the 1960's and 70's, the participants sit in a circle and discuss their experiences in the practicum and as students, exposed to different perspectives while also finding commonalities.

Furthermore, lesson topics were written on the board at the beginning of each class, and participants were invited to contribute questions, initiate a discussion and simulate ambiguous, blurry and anxiety-creating situations, as part of a discourse that stresses a setting free of judgment, competition and comparison. The goal of the first stage of the learning process was to enable the participants integrate official, formal and theoretical knowledge with personal knowledge that emerged from their experience.

#### Collection and analysis of findings-

Data was collected from the final course papers and from semi-structured interviews, and analyzed based on thematic coding (Charmaz, 2006)

#### Ethical issues-

In my capacity as their lecturer and practicum supervisor I was concerned that study participants might feel pressured or coerced to participate in the study. I took several steps to address this issue: I made it very clear that they would participate of their own free will and with their full consent; in an interview I conducted I asked each one to choose a pseudonym; after the academic year ended, and I completed the article I sent them each a copy; finally, I received their full consent before approving the article for publication.

I share with you this because it reflects in my opinion, the respectable dislodge, and demonstrate the ways, I try to practice and maintain feminist pedagogy.

### **The findings- Three major themes-**

#### First theme – What story do I tend to tell myself about myself?

You know, all my life I heard background noises, positive and negative voices... Let's say my mother, my brother, and now also you – you tell me – 'don't worry Or, you can do it... It is a small feat for you, we believe in you'. And negative voices that say, you're black and no one really trusts you here. Like for example what happened in the first class I taught as part of the practicum, when I didn't succeed in standing in front of the class and talking.

Sigal: And what ultimately won over?

Or (smiling): of course the positive voices. What, look at me, how I cope and overcome... a success story!

As Or is a second generation to Jewish immigrants from Ethiopia, and she often experiences a judgmental and stigmatizing attitude that could have jeopardized her sense of self-worth. In the face of this attitude, that could have caused her to doubt her abilities and roused feelings of unworthiness, she was able to motivate herself and overcome the reservations she had internalized, while allowing the supporting and positive voices to be heard and help her cope. Through this process she finds and develops her power and, together with the external support she is open to accept, creates an internal dialogue that translates her coping efforts into a 'success' story.

The experiences described by these future teachers indicate that most of them are ambivalent about their abilities. Some are scarred by past experiences which they continue their efforts to overcome. Now, through the process they experienced in feminist pedagogy, they are able to examine past experiences without judging themselves, equipped with understanding and knowledge they can use to tell themselves the story in a new way that is empowering and infused with elements of success.

#### Second theme – translating an emotional experience into cognitive insights

I learned how in the peer circle in your class there is a feeling that it is safe to speak out and talk. It brought about a very significant change in me. And I would take it to other places, also to my pupils. The possibility and ability not to judge, to receive and to find positive things. To take things in a positive direction, and later conceptualize the experiences and feelings, this was a personally strengthening experience (Hili).

Constructing a different and empowering narrative is made possible through a different way of experiencing learning, an environment and process that are pleasant and accepting owing to the principles of feminist pedagogy. For example the peer

circle I described before, that enables the participants to reveal their vulnerability, give it a place and a voice, witness that they are not judged by others, and then weave this new experience into a new story which they shape and own.

The discussions as mirroring, enabled me to take responsibility, to think professionally. You said what you had to say, but you did not impose it on us, leaving us to maintain our own opinion (Almog).

The discourse conducted in the peer circle enabled the participants to expose both their less known and more well-known parts, without fearing judgement. It also helped them integrate, formal knowledge with personal knowledge. This is not as common in teaching processes based a model of accumulated knowledge, that usually requires advance preparation and planning which establishes a setting based on hierarchical relations of knowledge (Shulman, 2005, 2002), ranking which knowledge is more worthy and which is viewed as less worthy. The need to transmit contents may sometimes hinder the ability to focus on the process, and most of all the learners. As Griffiths and her colleagues note (Griffiths & Greene, 2002), under these conditions teachers usually tend to give priority to operational learning that reinforces a competitive climate, rather than to integrative or transformative learning.

Which leads to the third theme – equipped with developed or heightened awareness and understanding of why they act and react as they do and an alternative interpretation, the participants can now examine and decide for themselves what they choose to take with them from the course and from what they experienced, both into their personal life and into their classrooms as future teachers.

A good teacher is a teacher that can be open to all kinds of possibilities in teaching, and then the child will also be open to this. If the child knows that I do not judge him based on his achievements than he will be less ashamed and pressured, and will be more open to learning. [As a teacher] it is difficult to be open, because all the time you are asked for grades, grades... progress, and this has a closing effect. But I will insist on conveying such a message. Because I remember how I felt when I was transparent, when I was not seen or heard in class. (Shoval).

Shoval's understanding that this is a parallel process, which she will strive to create for her pupils, strengthens her understanding of the relationship between content and process, and enables her to see the context, what she can take from every experience, and through it continue to echo her knowledge about what she knows to be most conducive way to teach and learn. This will also inform her ability, power and sense of worthiness and deservedness, so that she no longer experiences herself as transparent. She can also take this knowledge to her classroom so her pupils do not experience these feelings, at least in the school setting, as she creates a positive learning environment she herself experienced.

## **In conclusion**

Many novice teachers are afraid to speak up since they view themselves as less worthy and less knowing, so much so that they may detach from their personal experiences, not trusting their personal knowledge. Unsure of themselves they tend to rely on formal, technical, rational knowledge that is detached from the broader context, to pass this on to their pupils. In doing so, as Griffiths argues, they replicate the same learning modes and the same class climate that classifies and categorizes worthy and less worthy knowledge, worthy and less worthy pupils.

In order to find ways to address the Issue, she arise, I described a course based on feminist learning principles - egalitarian and collaborative in a participatory, experiential, inclusive setting, where 'speaking out' is practiced and possible. And tolerant listening and deep reflexive dialogue are the guiding principle.

The study findings show that a pre-service teacher training framework, designed and conducted according to these principles, can gradually foster an expanded sense of worthiness and pedagogical authority. It is a transformative process, as students learn to recognize, identify, name and trust their abilities and own their knowledge. By modeling the setting and the process of feminist pedagogical principles, those that have the authority to qualify future teachers can offer pre-service teachers the opportunity to observe and experience feminist pedagogy first-hand, in the hope that it will motivate them to replicate the process and create a transformative experience for their own pupils.

I can only hope that the change I observed in my students was not only rhetorical or superficial. That the principles and methods which place value on collaboration, interaction and mutual respect will enable them to maintain an educational climate and implement learning processes in their classroom that challenge dominant competitive and uniform systematic learning processes, as they strive to address fixed social hierarchies (at least in their classroom), and replication of gendered power relations, and power relations in general.

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***Development of an Online Platform for Understanding Students' Weaknesses***

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**Abstract**

It is reported that many Hong Kong students do not have sufficient background to handle engineering problems in tertiary education. This came to light because a number of such students were admitted to engineering programmes. Although a number of teaching platforms have been developed to support the teaching of subject lecturers and the study of students, however the weaknesses of the students in solving engineering problems are not identified. This not only affects the efficiency of student study, but the teachers also are not able to deliver suitable teaching materials that focus on the weaknesses of individual students. For example, when students study engineering subjects such as computer-aided design, they are usually required to formulate the physical problem and then solve a set of linear equations by calculating matrix inverse. This involves a series of steps but the students are not able to identify their weak areas in solving these engineering problems. Therefore in this article, we propose to develop an online platform to understand the core factors leading to the weaknesses of students in solving engineering problems that require calculations. By understanding students' weaknesses, teachers can recommend suitable learning materials to individual students, efficiently and effectively. By strengthening the students' weaknesses, it is expected that the learning outcomes of engineering subjects can be improved. It is believed that the method is useful to enhance the teaching and learning efficiency and effectiveness.

**Keywords:** Students' weaknesses, engineering problems, learning efficiency, learning effectiveness

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## Introduction

In Hong Kong education system, students are required to take public examination before entering to colleges. The qualification attained in public examination is viewed as a ticket to university, but not an indicator of whether students are eligible to study in the fields. Students are eligible to be admitted into the college if their examination scores have reached minimum admission scores. Their scores will be calculated by different weighting. Students will have a higher chance to enter degree program if they obtained a higher grade in those subjects with heavier weighting. For example, when English and Mathematics subjects carry the same weighting for a program, the score will be affected by these two subjects more directly. If a student gets a grade 5 in English and a grade 3 in Mathematic, the chance for entering to an engineering program will be nearly the same as the student who gets a grade 3 in English and a grade 5 in mathematic. In other words, students' admission will be dominated by their examination scores instead of their ability on handling the knowledge.

This imply that some students may not have sufficient knowledge to handle the courses. The current way to ease this burden on their learning progress is to build a teaching platform to aid their study. These teaching platforms mostly comprise two types of learning materials. The first one is the materials which are related to the lessons they have, for instance, the videos of lectures' content and course notes. The second type is the out-of-classes exercises, which can provide a pool containing the materials for their self-study. These platforms will deliver most of the course materials for student to review and catch up with course content to enhance their learning progress.

Identifying students study weaknesses not only enabling teachers to arrange suitable teaching materials for them, this can also optimize the use of these learning materials, so does the students' study. In order to identify the level of knowledge comprehended by a student, an analytical methodology should be developed. The platform will first record the students' performance and analyze their performance by parts. Thus, students can get response and training materials from the analysis. Students are suggested to finish the new set of training materials as a mean to strengthen their weak areas. On the other hand, teachers can adjust their teaching progress depending on students' performance and design corresponding learning materials for students.

Therefore, this study aims to investigate the study weaknesses among engineering students and propose a platform for improvement. Calculations is a must for students to enroll into an engineering faculty, thus they need a strong foundation of mathematics including the use of matrix algebra. An online platform will be developed in order to track their learning progress and provide recommended teaching materials for their study. Students' ability of handling engineering problems through calculations is expected to be improved. Also, their learning stagey could be re-directed to an efficient and effective one.

## Literature Review

To measure the weaknesses of a student, ability test should be performed. There are several qualitative and quantitative research methods to analyze not only student's performance, but also teachers' one. Qualitative research is used to understand the

problem and get the insight on the topic. The first method is observation. In the study done by Al-Qahtani (2013), they have used class observation, which was targeted on students in order to check the use of technology. E-learning is the mostly used resource among post-secondary education, but not everyone is reading these sources correctly and in details. Class observation can notice whether the students are on the progress through online resources. The result can show the relationship between use of online material and learning efficiency. Another method is discussion forum. (Durairaj, 2015) had held a forum in order to collect the opinion from the students. The contributor could share their thought and understanding based on learning content and subject achievement. The variety of the opinion collected would be wide and deep, and also more insight could be recorded since students study in an environment without pressure. On the other hand, survey targets on both teachers and students can be used. For the teacher survey, the questions could be set including demographic background and teaching method (Al-Qahtani, 2013). Therefore, the ways about how teachers prepare and conduct a lesson would be carried out. Besides teacher survey, a more objective survey would be student survey. (Chapman, 2013) has assessed the attitudes and opinions toward students. They had included the themes such as feeling and benefit obtained during the lessons in the survey study.

Quantitative research is to collect mass data from targets. The first method is to set a question paper about the subject area. (Hashemi, 2014) had designed a questionnaire about conceptual understanding based on the tested area. The questionnaire will test the ability of explaining the theory knowledge in students' own wordings. This was an open-end question paper, and students are welcome to try any possible answers. By calculating their marks, researcher would figure out weakest area, which is the lowest mark obtained, because students are not able to handle. (Tesoriero, 2008) have successfully provided information system with location-aware technology. By this system, the mobile devices including PDAs, tablets and smartphones can be automatically positioning by RFID. Therefore, the indoor collection of information is precise and accurate for those desirable ones. Afterwards, (Fardoun, 2012) have applied this technology on measuring the weaknesses among tutors' teaching performance instantly. Students can express their feelings about the teaching, and press the answer on their mobile devices to represent their mood.

No matter which method is used, they would be hard to collect opinion from students. Take online forum as an example, (Cheung, 2006) had pointed out that students rarely participate inside. Therefore, it is hard to collect the real thought and mass data for analysis. Same as online forum, instant response by mobile devices is also hard to monitor. Respondents could select whether they are going to answer or not. And the mobile devices are not easy to maintain stable connection with the system for a long time.

## **Methodology**

This study investigated the study weakness of engineering students who have attended the post-secondary education institutions in Hong Kong. The students will be selected to enroll the online platform called 'ClassMarker', which is an online communication and testing channel between teachers and students. First of all, a set of analysis questions will be posted on the ClassMarker. Students are required to finish them in order to test their weak areas. The questions assessed their key skills in calculation

and application on matrix topics. It can also record their performance including time spent and marks obtained in the calculation. Then, their weaknesses will be evaluated by the teachers based on student's performance data. Students are able to access all the learning materials online.

Besides, students are required to complete an online feedback questionnaire once they have finished their matrix test. The purpose of the questionnaire is to collect their opinions on the system and study progress before test.

This study collects two data sets from the students. The first data set comprised their matrix test results, including the score obtained and time used during their answering time. The second data set was the post-test questionnaire surveys, which is conducted instantly when students finished their matrix tests. The data will be analyzed through the analytical software - SPSS.

## Results

All students invited to join this study were studying in engineering undergraduate programmes in different Hong Kong higher education institutions. Most of them are required to take matrix algebra course in their first study year so that they could utilize engineering mathematic in their later study. They were required to study and test through the designed online platform.

To start the investigation, students were firstly enrolled and registered into ClassMarker. The platform allows teachers to create and design tests without any software installation. Students can answer the test papers at anytime and anywhere, the proposed answer could be retained and continued later in the system. Finally, student's test results were exported from the system after finished.



















 User A01	100% 	4/4	00:01:08	Tue 23 Feb '16 4:59pm	<a href="#">Answers</a>
 User A02	25% 	1/4	00:05:59	Tue 23 Feb '16 5:01pm	<a href="#">Answers</a>
 User A03	75% 	3/4	00:01:47	Tue 23 Feb '16 5:32pm	<a href="#">Answers</a>
 User A04	100% 	4/4	00:04:39	Tue 23 Feb '16 10:25pm	<a href="#">Answers</a>
 User A05	100% 	4/4	00:01:36	Tue 23 Feb '16 11:02pm	<a href="#">Answers</a>
 User A06	-	-			
 User A07	100% 	4/4	00:00:49	Tue 23 Feb '16 10:52pm	<a href="#">Answers</a>
 User A08	-	-			
 User A09	75% 	3/4	00:00:44	Wed 24 Feb '16 2:57am	<a href="#">Answers</a>
 User A10	100% 	4/4	00:04:59	Wed 24 Feb '16 9:41am	<a href="#">Answers</a>

Figure 1: Student test results in administrator view

In order to collect data of students' performance, their score obtained and time used were recorded by the system. The system allows teachers and students to review their test results and time durations for each question of the test. For the sake of mending students' weakness, feedback should be provided instantly in order to show what had been wrong on their concept understanding. Therefore, students can rectify mistakes and errors throughout their calculations. Along with the instant feedback provision, the correct answer was marked next to the result sheet for their reference. Figure 2 shows the sample question of the test and suggested answer for the students.

**Question 4 of 4**

Given matrices:

$$[A] = \begin{bmatrix} 1 & 5 & 5 \\ 2 & 3 & 9 \end{bmatrix}$$

$$[C] = \begin{bmatrix} 5 & 3 \\ 9 & 2 \\ 8 & 1 \end{bmatrix}$$

Calculate  $[A] \times [C]$ .

---

Correct answer: C)  
Selected answer: A)

✗ A)  $\begin{bmatrix} 3 & 10 & 5 \\ 10 & 27 & 72 \end{bmatrix}$

B)  $\begin{bmatrix} 10 & 3 \\ 27 & 10 \\ 72 & 5 \end{bmatrix}$

→ C)  $\begin{bmatrix} 90 & 18 \\ 109 & 21 \end{bmatrix}$

D) There is no solution.

---

Points: 0 out of 1

Figure 2: Sample question of the test paper and suggested answer.

Learning materials were designed to strengthen students' weaknesses. Thus, materials distribution system should be available to make them accessible. In particular, students were able to access the recommended teaching materials. In order to make individual recommendation to the students, teachers can post recommended materials to each student individually through message board. This can fit students' needs and therefore strengthen their weaknesses. Figure 3 shows the function of posting individual message to the student in the system.

## User details

User A01

Edit: [User Details](#) / [Password](#) / [Language](#)









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## Private message

Below you can add and edit private messages that will show for this user.  
You can add a separate message from each group they belong to.

**Private message for User under group:** Test Group

**B** *I* U ~~T~~ **A**<sup>1234</sup> **A**

      **A<sup>x</sup>** **A<sub>x</sub>**  

Update

Figure 3: Function of posting individual message to the student.

Besides the online test, questionnaires were used to collect students' opinions and feedbacks. Following are some of the main points suggested by the students:

- Install an online discussion board so that students can raise questions among classmates, exchange ideas and opinions
- Deliver learning materials in a more user-friendly way so that students can preview the learning materials easily
- Build an in-web learning content board in order to provide convenient experience for students to check the useful learning materials.

## Conclusion

In order to get rid of common study weaknesses, an online platform was constructed with the functions of distinguishing weak points of students and providing means for self-improvement. Students are required to do an assessment to check the weaknesses in certain topics. Then, their results were reviewed. Finally, recommendation and suggested learning materials were delivered to each student.

In this study, an online platform for evaluating students' matrix algebra ability was constructed. The platform includes a test which cover foundation matrix calculation and advanced linear system calculation. The system also provides functions of sending individual messages and delivering teaching materials. This not only make

students' study effectively, but also efficiently. Despite the platform has been successfully developed; there are still a lack of interactive functions and user-friendly interface in the platform. They were not able to voice out the problems encountered during the test or learning progress. The online platform also difficult to collect instant students' problems. These could be the development directions in the future.

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***Depth of Teachers' Subject Content and Pedagogical Knowledge as Predictors of Secondary School Students' Academic Achievement in Kwara State, Nigeria***

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**Abstract**

High rate of student failure in Senior Secondary Certificate Examinations (SSCE) in Nigeria has become a perennial source of worry to all stakeholders. Less than 40% of candidates had credits and above in English language and Mathematics between 2009 and 2015. Previous research efforts did not yield conclusive explanations for the problem but not much had been done to empirically assess the contributions of teacher subject and pedagogical knowledge. This study therefore investigated the predictive value of Teachers' Depth of Subject Content Knowledge (DSCK); and Depth of Pedagogical Knowledge (DPK) on Students' Academic Achievement (SAA). Specifically, the study investigated which category of teachers (B.Ed. /B.Sc.Ed /B.A.Ed.; PGDE; or B.A. /B.Sc.) had the deepest DSCK; the deepest DPK; and the deepest DSCP; also, the predictive ability of DSCP for SAA in English Language and Mathematics. Seventy-eight Senior Secondary II English Language and Mathematics teachers in thirty-two randomly selected secondary schools in Kwara State; and intact classes of SS II students constituted the sample. Data were collected through tests, observations and vignettes; and analysed using descriptive and inferential statistics. Findings of the study showed that teachers with B. Sc. demonstrated the deepest DSCK, DPK and DSCP. Also, both pedagogical and subject content knowledge of sampled teachers were significant predictors of SAA accounting for 10.7% of the total variance of SAA. These findings raised concerns of profound implications for teacher education curriculum in Nigeria, although the findings remain only tentative until a full blown investigation is undertaken to either confirm or refute them.

Key words: Teacher Knowledge, Subject Content, Pedagogical Content, Academic Achievement

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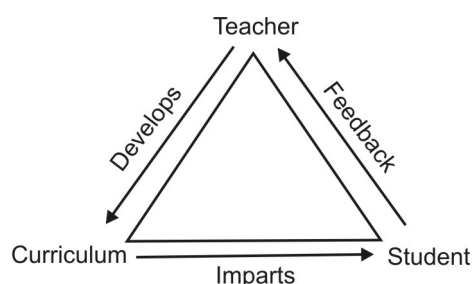


## Introduction

High rate of students' failure in Senior Secondary Certificate Examinations (SSCE) has become a perennial source of worry to all stakeholders in the education sector in Nigeria. There have been reported cases of mass failure of students in public examinations, such as the Secondary School Certificate Examination (SSCE), General Certificate Examination (GCE), and University Tertiary Matriculation Examination (UTME). In 2015, for instance, more than 60% of students failed English Language in the SSCE; while only 38.6% candidates obtained credit in five subjects including English and Mathematics (West African Examination Council, 2015). There is need to reverse this trend because poor performance in SSCE leads to colossal wastage in educational investment and reduction in quantity and quality of candidates accessing tertiary education. It also limits students' learning effectiveness which, in turn, compromises quality of tertiary education products in terms of cognate ability and service delivery competence.

Various efforts by education researchers to provide valid explanation for the trend have not yielded conclusive results. For instance, Tella (2007) investigated the impact of motivation on secondary school students' Mathematics achievement in Nigeria. He reported that there was a significant difference in Mathematics achievement of students on the degree of their motivation. McDonald (2001) also found that two thirds of high school students appeared to have experienced uncomfortable level of test anxiety, which consequently affected their academic performance, negatively.

No doubt, each and all of such studies are useful. However, the fact that the trend of poor performance of students in public examinations persists suggests the need to also look for solution outside the students; since they are not solely responsible for whatever they learn- they must be taught, abinitio. To these researchers' minds, solution to the problem of high failure rate in SSC Examination should also involve critical assessment of the contributions of teacher quality in the discharge of their responsibilities as learning facilitators since it is generally acknowledged that the education of any nation cannot rise above the quality of its teachers. Although learning can take place without teaching, the roles of the teacher as facilitator of learning are indispensable in the field of education (Figure I).



**Figure I: Components of Teaching-Learning Relationship**

**Source:** Olasehinde-Williams, 2012.

As shown in Figure I, teachers have responsibilities to gather information to determine what subject content to teach (Develop curriculum), determine the most strategic methods to teach them (Impart knowledge) and finally evaluate the teaching program (Test students for Feedback). The fact that teachers can only perform any of

such responsibilities to the best of their own knowledge is not debatable. They can only teach WHAT they know in the ways they know HOW to teach. Thus, the significance of high quality teachers in the teaching-learning relationship cannot be over-emphasised. Indeed, the pivotal roles of quality teachers in providing quality education are well documented in the National Policy on Education (FRN, 2013). The Teachers Registration Council of Nigeria (TRCN) also noted that “no education system can rise above the quality of its teachers” (TRCN, 2004:p.8). Consequently, some recent research efforts in finding solution to the problem of high failure rate in public examination also involved critical assessment of the contributions of teacher quality in the discharge of their responsibilities as learning facilitators. Agoro and Akinsola, (2013); and Ladipo, (2013), for instance, all suggested that poor teacher quality is one of the significant factors responsible for the consistently poor performance of secondary school students in public examinations in the country.

Teacher quality is generally believed to be basically dependent on the nature of training teachers receive, abinitio; and there is no doubt that teachers differ in their depth of knowledge of the WHAT to teach and the HOW to teach basically because of disparities in their own pre-service training. In Nigerian secondary schools, for example, two categories of teachers (Qualified and Non-qualified teachers), from three different learning paths, are responsible for preparing students for public examinations.

Two of the three learning paths qualify individuals for the teaching profession in Nigeria. Firstly, during training, individuals may combine core teacher education courses (Pedagogical Knowledge) with minor teaching subject courses (Subject Content Knowledge) for a period of three to four years, for the award of Bachelor Degree in Education. Secondly, individuals may first obtain Honors degree (Bachelor of Science or Bachelor of Arts Honors Degree) in one or two subjects (Subject Content Knowledge); and later undertake a one-year Postgraduate training for the Diploma in Education (PGDE) Certificate (Pedagogical Knowledge). Although the proportions of teaching subject and education courses both groups undertake are not the same, it is generally assumed that both include sufficient proportions to produce competent teachers (Abimbola, 2012). Consequently, both categories of teachers are accorded professional teacher status and are qualified for formal admission into the teaching profession upon registration with the TRCN. Non-qualified Teachers, on the other hand, are individuals who also teach in Nigerian secondary schools with Honors Degrees in Science, Social Sciences and Arts-related courses without undertaking any education course at all in the university. Since such teachers have exposure to Subject Content Knowledge only, without Pedagogical Knowledge, they are categorised as non-professional teachers and are not qualified for formal admission into the teaching profession.

These categories of teachers, professional and non-professional, have been receiving criticisms from major stakeholders in the education sector. In respect of the learning paths to teacher certification, there are concerns that the teaching subject courses offered by B.Ed/B.Sc. Ed. /B.A. Ed. graduates; and the pedagogical content knowledge in the PGDE format may not be sufficiently adequate to make for competent and effective teachers. For instance, education students minor in their teaching subjects and devote substantial part of their training to pedagogical knowledge; just as PGDE students acquire more of subject content than pedagogical

knowledge. Similarly there are concerns that unprofessionally trained persons recruited as teachers in Nigerian secondary schools are mostly graduates in various disciplines that may or may not even be related to the subject that they were recruited to teach. Besides, while these unqualified teachers often have deeper subject content knowledge than teachers with B.Ed/B.Sc.Ed Degrees, they are typically deficient in pedagogical knowledge.

It was assumed in this study that such discrepancies in the professional and academic qualifications of teachers will likely reflect in the teachers' depth of subject content and pedagogical knowledge; in the ways they discharge their roles as facilitators of learning (Henze, Driel & Verloop 2008); and consequently in the ways they impact their students' academic achievement.

The holistic learning theory of Learning Psychologists such as Jean Piaget and Sigmund Freud provide the theoretical underpinning for this assumption. The theory identifies three types of learning that students must be exposed to: Cognitive Learning (acquisition of knowledge through direct teaching); Affective Learning (acquisition of feelings, values, motivation and attitudes through the process of observation); and Psychomotor Learning (acquisition of skills through observation and practice). However, effective and holistic learning must involve all the three i.e. stimulate critical thinking, stimulate interest and develop skill.

For instance, Hill, Rowan and Ball (2005) explored whether and how teachers' mathematical knowledge for teaching contributes to gains in students' mathematics achievement. Findings of the study showed that teachers' mathematical knowledge was significantly related to students' achievement gains in both first and third grades; and provided support for policy initiatives designed to improve students' mathematics achievement by improving teachers' mathematical knowledge. Baumert, Kunter, Blum, Brunner et al. (2010) investigated teachers' mathematical knowledge, cognitive activation in the classroom, and student progress. Findings of the study showed that teachers with a higher PCK score created better lessons, which had positive effects on the students' content knowledge and test results.

Adediwura and Bada (2007) investigated perception of teachers' knowledge, attitude and teaching skills as predictor of academic performance in Nigerian secondary schools. They found that students' perception of teachers' knowledge of subject matter, attitude to work and teaching skills were significantly related to students' academic performance. In an ongoing study related to teacher professional knowledge, Olasehinde-Williams, Yahaya, Sanya, Owolabi & Jimoh are investigating the comparative effectiveness of teaching strategies (Collaborative, Critical thinking and Technology-integrated teaching strategies) in reducing secondary school students' failure in Senior Secondary School Certificate English Language Examination in Kwara State, Nigeria. Preliminary findings of the study suggest the superiority of each strategy over the traditional teaching strategy.

However, many of such studies have focused on the impact of each of these variables on students' academic achievement, separately (Abell, 2007 ;Baumert et.al.2010 ); some have investigated the impact of both variables on students' academic achievement in single subjects , especially Science subjects (Abell, 2007;Park & Oliver, 2008; Lee & Luft, 2008; Baumert, Kunter, Blum, Brunner et.al. ,2010); and

findings of most of the studies are generally inconclusive (Park & Oliver, 2008). Besides, most of the studies were carried out in foreign settings making their findings not directly applicable to Nigeria because of the socio-cultural differences. Thus, the apparent dearth of studies on the extent to which teachers' subject content knowledge and pedagogical knowledge relate to students' academic achievement in Nigeria made this study imperative.

**Research Questions:** Consequently, to make up for part of the gaps in our current understanding of this important factor of student academic achievement, this preliminary study investigated the relative contributions of teachers' training background to their depth of subject content and pedagogical knowledge; as well as the extent to which teachers' subject content and pedagogical knowledge improve students' learning outcomes in two core subjects, English Language and Mathematics, which are compulsory for all secondary school students in Nigeria. The ultimate goal of the study was to establish the impact of teacher professional knowledge on students' learning outcomes. Specifically, the following questions were answered in the study:

1. What category of teachers (B.Ed. /B.Sc.Ed. /B.A.Ed.; PGDE; or B.A. /B.Sc.) has the deepest DSCK?
2. What category of teachers (B.Ed. /B.Sc.Ed. /B.A.Ed.; PGDE; or B.A. /B.Sc.) has the most adequate DPK?
3. What category of teachers (B.Ed. /B.Sc.Ed. /B.A.Ed.; PGDE; or B.A. /B.Sc.) has the strongest DSCP?
4. What is the predictive ability of teachers' DSCP for students' success in examination?

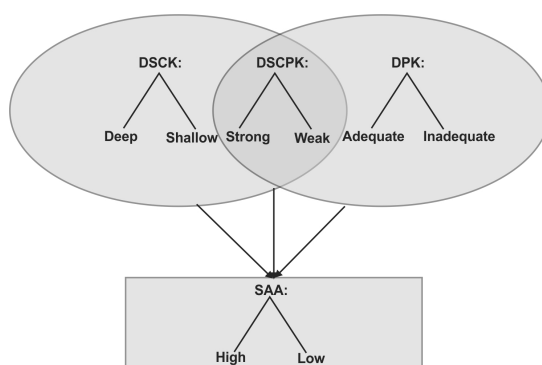
To these researchers' minds, empirically determining what mix of teacher subject content and pedagogical knowledge best impacts students' learning outcomes is critical to reversing the current trend of high failure rate of students in public examinations in Nigeria. Such a reversal, it was hoped, would enhance the quality and quantity of candidates accessing tertiary education, enhance the quality of tertiary education products in terms of cognate ability and service delivery competence; and, consequently, boost the nation's developmental status.

**Literature Review:** Critical insights for the study, gleaned from extant literature, related to our conceptualisation of teacher professional knowledge, data gathering techniques and study approach. Teachers' professional knowledge can be broken down into different components/categories. As early as 1987, Shulman had distinguished seven categories: content knowledge; curricular knowledge; pedagogical content knowledge; general pedagogical knowledge; knowledge of learners and their characteristics; knowledge of educational contexts; and knowledge of educational ends, purposes and values. Subsequently, researchers identify specific components for study, which also inform their choice of measurement techniques. For instance, Kirschner, Borowski & Fischer (2010) focused on three levels of teachers' knowledge areas (i) declarative knowledge, (ii) procedural knowledge and (iii) conditional knowledge including teachers' reactions to critical teaching situations, which they measured through experiments, teaching strategies and vignettes (i.e. describing short situations in a classroom). Baumert, Kunter, Blum, Brunner et al. (2010) focused on teachers' knowledge of Science and teaching /

learning process as components of teacher professional knowledge; and gathered data through paper and pencil tests as well as observation of videotaped lessons respectively. Henze, Driel & Verloop (2008) focused on teachers' knowledge about instructional strategies concerning a specific topic; students' understanding of the topic; ways to assess students' understanding of the topic; and goals and objectives for teaching the specific topic in the curriculum. To measure these components, in the Netherlands, the researchers followed nine teachers for a period of three years in their natural settings to see if, and how, their initial PCK developed while they were teaching a new subject.

In our own study, three components of teachers' professional knowledge and the extent to which they can positively impact student learning outcomes were investigated:

- (i). Depth of Subject Content Knowledge (DSCK);
  - (ii). Depth of Professional Knowledge (DPK);
  - (iii). Depth of Subject Content and Professional Knowledge (DSCPK), patterned after Gess-Newsome's (1999) integrative knowledge category; and
  - (iv). Students' Academic Achievement (SAA)
- Figure II, developed by these researchers, presents the schematic representation of how the variables of interest to this study were manipulated.



**Figure II: Schematic Representation of DSCK, DPK , DSCPK and SAA**

**Note:**

- DSCK: Depth of Subject Content Knowledge, whether Deep or Shallow  
 DPK: Depth of Pedagogical Knowledge, whether Adequate or Inadequate  
 DSCPK: Depth of Subject Content and Pedagogical Knowledge, whether Strong or Weak  
 SAA: Student Academic Achievement, whether High or Low

**Methodology:** The research design adopted for the study was descriptive survey because of its capacity to allow assessment of certain attributes, properties or characteristics in a situation at one or more point in time (Hassan, 1995). Originally, the plan was to sample two hundred SSII English Language and Mathematics teachers from 10 randomly selected secondary schools across the three Senatorial Districts of Kwara State (i.e. Kwara North, Kwara Central and Kwara South) but the reality of the situation in the field altered this plan because most of the schools had only 1 teacher

each for Senior Secondary II (SS II) English Language and Mathematics. Consequently, the number of secondary schools was increased to 32, randomly selected across the three Senatorial Districts of the State (to ensure fair representation of every part of the State); and all available SSII teachers of English Language and Mathematics in each of the 32 schools (totaling 78) participated in the study (to provide data on DSCK and DPK for the study). Intact classes of SSII students of each teacher-participant took part in the study so that their test scores could be readily matched with their teachers' DSCK, DPK and DSCP. Instruments employed for data collection were paper and pencil tests (used to measure teachers' DSCK and students' achievement in both subjects), observation of teaching strategies and vignettes (i.e. short classroom situations to which teachers responded to measure their DPK) because of the potential of such multiple sources to yield rich, comprehensive and reliable data. Face and content validity, as well as test-re-test reliability measures of the objective tests and vignettes were determined; while observation of class teaching and management, were subjected to inter-rater validity. The internal consistency reliability measures of the DSCK and DPK objective tests were 0.94 and 0.82 respectively; while 0.62 and 0.63 were obtained for the English Language and Mathematics objective tests respectively.

Members of the research team and trained Research Assistants (comprising lecturers and PhD students of Educational Measurement and Evaluation) were involved in the data collection. Data gathering spanned three weeks and occurred in the second school term to enable substantial coverage of the syllabus to enhance the validity of students' academic achievement. Measures of students' academic achievement were obtained about one week to the schools' official examination period so as not to disrupt the school programme; and to fall within a period when students naturally prepared for end-of-term examinations. The maximum score on the test of teachers' DSCK and DPK each was 100%, where 60-100% indicated Deep Knowledge and Less than 50% indicated Shallow Knowledge. Similar rating was adopted for students' Academic Achievement Test, with 60-100% indicating High Achievement and less than 50% indicating Low Achievement.

## Conclusions

**Main Findings:** Seventy-eight SS II teachers of English Language and Mathematics were sampled as participants in the study from the three Senatorial Districts of Kwara State, Nigeria. However, only 75 of them participated fully in the study by making their lesson notes available for inspection, subjecting their lessons to observation, completing the paper and pencil test, responding to the vignettes and having the students taught by them assessed. The 75 teachers comprised 33 female and 42 male teachers; and 39 English Language and 36 Mathematics teachers. Their ages ranged from 21-60 years; and they had between 1 and 30 years teaching experiences. Answers to the four research questions raised for the study are presented below.

1. What category of teachers (B.Ed. /B.Sc.Ed. /B.A.Ed.; PGDE; or B.A. /B.Sc.) has the deepest Depth of Subject Content Knowledge (DSCK)?

Assessment of the sampled teachers' DSCK was carried out through observation of content of lessons they taught using the Faculty of Education, University of Ilorin's teaching practice assessment format, and responses to a cognate test scored in

percentage. The mean score on both measures was calculated and each category of teachers compared with the mean. Summary of the assessment is presented on Table1.

**Table 1: Mean Scores of Teachers' Depth of Subject Content Knowledge (DSCK)**

Qualification	Frequency	Mean Score in Percentage
PGDE	2	44.00
NCE	4	44.75
B.A. Ed	21	49.43
B.Sc. Ed	11	57.83
B.A.	16	59.69
Others	8	62.19
B.Sc.	13	65.42
Total	75	Grand Mean = 56.59

As shown on Table 1, the grand mean of DSCK among teachers was 56.59%. The lowest mean score was observed among teachers with PGDE (44%); holders of B. A. Ed's mean score of 49.43% was lower than the grand mean; teachers with B. Sc. Ed. with a mean score of 57.83% were better than their B. A, Ed counterparts (49.43%); while teachers with B. Sc. had the deepest DSCK (mean of 65.42%).

2. What category of teachers (B.Ed. /B.Sc.Ed. /B.A.Ed.; PGDE; or B.A. /B.Sc.) has the most adequate Depth of Pedagogical Knowledge (DPK)?

Sampled teachers were exposed to an assessment of DPK through observation of their involvement in classroom processes, responses to vignettes and personal interview. Each of them was scored in percentage and the mean score for each category of teachers was calculated. Summary of the assessment is presented on Table 2.

**Table 2: Mean Scores of Teachers' Depth of Pedagogical Knowledge (DPK)**

Qualification	N	Mean Score
B.A.	16	41.13
NCE	4	44.75
Others	8	49.63
B.A. Ed.	21	50.90
PGDE	2	53.00
B.Sc. Ed.	11	54.73
B.Sc.	13	56.08
Total	75	Grand Mean = 49.87

Table 2 shows that despite generally low levels of depth of pedagogical knowledge mean scores demonstrated by the sampled teachers, those holding the B. A. degree had the poorest mean scores of 41.13% ; while teachers with B. A. Ed., PGDE, B. Sc. Ed. and B. Sc. recorded above average mean scores of 50.90%, 53%, 54.73%, and 56.08% respectively. The teachers with the most adequate depth of pedagogical knowledge were those holding the Bachelor of Science degree (56.08%).

3. What category of teachers (B.Ed. /B.Sc.Ed. /B.A.Ed.; PGDE; or B.A. /B.Sc.) has the strongest Depth of Subject Content and Pedagogical Knowledge (DSCPCK)?

Scores on the measures of DSCK and DPK were added and the mean score for each category of teachers summarized as presented on Table 3.

**Table 3: Mean Scores of Teachers' Depth of Subject Content and Pedagogical Knowledge (DSCPCK)**

Qualification	Frequency	Mean score out of 200
NCE	4	89.50
PGDE	2	97.00
B.A. Ed	21	100.33
B.A.	16	100.81
Others	8	111.81
B.Sc.Ed	11	112.55
B.Sc.	13	121.50
		Grand Mean KSCPCK = 106.45

The mean DSCPCK score was found to be 106.45 as shown on Table 3. Holders of B. Sc. demonstrated the strongest DSCPCK of 121.50 and they were followed by those with B. Sc. Ed. with 112.55. On the other hand, PGDE holders had the weakest depth of DSCPCK (97).

4. What is the predictive ability of teachers' DSCPCK for students' success in examination?

Students taught by the 75 teachers who participated in this study were tested in those same subjects and their scores regressed on the assessment of their teachers' subject content and pedagogical knowledge to determine how predictive they were. The results of the regression analysis are summarized on Tables 4.

**Table 4: Prediction of Students' Performance by Teachers' Depth of Subject Content and Pedagogical Knowledge**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change
1	.327 <sup>a</sup>	.107	.082	14.43578	.107

Table 4 shows a coefficient of multiple correlations (R) of 0.327 which indicated that both pedagogical and subject content knowledge of sampled teachers were significant predictors of students' success in examinations. Findings of the study further revealed that the two variables accounted for 10.7% of the total variance of students' success in examinations as shown by the  $R^2$  of 0.107. The analysis of variance summary on Table 5 was carried out to ascertain the significance of the predication of students' success by their teachers' subject content and pedagogical knowledge.



**Table 5: ANOVA of Prediction of Students' Success by Teachers' Depth of Subject Content and Pedagogical Knowledge**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1768.126	2	884.063	4.242	.018
Residual	14795.820	71	208.392		
Total	16563.946	73			

As shown on Table 5, the F ratio of 4.242 and df of 2, 71 was significant at 0.018 indicating that the sampled teachers' depth of subject content and pedagogical knowledge significantly predicted their students' performance. Table 6 contains the summary of the test of the contribution of each predictor in the regression analysis.

**Table 6: Strength of Teachers' Depth of Subject Content and Pedagogical Knowledge in the Prediction**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	44.944	6.859		6.552	.000
Pedagogical Scores	-.186	.114	-.186	-1.633	.107
Knowledge Scores	.219	.082	.304	2.669	.009

As shown on Table 6, the unstandardized regression coefficient of pedagogical and subject content knowledge were -0.186 and 0.219 respectively, their standardized regression coefficients were -0.186 and 0.304 respectively. Though the two variables were joint predictors of students' achievement, pedagogical knowledge did not contribute significantly to the prediction with a  $t=0.107$ .

**Implications of Findings:** The mean score of 56.59% on DSCK showed that the sampled teachers were generally weak. Without being strong in this skill, their competence to teach the subject is also affected. Their delivery of instruction to learners may not be sustainable and many times, questions raised by inquisitive and intelligent learners may not be well addressed. To probe deeper into the causes of this low performance may require taking a look at the training received by the teachers. Findings in this study suggested that teacher training tends to have a debilitating influence on subject content knowledge as those who obtained their degree in the same or even a related subject to the ones they teach tend to have lower scores in the test of knowledge of subject matter content. This may also question the observation by Abimbola (2012) that the exposure to courses in Faculties of Education is adequate to produce competent teachers.

In general, the results of this study fell in the expected direction as the DPK of most untrained teachers was found to be weak. It is however surprising that a category of untrained teachers, i.e. those holding the Bachelor of Science degree, had the most adequate depth of DPK. Also, the finding indicating that the DPK of professionally

trained teachers holding B. A. Ed. and B. Sc. Ed. fell close to the mean calls to question what happened to the teachers while in training and after they had been certified. It also calls to question whether they are in position to utilize their professional training while practicing in the school system.

Though it was discovered that a few of those with B. A. and B. Sc. as their highest educational qualifications had earlier gone through the Nigeria Certificate in Education (NCE) training, which is also a professional teacher qualification, the fact that the Bachelor of Science or Art in Education curriculum offers deeper professional exposure should imply that products should still perform better. Could the fact that many teachers of English Language and Mathematics might have had some measure of pedagogical knowledge passed through specialized seminars, workshops and other training programmes, which are regularly organized to stem the tide of mass failure in schools, have been responsible for this unexpected result? A national study across many other school subjects should be helpful in determining the validity of the current findings.

Findings of this study also suggested that teachers who had received professional training demonstrated weaknesses in subject content and pedagogical knowledge combined with mean scores just barely half of the mark obtainable. Plausible explanation could be that these very important skills are treated with levity when teachers start practicing thus supporting reports of studies by Harris and Sass (2007); Agoro and Akinsola (2013); and Ladipo, (2013) pointing in the direction of poor quality of teachers in secondary schools.

As expected, the subject content and pedagogical knowledge of teachers significantly predicted students' performance in English and Mathematics. However, the variance of students' performance accounted for by both variables was found to be 10.7%. This suggested that there are several other variables that account for students' level of success traceable, for instance, to the students themselves, their teachers, the school and home environments and such other sources.

**Limitations:** A preliminary study was embarked upon to achieve the following objectives: identification of the category of teachers (B.Ed. /B.Sc.Ed /B.A.Ed.; PGDE; or B.A. /B.Sc.) that has the deepest DSCK; the most adequate DPK; and the strongest DSCP. The study also investigated the predictive ability of teachers' DSCP for students' performance in English Language and Mathematics. Seventy-eight teachers of Senior Secondary II English Language and Mathematics in thirty-two randomly secondary schools in Kwara State and intact classes of SS II students taught by the teachers constituted the sample. Data were collected through tests, observations and vignettes, patterned after Kirschner, Borowski and Fischer (2010) and Baumert, Kunter, Blum, Brunner et al. (2010); and analysed using descriptive and inferential statistics to compare the teachers' DSCK /DPK/DSCP in both subjects. Findings of the preliminary investigation showed that teachers with B. Sc. demonstrated the deepest DSCK; the most adequate DPK; and the strongest DSCP. Findings of the study further indicated that both pedagogical and subject content knowledge of sampled teachers were significant predictors of students' success in examinations; and the two variables accounted for 10.7% of the total variance of students' success in examinations.

However, illuminating as the findings of this study may appear, the fact that it was only a preliminary study, limited in scope and subject coverage, means that no conclusive statements about the findings reported here can be made. Neither can the findings be taken as valid representation of the depth of subject content and pedagogical knowledge of SSII English Language and Mathematics teachers in Nigerian secondary schools. A large-scale national study is therefore imperative.

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***Interactive Learning, Teaching and  
Assessment Using Socrative***

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**Abstract**

One of the fundamental challenges faced within the UK higher education sector is the focus of developing and promoting an inclusive curriculum. It is essential for all higher education institutions to identify and engage in promoting the success of all students. Thus the importance of curriculum design and the interactive aspects of curriculum design require a fundamental overhaul in terms of the interactive processes which need to be adhered to in the anticipatory response to equality in learning and teaching, to allow for a holistic learning experience. In order to investigate the potential improvements of interactive learning and teaching, an emerging learning tool was selected. A number of tests and controlled sessions were identified. The collected data, feedback from students and the critical discussions outlined a positive use of the inclusion of Socrative within classroom teaching. This paper focuses on bringing into line the curriculum, teaching, learning and assessment with the individual student learning.

Keywords: Socrative, interactive learning and teaching, assessment, feedback, student engagement

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## Introduction

Developments within digital technology has opened up a new arena for higher education institutions (Aranguiz & Quintana, 2016). With these changes higher education institutions are constantly striving to achieve a greater and more effective student experiences within the classroom environment (Conde, et al., 2014). The focus of Socrative software used within the classroom illustrates the enablement of extraordinary rank knowledge, top level skills and real world applications which are particularly relevant to individual learning to allow for universal inclusivity within the constructs of teaching, learning and assessment (Kumar, 2016). The paper addresses the software solution as enabling student educational learning goals, the content of the curriculum, assessment scheme, planning and resources and independent management skills to allow for self-set study focus for students as well as addressing teaching, learning and assessment feedback which will provides a more robust and specific learning experience with a particular focus to enable an inclusive learning environment (O'Keeffe, 2012). The paper further addresses the evaluations identified through a qualitative study. As a number of students are visual learners other students gain academic understanding through text, spoken orally or taught through kinaesthetic. Numerous students are able to use an array of methods to help support there learning. Although these varied teaching approaches can support student requirements with disabilities, they enable the dimensions of diversity of teaching to the classroom as a whole, allowing each individual student to learn to their full potential (Conde, et al., 2014). Similarly, expending diverse means to illustrate material and involve students is essential to create inclusivity (Prince, 2004). The authors within this paper aim to disseminate information in terms of whether Socrative software provides benefits for students by allowing for multiple means of academic expression. Regardless of how similar or assorted the classroom is, all students benefit from inclusion and diversity when they are taught through a non-judgemental focus. If learning materials are illustrated through an array of mediums, with varied languages and social and cultural focus from individuals who come from multifaceted backgrounds, these students are able to learn in a more understanding, informative and empathic manner thus accepting their learning environments (Kumar, 2016). Belonging and feeling valued within the classroom is created by adopting a holistic teaching stance for all students regardless of ethnic backgrounds (Kumar, 2016). The paper provides integration of learning, teaching and enhancement for students within a university setting and in particular with an emphasis on new and innovative strategies within the classroom environment to allow for inclusivity using Socrative (O'Keeffe, 2012).

## Literature review

With the changing emphasis of teaching, learning and assessment methods within higher education there is a fundamental requirement to evaluate current classroom teaching methods. One of the ways to improve classroom teaching is to introduce technology into the classroom. Socrative is an assessment tool which allows tutors to enable the engagement and assessment of their students in order to gain effective learning for the students (O'Keeffe, 2012). With the use of Socrative tutors are able to develop, design and implement online assessments whereby allowing students to access these learning environments through the use of a number of electronic devices such as; mobile phones, tablets and their laptops) or through the access of a browser.

Moreover, explicitly it enables tutors within the classroom environment to enable students to use surveys within the classroom, activities for tutorial interaction, quizzes and if required for assessments (Prince, 2004). The software fundamentally allows for the real time results which are the generated through the inclusion of reports which enable the tutor to visualise and the teaching learning and assessment of students (O'Keeffe, 2012). As the students complete the quizzes allocated to them by their teaching member of staff, the tutors then can decide whether the reports will then be accessible through attachment email, located via the use of the save facility on Google Drive, or the tutor may choose to download the file as an excel document with through the format of a PDF (Conde, et al., 2014). An aspect which is an extremely useful tool here is the Socrative platform itself, which enables the tutors to combine the order of questions and choice of assessing student engagement with the onus of providing effective feedback (Liaw & Huang, 2013). An example of this is through the use of quizzes which are embedded within the teaching session, enabling students to complete a significant tasks (Prince, 2004).

### **Benefits of using Socrative**

There are a number of benefits outlined by key literature that support the implementation of Socrative. The method used to create and reorder questions if required is an innovative task in itself (Ajami & Suleiman, 2014). The other advantages of using the software application is that it enables the students to complete tasks in a format to complete tasks under a given time limit which is tutor led or by completing tasks at their own speed which is very much a student led activity (O'Keeffe, 2012). Correct responses to questions enable the student to continue with the task and incorrect answers can keep the avatar from moving forward (Liaw & Huang, 2013). Both the tutors and the students are able to login to the Socrative software using the most appropriate methods of accessibility (O'Keeffe, 2012). Tutors are able to sign up to the account they have setup which gives them administrator rights and further allows them to monitor and control student activity, this is in essence enabled through a unique room code (Ajami & Suleiman, 2014). Students are able to utilise the facilities of Socrative through the use of this unique code which in essence identifies the virtual classroom environment (Liaw & Huang, 2013). By accessing the virtual classroom environment the students are given access to learning, teaching and assessment activities through access of quizzes, tutorial activities and tutor led activities (Aranguiz & Quintana, 2016). These activities and quizzes further include access to multiple choice questions, true or false responses and if the tutor wishes also short answer questions (Aranguiz & Quintana, 2016). The tutor may choose a combination of methods to enable them utilise the full potential of the Socrative software platform (O'Keeffe, 2012).

### **Student Engagement**

Student engagement is an essential part to classroom teaching and in essence provides student learning but also enables tutors to disseminate key information. Therefore using technology in classroom teaching is essential a means of engaging students, and in particular with the use of Socrative, the benefits of the software outweigh the negative inclusion. Moreover, Socrative enables the access to embed images through attaching images in order to enhance correct results and provide the students with instant feedback (Mocha-Bonilla, et al., 2016). The Socrative software further allows



tutors to share materials and resources, with the ability to also include and import quizzes that have been created previously for the virtual classroom environment, enabling collaboration with colleagues (Krause, et al., 2014).

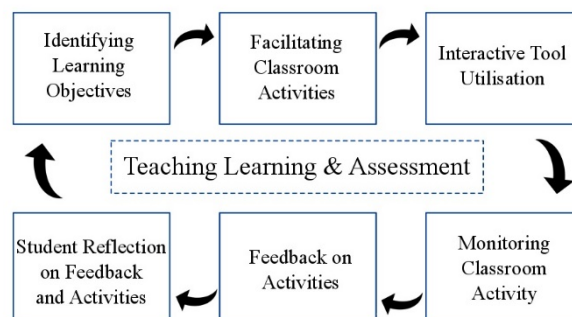


Figure 1 Teaching, Learning and Assessment

As identified in Figure 1 the student learning, teaching and assessment experience is required to be holistic in-terms of the cycle of activities (Kumar, 2016). Clear classroom objectives are required to be identified prior to student activities being introduced. The use of Socratic enables students to clearly identify their learning objectives, therefore providing the tutor the opportunity to act as a facilitator, whereby the tutor is able to monitor the classroom activity and work in a collaborative manner, with the cohort of students to ensure there is clear and consistent feedback on the activities students have completed (O'Keeffe, 2012). Socratic enables students to identify and reflect on the feedback. This feedback is immediate and uses the concept of JIT (Just-In-Time) (O'Keeffe, 2012). Thus Socratic encourages student interaction and engagement which can be identified immediately within the classroom.

Socratic software provides a very user-friendly environment and is very user friendly as a tool, with the added convenience of implementing it within the teaching, learning environment (Wong, Tee, & Choo, 2015). The positivity of the use of Socratic is very useful for those individuals who are wishing to assess students learning, with the onus of ensuring student engagement (Wong, Tee, & Choo, 2015). The increased use of Socratic software within the teaching, learning and assessment formats within higher education establishments is increasing. In essence the software has a number of benefits to classroom teaching; namely the holistic student experience is improved, through the improvement of the engagement of the students (Awedh, Mueen, Zafar, & Manzoor, 2015). The platform further allows for JIT (Just-In-Time) teaching, which encourages student engagement. In essence the experience of students and tutors is enhanced (Kumar, 2016). This is seen through a more engaging and enjoyable delivery of material for both tutor and student. Additionally to this students become more active recipients of their learning. Collaborative teaching is also enabled with the use of Socratic (Ajami & Suleiman, 2014). One of the most essential and useful elements of Socratic software is the fact that it provides immediate feedback to

students which enables them to be more actively involved in engagement (Conde, et al., 2014).

## **Methodology**

The authors investigated a number of approaches to use within this study however, they felt that the qualitative approach was the most suitable for this study. The qualitative research approach involves a multi-method approach thus allowing and involving, a naturalistic and interpretive approach (Smith, 2015). This method has enabled the authors to carry out this study in the natural classroom settings, attempting to allow for and to interpret phenomena in terms of the meanings people bring to them. The study consisted of using the qualitative research approach. The study concentrates on feedback and the inclusivity of the student experience. Qualitative research approach techniques are applied to this study. This method allows for assumptions to be considered (Smith, 2015). This method is depicted and clearly outline the concepts of association with dynamic reality to life (Taylor, Bogdan, & DeVault, 2015). With this method interpretation and contextualisation of the study can be constructed more effectively (Taylor, Bogdan, & DeVault, 2015). The purpose of using the qualitative approach enables the authors to gain a clear understanding of the perspectives of others, through the interpretation and theory building process (Mertens, 2014). Further advantages of using the qualitative approach include the authors being able to gain a full insight into the subject matter, allowing social interaction between the authors and the participants (Mertens, 2014). The qualitative method used for this study has enabled the authors to investigate societal ideologies more rigorously (Creswell, 2013).

## **Social Sciences Perspective**

As social science looks at evaluating a number of perspectives this approach to our study emphasised the participants' responses. The authors focused on applying inductive reasoning to the study (Silverman, 2016). Inductive reasoning has enabled the authors to understand specific observations in relation to generalised theories. Thus the authors were able to embed tutorial activities in order to explore further the general conclusions and theories (Silverman, 2016). The authors have been able to collect and collate personal experiences for the use of Socrative software. Qualitative method has enable the authors to analyse the feedback of participants effectively (Creswell, 2013). It is also important to highlight here that this approach to the study did cause some considerations to be applied to the reliability. The authors therefore considered the application of triangulation to be applied to the study thus establishing confidence within the findings (Park, Chun, & Lee, 2016). Triangulation fundamentally allows for the cross tutorial activities of data and is recognised as a strong method allowing the validation of data by means of cross verification from a number of sources (Park, Chun, & Lee, 2016). The authors believed with the use of triangulation bias could be removed from the study. The authors believed that with the applying this method to the study it is important to understand that the human perceptions allow for social meanings to become clearer (Flick, 2017). Questions for the research study were developed from generic exploratory interest (Archibald, 2016).

## **Validity and Reliability**

Validity and reliability of the feedback provided by the participants therefore the research is considered reliable as the questions asked are repeated and the same phenomena are used throughout the study (Lucero, et al., 2016). Validity and reliability has additionally included triangulation, validation and the enhancement of the questioning of participants has ensured greater consistency within the findings (Padgett, 2016). The questions asked were used by the authors as a means of confirming theory building. With qualitative data reproducing participants views with a thorough description of events with accurate reports of actions and settings (Archibald, 2016). As humans communicate verbally, conversation allows for meaning making which experienced by the individuals within the conversations (Archibald, 2016). The sample selection for the study consisted of a cohort of BSc (Hons) Business Information Systems first year students, the Business Concepts and Information Systems module was selected by the authors (Baskerville & Wood-Harper, 2016). The students were divided into two groups in order for the activities to be implemented within classroom thus providing the authors with a clear understanding of the effectiveness of the use of Socrative software within classroom teaching, in terms of providing constructive feedback from student participation (Archibald, 2016). We took a number of common modules between BSc (Hons) Business Information Technology and BSc (Hons) Computing considering the level of study, assessment category and the potential of Socrative application within the teaching environment. The authors considered some of the sessions/cohorts as the control group within which Socrative was implemented. The data was collected, cleaned and analysed so that real time data could be obtained using the tool (Flick, 2017). The authors investigated, assessed and elaborated the results obtained through a comparative study in order to gain a holistic overview of the student experience (Archibald, 2016). By using a comparative study the authors were able to gain a greater understanding of the use the software within the classroom environment. A comparative study enabled the authors to address and gain further clarification in terms of the successful implementation of Socrative software for use within classroom teaching (Taylor, Bogdan, & DeVault, 2015). At all points within this study the authors have endeavoured to ensure the autonomy of the participant volunteers (Flick, 2017). The study did not have any implications on participant workload (Taylor, Bogdan, & DeVault, 2015). As the study was carried out within the classroom setting participants felt more comfortable and found the environment non-threatening therefore the participants were more inclined to immerse themselves within the study (Creswell, 2013). The authors embedded the human-centred approach for this study, ensuring that integrity and moral duty is at the forefront of this study (Creswell, 2013).

## **Students' Feedback**

Findings suggested a positive student view of implementing Socrative within the classroom environment. Feedback outlined below was consistent within the two groups. One of the fundamental areas which students felt was extremely positive was the students' ability to pace their own learning. If the student felt that they did not understand or wished to go back to a particular activity they were able to do so.

***“The software has let me pace my own learning and the teacher can pace the class learning when they need to.”***

***“Socrative was very easy to use”***

This was a significant positive experience for students, allowing students and staff to engage and participate more effectively.

***“I really enjoyed the quizzes and the immediate feedback”***

Students were particularly pleased with the immediate feedback which was provided to them once tutorial quizzes were completed. This level of feedback enabled students to identify where further study was required and also enabled staff to acknowledge where the cohort or individual student found the content difficult to understand or where they felt further support was necessary.

***“You can see which question you and the class didn’t get and the teacher can go through the hard questions again”***

The response to this question was again consistent with both cohorts.

***“I found it useful and enjoyable”***

***“The quizzes identified areas that I was weak in”***

***“Socrative is much more fun and I enjoyed using it”***

The interactivity of Socrative was seen as a positive learning experience, the student found the feedback and interactive aspects of the software one of the fundamental positive learning experiences.

***“My understanding of the topic improved”***

***“Using Socrative improved my learning”***

Socrative also helped to enhance student understanding of key concepts within the module delivery and in particular the learning materials used.

***“I didn’t like the software, it didn’t help me”***

There were as expected negative comments, whereby students felt that the use of technology did not enhance their understanding, however, although the authors noted the comment made, the positive implementation of Socrative outweighed the negative constructs outlined.

### **Summary of Feedback**

Overall the comments and feedback gained after completing the trial for the use of Socrative, emphasised clearly that Socrative was a useful and informative learning tool for classroom teaching environments. Moreover, it was clear that students who were quieter in class were able to make more of an effective contribution to the teaching session. Fundamentally, it was very evident and interesting to view student comments in terms of how Socrative actually helped in their learning. Socrative implementation in the classroom was also quite a useful tool from staff as well as the

student perspective. Registration for Socrative was exceptionally easy for both staff and students. Socrative did not create any difficulties for implementation within the classroom. The questions and quizzes for the sessions worked extremely effectively and one of the fundamental positive areas of Socrative was the fact that wherever gaps in knowledge were witnessed both the students and staff became aware of this so that further explanation could be implemented. It is important to acknowledge that overall the use of Socrative has been an extremely positive learning experience for the cohort of students. The positive aspects of the software are in line with findings related to (O'Keeffe, 2012). There are some concerns in terms of students wishing to cause disruption with the use of technology whereby they may provide unsuitable responses to the short answer questions. However, Socrative does provide the option of “*no anonymity*” which enables staff to identify such students.

### **Conclusions and Further Work**

Findings suggest quite clearly that the use of Socrative within the classroom if used correctly can enable students to gain essential positive learning results. Furthermore findings highlighted the use effectiveness of the immediate feedback Socrative provides for students. Additionally with the use of Socrative as a formative feedback tool suggested quite clearly that students valued and learnt from an immediate response. Further studies have instigated the holistic view of the use of Socrative involving student attitudes to the use of Socrative as extremely positive. The increased level of student engagement occurs when technology is embedded within the classroom environment. The findings from the open ended questions suggested clearly that students were more engaged with the classroom activities as a direct result of Socrative software when applied to online tutorial activities. The student engagement through immediate feedback clearly increased the level of activity within each tutorial task. In essence Socrative enables students to engage in tutorial activities which improved their learning performance as a whole. Therefore the use of Socrative contributes significantly to student success through the effective provision of feedback and increased usability of tutorial activities.

It is essential to also consider the factor that despite some students achieving high results through effective feedback and engagement, some students were continuously performing below average. The results however did indicate if Socrative is embedded within the classroom it generates substantial benefits, providing a holistic student engagement experience. Using Socrative software within the classroom further enables students to engage more actively with tutorial activities. The tutor is able to deliver questions and feedback in order to ensure full understanding has taken place within the classroom. These results are valid results for the first year students on the BSc Business information Technology course, Business Concepts and Information Systems module.

We believe that Socrative would also benefit students studying on other modules and other courses. The findings indicate the positive outcome of the use of Socrative for feedback and engagement. Findings further suggested that the cohort of students appreciated the inclusion of such technology for their learning. The use of Socrative software has indicated that apart from feedback it is also an essential tool which can be used for engagement and motivating students within the classroom. Finally in conclusion, the findings illustrated that Socrative tutorial activities increased student

results in terms of understanding learning material. Additionally to this students believed that immediate feedback improved significantly their understanding of key concepts. Further studies are essential in terms of addressing other learning environments using Socrative, for different classroom environments.

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***Friendship As a Determinant of Supporting an Inclusive Approach in Kindergarten***

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**Abstract**

The aim of the paper is to introduce the concept of "friendship" that promotes socialization and personalization of a child in the kindergarten environment. We attach great importance to the area due to the amended Educational Act currently in the Czech Republic (1. 9. 2016) focusing on the implementation of inclusion into a real school setting. In this paper we focus on the structuring of internalization on the basis of activities for children and their behavior. Presented issues are based on the results of applied research, which was applied a qualitative approach. For the data collection was used extensive research method such as the structured interview with open-ended answers that interpersonal contact with children of preschool age enables. On the basis of this explorative tool we found answers that were recorded and evaluated in the categorization process. The interview was focused on answering five questions related to the friendship of emphasis on joint activities, satisfy their needs and strengthen their own status. This article was written as a part of the grant project titled Social aspects of inclusion in basic education in the context of international research (the research is a part of the international project - Inclusive Education no. 4401/11 - Institute for Research and Development at Faculty of Education - Palacký University, Olomouc, Czech Republic).

**Keywords:** Friendship, socialization, inclusion, preschool child, kindergarten, research

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## 1 Trends in education policy in the Czech Republic

For about the past 25 years, education in the Czech Republic has been subject to a major reform, the objective of which was to modernize and update Czech schools in the context of the third millennium. The fundamental aim of today's educational concept is to provide equal conditions for lifelong learning, which has the potential to transform our society into the so-called learning society.

During the process of transformation of Czech education there have already been three waves of change; transformation of the concept of education from encyclopaedism to the development of competences necessary for life; integration, as a result of which special schools were closed and the so-called open schools established (in 2008 a total of 47.1% of all children with health disability were integrated in mainstream schools); the current trend in education in the Czech Republic is the establishment and support of inclusive schools (Provázková Stolinská, Rašková, Šmelová, 2016).

As reported by P. Pitnerová and E. V. Maxová (2014), an inclusive school represents an adequate arrangement and functioning to provide corresponding education to all children irrespective of their individual differences. This is a response to diversity in all its forms with an effort to give all children the best possible level of education regardless of the form of their specific needs.

The authors performed a research study, in which they monitored the process of the transformation of a mainstream school into an inclusive school. The conclusions of the study highlighted the advantages of inclusive education such as involvement of all students in schoolwork and increased self-confidence and trust of children with special educational needs. On the other hand, the conclusions also included some reserves, particularly difficult funding.

At present, the concept of inclusion is at various stages of development across European countries. There is a trend of transforming special schools to support centres or special education centres that would run continuing teacher education programmes, develop and disseminate teaching materials and methods, support mainstream schools, parents, and partially individual students, etc. In terms of inclusion, the leading countries are Sweden, Italy, Finland, USA and the UK (Vítek, Vítková, 2010). In the Czech Republic, this area has been subject to significant changes over the past 20 years. It is necessary to realize that the indicator of successful integration is not information about the number of integrated students, but especially a thoroughly elaborated concept of inclusive teaching. This was aptly formulated by U. Heimlich and J. Kahlert (2012), who note that it is necessary to create joint education in schools, which would be open to all children, and to establish a system of special education support in order to help all children in the process of joint education.

In the context of these conditions, education and schools should develop towards a learning organization, the actors of which are all participants – teachers, children and parents. They work together to shape their own concept of the school (see Diagram 1).

**Diagram 1: Development of inclusive school**

Source: Wilhelm, 2009

## **2 Internalization – development of the concept of ‘friendship’ and its effect on children’s socialization**

The school is considered a very important environment for the realization of social situations. Preschool children are often exposed to social formation and communicative demands in everyday interactions with adults, which cause confusion and uncertainty. This can be inappropriately reflected in children’s activities in the form of routine. Therefore, involvement of an adult in children’s life worlds is important (Corsaro, 1988). The adult-child interaction is a feature of a friendly culture. Cultural routine in preschool children has productive as well as reproductive

qualities. The role of the teacher is to provide children with the opportunity and means for sharing their understanding and awareness of their place in the group (Corsaro, Rizzo, 1988). The teacher is therefore the main representative who supports internalization – shaping the concept of friendship. Friendship is an important aspect in the life of adults as well as children. Parents are nervous if their child has no friends, adolescents are unhappy if they have no friends. In general, people who have friends are happier in their life (Hartup, Stevens, 1999).

In a kindergarten setting, two patterns of behaviour occur within the concept of internalization (Rizzo, Corsaro, 1988):

1. Social participation, in which children are rarely engaged in solitary play, and when children are left alone, they try to enter one of the ongoing episodic games of others.
2. Protection of interactive space; children tend to prevent other children from entering (e.g. during a game).

Obviously, kindergarten is the place of significant interactions during internalization, which support the process of socialization and subsequent personalization. A significant pro-inclusive argument in the area of education policy is the fact that integration supports social development of all children – both integrated and intact – in a real school environment. This aspect supported our efforts to reflect on children's relationships in an inclusive kindergarten environment.

### 3 Research survey

#### 3.1 Pre-research probe

The research design was based on a previous research probe (Rašková, 2005), which collected data from pre-school children in a kindergarten setting before the integration wave. An unstructured individual interview was performed, which in addition to factual information about the respondent (age, gender) included 10 questions aimed at the meaning of the term love between people and ways of expressing love.

The research sample included children (**n=53**, 27 boys and 26 girls) aged 3 – 7 years (three-year-old 1.88%, four-year-old 9.4%, five-year-old 39.62%, six-year-old 43.39% and seven-year-old 5.66%) from kindergartens in the regions of Olomouc, Zlín, Znojmo and Pelhřimov. **The representative sample was established by means of random sampling.** The interviews were administered in compliance with the researcher's instructions by kindergarten teachers who volunteered to cooperate.

#### Outcomes:

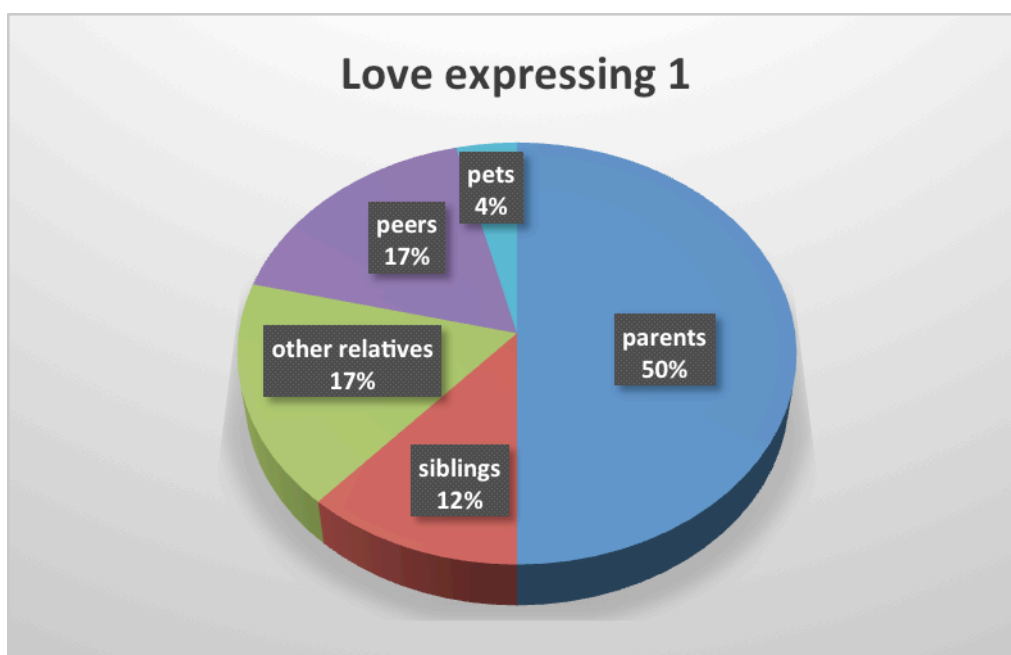
The children's responses were categorized without classification by gender or age. The children came from families with a low number of children (without siblings 22.64%, 1 sibling 50.75%, 2 siblings 20.75%, 3 siblings 5.66%). It was not analysed whether the children lived in two-parent or single-parent families or what functions their families had.

Children understand **love between people** as an emotional relationship – to love (66.04%); it also involves positive behaviours to other people (11.32%) or specific

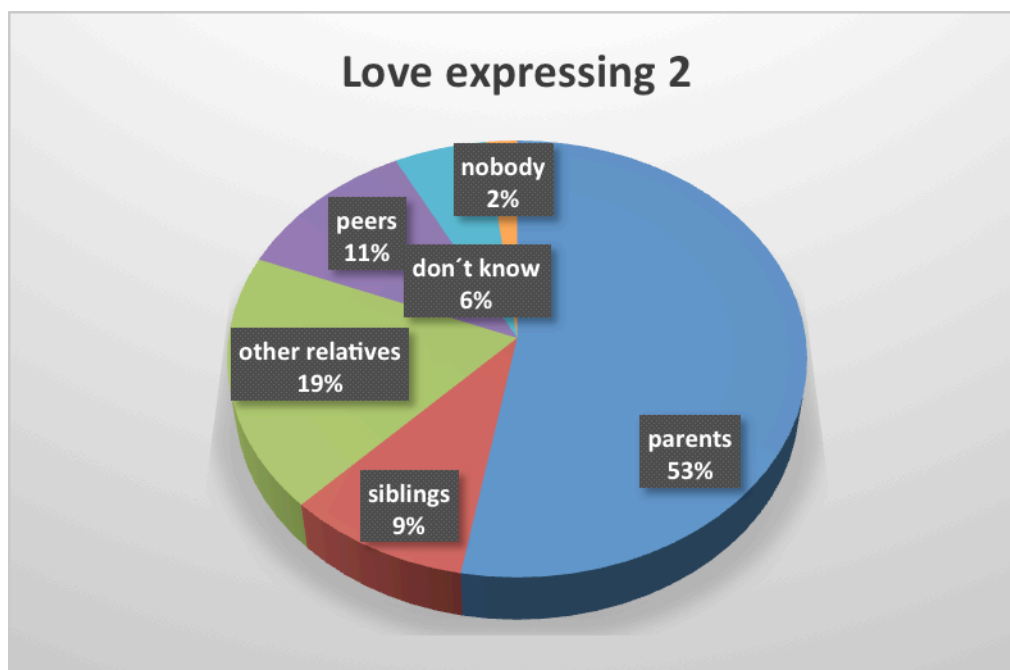
physical actions such as kissing, stroking, hugging (7.55%). The meaning of the term was left unexplained by 6 children (11.32%), 2 children (3.77%) gave a different answer (“princess”, “be afraid sometimes”).

According to the children, **ways of expressing love between people** were *verbal* (3.77%), *physical* e.g. kissing, stroking, holding hands or holding around the waist, hugging, sitting on the lap, mutual help, etc. (75.47%), and *material* e.g. gifts, greeting cards, lending things, etc. (3.77 %). The question concerning ways of expressing love between people was not answered by 8 children (15.09%), 1 child (1.89%) gave a different answer – “they voluntarily choose a husband”.

**Diagram 2: The relationship from the child**



**Children express love** mostly to their parents (49.06%), siblings (11.32%) and other relatives (16.98%), but also to peers (16.98%), and even included dogs in the list (3.77%). Only 1 child (1.89%) did not respond to this question.

**Diagram 3: The relationship to the child**

As suggested by the responses, the children believe that **love is expressed to them** also by their parents (52.83%), siblings (9.43%), other relatives (18.87%) and peers (11.32%). Only 3 children (5.66%) do not know who expresses love to them and 1 child (1.89%) answered nobody.

It is obvious that love is a significant part of today's and future life of children and is one of the priority topics. All expressions of love included in the questionnaire were reflected by the children also in the context of their peers. Here we can see a strong influence of the school environment on the emotional development of the child.

### 3.2 Follow-up research survey

The amendment to the Education Act in the Czech Republic (1 September 2016), which declares the implementation of inclusion in a real school environment, was an impetus for expanding and updating the research data. Therefore, the purpose of the research survey is to examine children's understanding of the concept of 'friendship' (with an emphasis on integration in kindergarten), which is a prerequisite for expressing love to peers.

The applied research will be based on a qualitative approach. Data collection will be performed by means of an extensive research method – structured interview with open-ended responses. This will allow interpersonal contact with preschool children. This explorative tool will be used to collect answers, which will be recorded and assessed during a process of categorization. The interview will focus on five questions relating to friendship with an emphasis on joint activities, satisfying one's own needs and strengthening one's own status.

## Conclusion

The objective of the paper was to outline the current situation in the Czech Republic, where a significant determinant of modern school is the inclusive approach. A significant pro-inclusive argument in the area of education policy is the fact that integration supports social development of all children – both integrated and intact – in a real school environment. This aspect supported our efforts to reflect on the relationships between children in an inclusive kindergarten environment.

Firstly, we presented the results of the pre-research, which was conducted before the implementation of the integration wave. During the pre-research we examined the concept of ‘love’ from the perspective of preschool children. Subsequently, we plan to focus on children’s understanding of the concept of ‘friendship’ (with an emphasis on integration in kindergarten), which is a prerequisite for expressing affections to peers. This paper was written as part of a grant project entitled Social aspects of inclusion in basic education in the context of international research (the research is part of an international project – Inclusive Education no. 4401/11 – Institute for Research and Development, Faculty of Education – Palacký University, Olomouc, Czech Republic).



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## ***Changing Perspectives: Contemporary Art Practices in Primary and Secondary Art Classrooms***

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### **Abstract**

This paper is a literature review of research on Contemporary Art practices in primary and secondary schools. The ability to understand and translate visual data is vital to one's ability to navigate through a complex world (Thulson, 2013), therefore, acquainting students with Contemporary art practices is essential for a broader literacy. The ability to understand visual 'language' is a teachable skill that can empower the classroom teacher to enable their students in creative and critical thinking (Charman & Ross, 2006). One of the most challenging tasks art teachers face is to explain 'meaning' in art that is sometimes deemed vulgar, meaningless or shocking (Emery, 2002). Understanding the historical context of an artwork, appreciating the reasons for its creation, articulating their significance and participating in the art making process, can help students gain confidence in their own abilities. Contemporary art in the classroom encourages these skills and becomes an aid to higher-order thinking, problem solving and deep reflection (Cox, 2000). Art educators, empowered with a broad knowledge of contemporary art and culture and having an understanding of the connections between art of the past and contemporary art are better able to enact relevant art education in primary schools beyond overly teacher-directed activities (Page et al., 2006). Content that will be presented include - Contemporary Art versus School Art, Contemporary Art as Age Appropriate, Curriculum Considerations, Cross-Disciplinary Considerations, Teacher Role and Approaches, Teacher-Student Power Relations, Teacher Challenges, Student Learning, Suitable Assessment – Formative vs Summative, Research Gaps and Directions for Future Research.

Keywords: Contemporary Art, Art Education, School Art, Primary and Secondary Classrooms

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## Introduction

This paper details the literature review of scholarly work done on Contemporary Art (CA) practices in primary and secondary schools. It serves to examine the teaching and learning of CA in schools as well as benefits and challenges faced in the classroom. This literature review has also surfaced research gaps in the teaching of CA in schools.

## Literature Review Methodology

The purpose of this literature review is to find relevant research that has been done in the use of CA in primary and secondary schools. My initial search for articles on CA in primary schools resulted in a lack of good quality articles. As I enlarged my search to include secondary school and eventually schools in general, more relevant articles were found. This is due to the fact that most research in CA practices in school occurs in secondary school, and most writers write about art education in general without specifying which grade they are writing about.

Ebscohost was used to search for peer-reviewed articles written in English. The databases include articles from Academic Search Premier, Communication & Mass Media Complete, Computer Source, eBook Collection (EBSCOhost), EconLit with Full Text, Education Source, ERIC, GreenFILE, Library Literature & Information Science Full Text (H.W. Wilson), MAS Ultra - School Edition, Philosopher's Index, PsycARTICLES, PsycCRITIQUES, PsycINFO, British Education Index, Teacher Reference Center to name but a few.

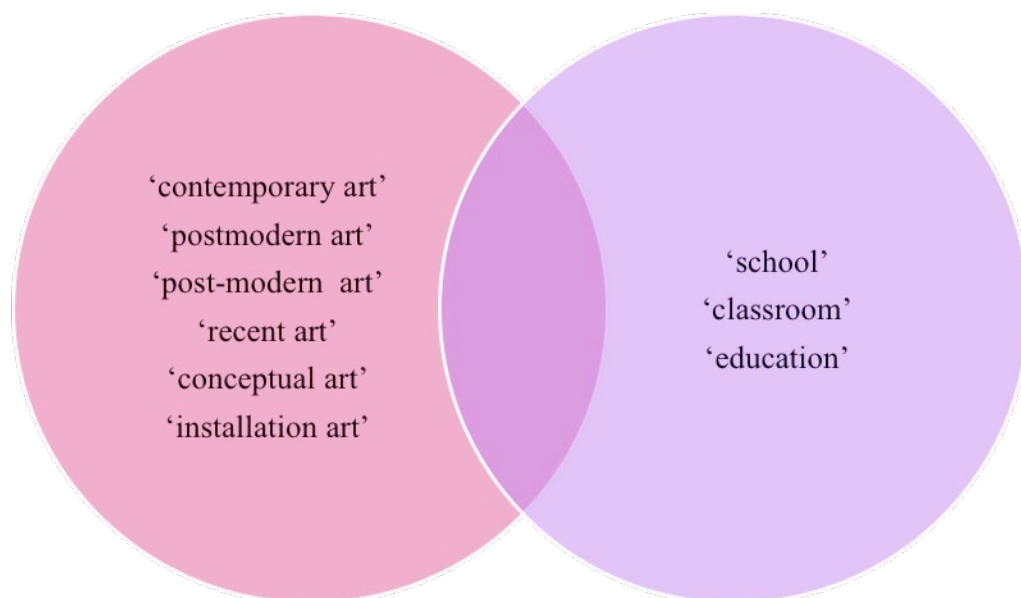


Figure 1: 2 Areas of Research

I started with 2 areas of research (figure 1). The first area was CA. Related keywords within titles and abstracts were terms such as, “contemporary art”, “postmodern art”, post-modern art”, “recent art”, “conceptual art” and “installation art”. The second area was ‘school’, ‘classroom’ and ‘education’. The resulting hits were 930. After discounting repeated articles, there were a total of 603 hits.

Out of 603 articles, 44 papers were selected for analysis based on the following criteria: 1) studies published in peer-reviewed journals; 2) studies on issues related to the teaching, learning and practice of CA in school contexts; 3) studies that included primary and secondary schools. Articles were excluded if they were articles based on art therapy, art history, artists’ biographies or critiques on artworks, other arts-based subjects such as performing arts, music and dance, and studies set in tertiary education.

Literature	Quantitative	Qualitative	Mixed	Published	Unpublished	
Non-Empirical		24		24	0	
Empirical	1	17	2	20	0	
Total				44		

Table 1. Breakdown of papers identified and reviewed

### Contemporary Art: An Open-ended Definition

As a relatively recent development in art, CA critiques and challenges its own history, especially one that is written from a largely western perspective. Therefore, one of the key elements of CA is a more contextual and culturally subjective understanding of art.

There are contesting starting dates for CA. Art historian Terry Smith (2009) considers CA to be art produced since 1980. However, others including Atkinson (2012), regard Marcel Duchamp the revolutionary artist who challenged the existing art world when he exhibited the infamous ‘Fountain’ in 1917, as the pivoting point in CA history.

We are all familiar with the intervention or the gesture of Marcel Duchamp during the second decade of the last century; a gesture in which he placed his readymade objects into a gallery context and in that very act disrupted and subsequently transformed the current architectonic or frameworks of understanding the existing notions of artist, artwork and practice as well as aesthetic discourse...to such an extent that ripples of the Duchamp event are still affecting practice today. (Atkinson, 2012, p.9)



Figure 2: Marcel Duchamp's *Fountain*, 1917

Discourses in CA in Southeast Asia is no less complicating as it takes on issues that reflect the multiple cultures and histories within the region that affects its art production, markets and trends (Kee, 2011). Kee (2011) laments,

...the idea of Southeast Asia is made impossible by the overwhelming diversity it encompasses. The sheer number of religions practised in the area alone – including, but not limited to, Catholicism, Hinduism, Islam and Buddhism – undermines any efforts to produce a comprehensive survey (pg. 374).

In the Singapore context, Sabapathy (2014) suggests the shift in Singapore art history occurred in 1973 when Cheo Chai Hiang (figure 3) wrote an impassioned letter to the Modern Art Society calling for a radical change in the ways art was practiced and perceived, “ways that he attributes as signaling or representing the contemporary...to actively deal with and give shape to the changing times” (pg. 36/37).

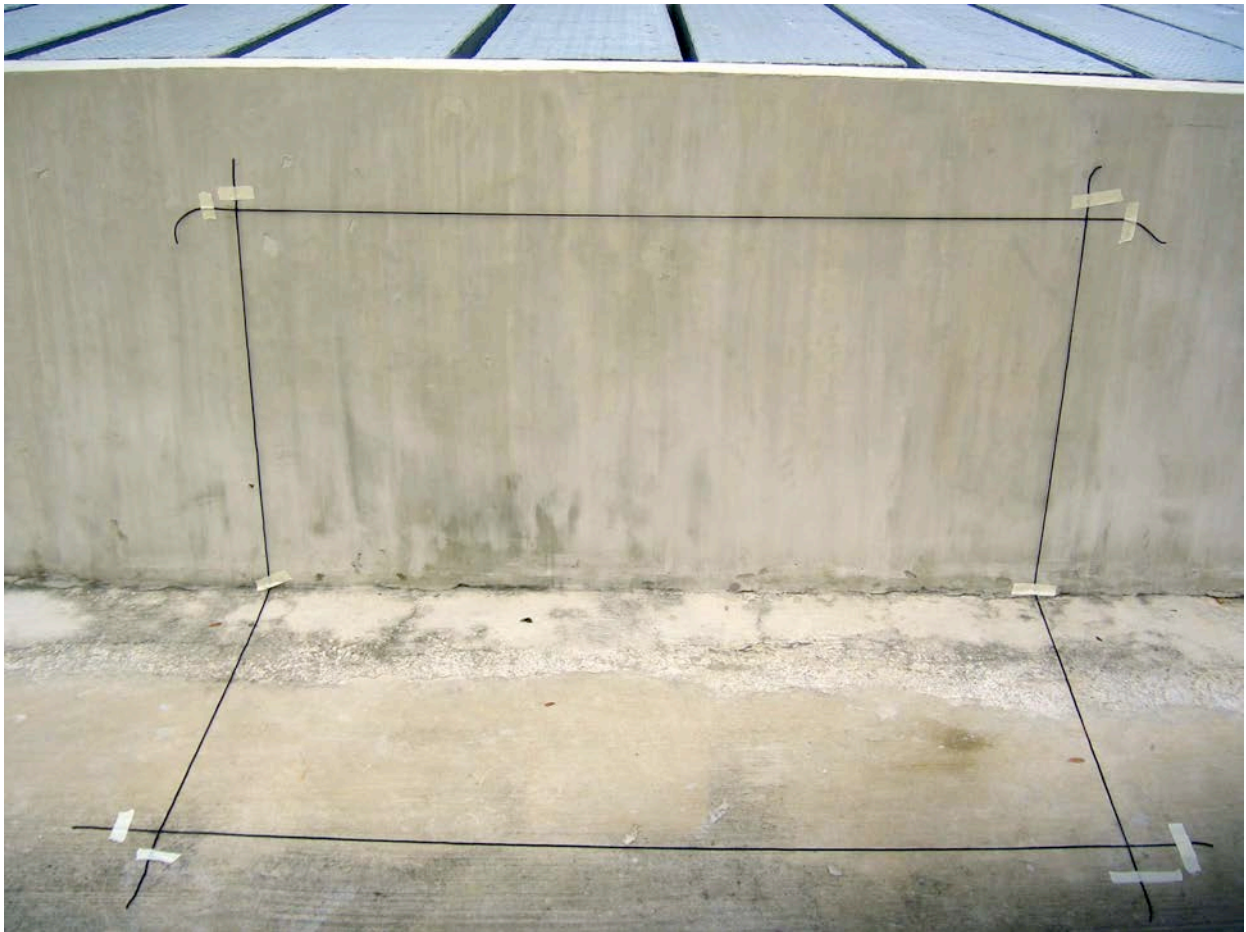


Figure 3: Cheo Chai Hiang's 5 x 5 (Singapore River), 1972

As evidenced, there is no single definitive meaning or history of CA, however, Smith (2009) proposes that it is distinct from Modern and Postmodern art, it is globalizing and has an acute understanding of art history within history and current events. Kemperl (2013) describes it as a social practice about current issues, and calls for active citizenship that offers solutions to our modern day crisis. Cox (2000) added that it accepts diverse voices and viewpoints from artists as well as viewers, it provokes community to engage with ideas and relevant issues, therefore encouraging dialogue (Sullivan, 2010). It can also be controversial, however, according to Emery (2002) shocking contemporary events and issues necessitates/instigates shocking tactics of engagement.

In Vygotsky's (1975) view, art presents the original and the most powerful weapon in the battle for survival, it is the most critical intersection of all biological and social processes of a person in society. Viewed in this context CA is part of this continuum and can challenge and assist us in discussing current social issues that can offer us a way out of our predicament (Kemperl, 2013).

## Contemporary Art within Art Education

CA as mentioned, tends to be socially astute, controversial and conceptual. On the other hand, school art is usually more conservative, arising out of familiar materials, and routines (Jeffers and Parth, 1996). According to Efland (1976), school art is, a “form of art that is produced in the school by children under the guidance and influence of a teacher” (p. 37).

Tarr (1989) explains that the aim of art education, starting from the 18<sup>th</sup> Century has been to tame children and to teach them manual skills to be productive, obedient workers for the industry and to make products that would be both attractive to adults and of value within the marketplace.

If the function of school in society is to teach respect and obedience to authority, therein lays one of the inherent conflicts between CA and school art. One represents the new, untested, risk-taking unapologetic world-view that is at its core controversial and subversive and on the other hand there is school art that aims to instill docility and respect to authority through supplying a compliant manual workforce.

Adams (2013) lamented that, “creative practices in education are “neo-liberalized” in two ways principally: either they are assimilated into a market ethos, or they are driven out of the curriculum altogether” (p. 242). In order for art to regain importance and relevance in the 21st century, art education should look to the real needs of the world today.

**Curriculum.** Much of the current thinking about art curriculums advocate that it be relevant to the lives of the student and their communities and grounded in the realities of contemporary life as well as that of the school (Gude, 2013). It should equip the child with the analytical tools necessary so they can explore and form their own responses within the complex visual world around them (Knight, 2010).

When curriculum focuses on the students’ everyday lives, involving them in the planning, teaching and evaluation process, connecting to larger social issues that facilitate the development of an ethic of care, positive transformation in the students and the community in which they live can take place (Darts, 2006).

Room 13 is a prime example of a curriculum with CA practices at its core. It is an art studio in a primary school in Scotland that is fully run by 6-11 year old students. These children raise their own funds, apply for funding from the government, purchase their own materials, peer-tutor and form their own censorship committee to decide on which artists to invite as artist-in-residence. This enabled the children to learn from collaborating with each other and with other artists, have critical discourse, and develop intellectual autonomy (Page et al, 2009). This underscores the argument that traditional skills-based instruction in the studio limits the complexity, independent learning, pupil autonomy and the promotion of new learning methods that is present in CA production (Kotin et al, 2013, Page et al, 2009, Adams, 2010).

The issue-based nature of CA also offers cross curricula opportunities across a range of subjects (Page et al., 2006) including but not limited to science, literature, languages, social studies, mathematics and performing arts. Subjects such as citizenship, patriotic education and ethics are part and parcel of most art discussions (Kemperl (2013). Such discussions enable students to express their ideas and interpretations and offer multiple opinions and encourage applicability to real life situations (Hickman & Kiss, 2010).

**Assessment.** Assessment criteria have long been a hotly contested topic in visual arts education due to issues such as originality, creativity and subjectivity. In the current conventional modes of assessment, the emphasis on the end product rather than the journey of process discourages creativity and experimentation. If teachers teach in order to achieve very specific goals, students in order to please and receive validation will try to conform to the criteria, rules and goals given. Those who do not, are not able to or refuse to conform will be penalized and labeled difficult or unintelligent. As Robinson (2007) aptly suggested, “if you're not prepared to be wrong, you'll never come up with anything original...And by the time they get to be adults, most kids have lost that capacity. They have become frightened of being wrong” (5:37).

There are definite inherent cultural biases that are not accounted for in the assessment of art assignments (Atkinson, 2011). Lindstrom (2006) suggested that art assessment must take into consideration the ambiguous and unpredictable outcomes in Contemporary artworks. Assessments will thus include complex procedures of interviews and dialogue. Gude (2013) suggests that we look beyond product-based assessment frameworks and start articulating project-based assessment models that provide students with tools to make meaning in their own art work.

Literature from research done in the European Union, United Kingdom and North America on art assessments seem to indicate a trend toward formative assessments and an advocacy to place less emphasis on summative assessments (Hickman, 2007). Assessments should be part of the artistic process and serve to help students to recognize their own achievements, enable reflection, clarify teachers' aims, cover the syllabus, support students' development, document students' progress, and provide criteria to support professional judgements (Hickman, 2007).

## **Teacher**

If art has taken such a radical shift in the last decade, the role of the teacher must also change according to the requirements of the newly configured subject.

Teachers play an influential role in the classroom, they can either promote or stifle student's creativity and meaningful expressions (Gude, 2013). Besides being traditionally trained and highly qualified (Brewer, 2011) and having confidence in being an active researcher/artist (Adams, 2010), art teachers should also become models for creative behavior. Engaging students with creative teaching which comes with an understanding of social conditions and forms of student production (Freedman, 2010). The culture of the classroom should be one of collaborative learning especially when working with new and



contemporary material (Dear, 2001), as students need to challenge mimetic technical achievement and shift away from outcome based production and allow ideas and discussion to fuel their work (Kirlew, 2011).

They will also need to be excellent facilitators in order to foster dialogue and reflective analysis (Charman & Ross, 2006). They have to be careful about artwork selection in order to facilitate positive learning experiences especially with challenging works of art (Villeneuve & Erickson, 2008) and protect the children from harm when it comes to censoring works that might be too violent or offensive for that age group (Emery, 2002). Cox (2000) believes that employing tactics such as questioning, engaging in dialogue, encouraging multiple readings, valuing a range of interpretations and asking for further explanations, helps the child to understand the artwork on a deeper level and to think meta-cognitively, challenging their own preconceptions of art and to think about how they think about art. Teachers should keep an open mind, embrace ambiguity and welcome multiple and shifting interpretations of artworks (Watts, 2011).

When faced with controversial or censorship issues, teachers should use this opportunity and take an inquiry-oriented pedagogical stance so students are challenged to confront and inquire into issues (Jeffers & Parth, 1996) instead of shying away from it. As the art room is a safe place where the world can be experienced ‘virtually’ (Emery, 2002), students can deal with, think through and work out issues that they will otherwise have to confront on their own with no adult guidance. Teachers will then have to be aware and be prepared for such occurrences and provide a supportive environment that is culturally relevant to the children (Herne, 2005).

**Teacher-Student Power Relations.** CA practices has always been synonymous with challenging authority and established ideologies and institutions. The nature of CA to interrogate identity and engage in social critique when carried over to education can radically shift the old conception of learner and teacher identities (Page et al, 2009). Within modern educational institutions, Ivashkevich (2012) explains, children are portrayed as lacking in knowledge, immature and disorderly. As such, teachers are in school to fill the child with knowledge and train them to be more mature and orderly. This produces a hierarchical power structure that puts children in a lacking or deficit model which limits the possibility of a learning community where ideas can be shared and knowledge can be co-generated. On the other hand, there are those who view the child as powerful, strong and competent in their own right and thus are not seen as subordinate to the adult, but are equal participant, thinker and communicator which allows the child to respond and deal with the world and their own issues using their own tactics thereby empowering them (Roberts, 2008, Ivashkevich, 2012, Adams, 2013). If they are provided with the necessary lens to interpret art and visual culture, they have the power to be self-informed (Knight, 2010).

## Student

This section on student learning is categorized according to UNESCO's four pillars of learning which are essential principles for reshaping education:

- 1) Learning to know: to provide the cognitive tools required to better comprehend the world and its complexities, and to provide an appropriate and adequate foundation for future learning.
- 2) Learning to do: to provide the skills that would enable individuals to effectively participate in the global economy and society.
- 3) Learning to be: to provide self analytical and social skills to enable individuals to develop to their fullest potential psycho-socially, affectively as well as physically, for a all-round complete person.
- 4) Learning to live together: to expose individuals to the values implicit within human rights, democratic principles, intercultural understanding and respect and peace at all levels of society and human relationships to enable individuals and societies to live in peace and harmony (<http://unesco.org>)

**Learning to Know.** Through the various research studies of introducing CA in the classroom, results have shown that students developed not only art making skills, but also thinking skills and metacognitive skills. As observed by Herne (2005), students who participated in a CA making workshop gained visual literacy skills and started to understand how images are constructed and communicated within shared popular culture conventions. This will also help students understand how visual imagery impact contemporary society and how through them, historical events and shared experiences mold our identities (Yang & Suchan, 2009). Cox (2000) saw that when students are engaged in the idea that meanings of artworks are not fixed, they are willing to construct meaning for themselves. This pluralistic way of approaching art can potentially lead them to a form of critical enquiry which defies closure and enables a child to progressively think deeper as they attain greater understanding and more knowledge. According to Charman and Ross (2006), rather than relying on the traditional method of understanding an artwork through the transmission of knowledge from teacher to student, emphasis given to multiple interpretations of the artwork created by the viewer give students confidence in their own abilities of visual literacy.

**Learning to Do.** Downing (2005) found, with his interview of teachers who included CA practices in schools, that it has enhanced art learning in art form skills and knowledge, and have broadened students' understanding of what art is and can be. Above and beyond these hands-on skills, they were able to generate ideas when combining image and text, communication and presentation skills while sharing about their work. Their vocabulary also improved while explaining their own works and evaluating the works of others (Herne, 2005). Children also develop an understanding that artmaking goes beyond capturing appearance, they are interested in capturing meaning and how these can be powerful tools of communication (Dear, 2001).

**Learning to Be.** Attitude plays a large role in a students' learning journey. Motivation according to Dear (2001) can be shared in ways that ability cannot. Innovative ways of working also require students to be respectful and accepting of others works rather than reject it while still maintaining the attitude of questioning and criticality, as debate and discussion remains a prominent role in the learning process (Page et al, 2009).

Through the CA project, Herne (2015) explains, students were able to construct their own identities and verbalize them to their peers and teachers. In this process they not only got to know their friends better, they were able to articulate their opinions and in so doing, recognize their own worth. This helps them develop a strong self-esteem and confidence, increases their capacity to be respectful of others and ultimately prepares them to be active citizens. Activities in the art classroom should promote that right and foster the inclusion of children's point of view and creative solutions that are relevant to their lives (Rusanen et al., 2011). CA can offer many liberties to children (Dear, 2001) from their choice of material, to issues they want to address and perspectives on interpretations of the artworks' meanings that addresses their concerns.

**Learning to Live Together.** Due to the plurality of CA that offers diverse interpretations, it encourages tolerance and respect, dispositions that are imperative to successful collaborations. According to Thulson (2013), collaborative art making can involve conflict, compromise and synthesizing ideas. It also teaches students that as a collective they can have more ideas and achieve works on a grander scale. In Room 13, members collaborated through the sharing of ideas, teaching the group, enter into critical discourse through responding, analyzing and reflecting on each other's work, and welcome other ideas and concepts (Adams, 2005). Point to note, collaboration was not forced on them, it was a conscious choice made on the part of the artist/student where they felt comfortable in making that decision, where they are not assessed on their collaborative skills.

Rusanen et al. (2011) reflected on the practices of art education as cultural education concluded that there are many definitions of culture, one of which includes the ways we live in our communities and societies. In the recent European compulsory curricula, arts and cultural education are combined. As such, promoting art is equivalent to promoting cultural heritage and diversity. There has been an emphasis for art educators to organize art activities that enable the social and cultural participation of children. Governments are starting to realize the importance of arts education to the health and well-being of a community (Freedman, 2010).

## **Challenges**

CA can appear ideal to art teaching and learning, however, the literature reveals that there can be a number of challenges when introducing CA to the curriculum. Atkinson (2011) warned that employing CA practices in school does not only affect the art curriculum, it can also challenge the whole school's approach to teaching and learning. It challenges orthodox curriculums, pedagogy, learning outcomes, assumptions about art being an assessable product, and all the fundamentals of assessments itself. Therefore, it can be a

huge risk and dilemma that schools can face (Adams, 2010).

In our enthusiasm to embrace the new, there is another potential pitfall. According to Stinespring (2001) we might fall into the trap that CA is against all tradition and everything that comes with it, including craftsmanship, design and quality. The threat that we might abandon aesthetics and ‘serious art of high quality’ altogether just so we can fit into the look of CA is very real as many artworks today are selected for their socio-political messages and not their aesthetic value (Kamhi, 2003). According to Eisner (1994), “Since the social and cultural agenda is so fundamental...one wonders whether in the end art education [may] become little more than a handmaiden to the social studies” (Pg. 190).

Thulson (2013) explains that art educators give reasons such as young children cannot understand the complex theories in the 21st century and that children should have basic art-making skills before they can make CA. The real fear might stem from their unfamiliarity with the materials used in CA production (Jeffers and Parth, 1996) and/or the offensive, disturbing and provocative content that is prevalent in CA. “While wishing to be open-minded and to teach inclusive curricula, art teachers are also aware of their accountability in the community and their responsibility for the well-being of their students” (Emery, 2002, p. 5). Since CA touches on multiple issues and can be interpreted in numerous perspectives, teachers may have anxieties about their own ability to facilitate conversations in subjects that they are not familiar with. As teachers who were unprepared were less willing to guide students through discussions of controversial issues or defend the use of sensitive materials in their lessons (Jeffers and Parth, 1996), teachers need to be aware that rigorous planning and preparation is key to a successful CA lesson (Page et al, 2009).

### **Conclusion and Directions for Further Research**

The literature seems to indicate that engaging in CA practices in school promotes critical thinking and creativity rather than merely skill based rote learning. It also encourages learner engagement, self-directed learning and exploration, freedom of expression, empathy, risk taking in art making, as well as a broader and deeper understanding in art. CA pedagogies fosters higher-order thinking skills by increasing students’ opportunities to analyze and evaluate art through critical discussion. These multifaceted modes of learning are powerful tools that can give voice to children and youth and suggest the significance of including CA practices in the school curriculum.

This literature review has also revealed significant gaps in research on CA practices in schools such as, 1) Assessment Models and tools for CA assignments and projects, 2) the School’s Role in accommodating and supporting CA practices, 3) the Parent’s Role to further support student agency, 4) knowledge about Student Challenges in learning about CA and 5) Professional Development of Art Teachers in teaching/making/researching CA.

**Assessment Models.** Assessment models in CA are not confined to grading student artwork. It also includes analyzing and discussing the artworks, which is not just the domain of the teacher, but also that of fellow students. Teachers will have to learn the skills to be a facilitator in these art discussions.

**School's Role.** Support from school management is imperative for change in the whole school approach towards CA practices. In many instances, the art teacher's professionalism is assessed by the school management based on the quality of student art exhibitions. This often pressures them into creating 'product based' art exhibitions not for the benefit of the student but for fulfilling the expectations of school management and parents regardless of the relevance of these expectations to learning. This can result in the child's work being 'touched up' by an adult which has implications in issues of academic honesty later on in the child's life. The resulting artworks although seemingly technically advanced and of a certain aesthetic standard are often creatively bankrupt and often lack the child's voice. In the long run, this form of prescriptive art education may be damaging to the creative, experimental and artistic development of the child.

"The accountability culture is pervasive, undermines trust in teacher professionalism and encourages a sense that there should be a tangible product or outcome from educational endeavour." (Hall, Thomson, and Russell 2007, p.615). The lack of understanding of the value of art and arts education by the school and its administrators is an issue that teachers should be cognizant of in order to facilitate dialogues for awareness.

**Parent's Role.** Parents are one of the stakeholders within art education that is seldom discussed in this area of research. What role do the parents play other than coming to school and looking at their children's artwork? They can support the landscape of art education if they had the opportunity to attend workshops and seminars by expertly trained art teachers on the benefits of CA instead of just monitoring their children's artistic progress as an outsider. This will shift the paradigm of old school art displays to more meaningful artistic practices that are relevant to their children's lives.

**Student Challenges.** There is not much literature on the challenges that students face while engaging in CA learning and practice. Teacher PD can encourage teachers to think deeper about how to engage students and to address the power relations or challenges faced between students when they engage in collaborative activities. This can be a topic of discussion during teacher PD so educators can better pinpoint these issues and assist students in their learning.

**Professional Development of Art Teachers.** There is a general lack of research for effective PD models for teaching CA in schools. Topics such as teachers' self-efficacy as artist/educator/researcher, programmes for content upgrade including learning from local Contemporary artist/educators and museums, facilitating art discussions, dealing with controversial subjects, formative assessments models and tools, enhancing studio resources, curriculum and lesson plan application in schools can all contribute to effective PD.

PD of art teachers in teaching/making/researching CA should be looked into so teachers are equipped with a deeper understanding of CA practices, pedagogies and approaches that are supportive of student learning. PD topics can include suitable assessment strategies for CA assignments and projects so that it is a less restrictive grading system and more sympathetic to creative endeavours. In my opinion, teachers are not only facilitators of learning in the classroom, they should also be considered experts in their field whom the school management and parents can turn to for advice on specific developmental needs. Therefore, PD should inform teachers of ways to engage parents and school management in supporting CA practices, and how to negotiate issues of autonomy over the school's art curriculum. Teacher PD should also discuss challenges students might face in learning about CA so they can better support student's learning and shed light on learner engagement issues.

This review has surfaced research gaps that are fundamental to my research study on Teacher PD towards CA practices.

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***An Overview of Narrative Research Methodology with Underprivileged Youth in an Out-of-School Visual Arts Programme in Singapore***

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**Abstract**

This paper will review the methodological approach and reasons for its particular use and value in a qualitative research study consisting of three descriptive case studies that delve into the experiences of three at-risk and/or underprivileged young people, age fifteen to seventeen, who attend an out-of-school visual arts programme in Singapore. The original research titled, *‘Making, Feeling, Thinking: Narratives of three at-risk and underprivileged youth in an out-of-school visual arts programme’*, asks, ‘What factors in this particular programme have contributed to the motivation for the long-term participation of these three young people?’ Through a series of interviews the study found the participants were motivated by an environment where the Arts are valued. The physical environment created by the staff and students was also found to be conducive to their ongoing attendance. At some points during their time in the interview process each of the participants described in positive ways how they felt about themselves and what they thought about the art experience. Conversely, certain factors have affected student motivation in negatively; in particular, their early experience at the institution differs significantly from the recent conditions at the site. This following overview will examine important aspects of the methodology of the research as it relates to the researchers intent and how it may have contributed to the successful uncovering of previously unknown perspectives of the participants about their experience at the site.

Keywords: At-Risk Youth, Visual Arts Programmes, Out-of-School Arts

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## Introduction

The site of this research, the Youth Arts School, was as far as I could ascertain at the time of the research, the only permanent informal arts school in Singapore devoted to delivering fully subsidized, long-term arts programmes for at-risk and underprivileged young people.

The uniqueness of this site lay in the consistent and long-term attendance of many students from childhood through to young adulthood, with many of the students returning as young adults to volunteer their time and work with YAS in various capacities.

The founders of the school hold the conviction that no child with interest and potential in the arts should be denied the opportunity to develop his or her talents due to a lack of financial resources. They believe in the benefits of arts training and aimed to level the playing field for young people from financially disadvantaged backgrounds. Since 2005 the Arts Fund that sustained and initiated YAS has reached out to more than 15,000 financially disadvantaged children and youth, between the ages of 6 to 19 years old.

The goal of the original research project was to gather data on the experiences of the participants in the hope that it may produce an understanding of factors in their out-of-school arts environment (*within the context of Singapore*) that encourage them to continue attending. A Narrative research approach was used because this study's foundation rests on the exploration of the stories of the three participants and their art-making experiences at the school. My personal goal was to foreground their voices about their experiences and not to assess the effectiveness or value of the programme in relation to learning or any form of Key Performance Indicator (KPI).

Having had a long-term Teacher /student relationship with the respondents, I had already built rapport which within the framework of narrative research would make it easier to re-establish a connection of trust. I had a basic understanding of their personal histories in the school and of the evolution of the conditions of the school itself. All of these established interconnections made it more likely that the participants would give authentic and detailed answers during interviews (Yin, 2013). The following pages will review the reasoning behind the choice of methodology, definition of a 'case-study' within the context of this research, the interview process and procedures, my background at the site, the background of the site, the recruitment processes, data collection and analysis procedures, emergent themes and conclusions on the importance of narrative research methodologies in relation to this and future research.

## Methodology

This Qualitative research study consists of a series of narrative case studies from a single out-of-school charitable arts organization whose focus is providing access to high quality art experiences for at-risk and underprivileged youth in Singapore. The aim of the study was to record and analyze the experiences of three outstanding long-term visual arts participants at the Youth Arts School. The student's feelings about their experiences at the school, what motivates them to continue and what they think

they may have gained from their experience were the locus of investigation. The founding Director of the school was also interviewed to gain an understanding of the original goals and background of the institution.

## Case Study

**Definition and Categories.** A case study in this instance is defined as an in-depth exploration of a bounded system of activities, events and processes, and of individuals based on extensive data collection (Creswell, 2015) all having taken place within and around the YAS visual arts classroom. This study may be seen as three case studies bound in one. According to Stake (1995), as there is more than one individual included in this case study, it can be classified as a collective case study of a phenomenon, specific population or over-all condition. The aim was to gather data on the experiences of the participants in the hope that it may produce an understanding of factors in their out-of-school arts environment that encourage them to continue attending. In looking at their thoughts, feelings and beliefs about their experiences I hoped to stabilize conceptions about how the factors they mention may contribute to their success and satisfaction or conversely that lead to their non-participation and dissatisfaction. Some of the categories that were investigated include: teacher/student communication, the effectiveness of pedagogy, and perceived differences between past and present environmental factors. There were some significant perceived differences noted by the participants over time, they include: restriction versus freedom in access to materials and variety of materials, restriction versus freedom in relation to personal creative exploration and commission artworks for donors. For each student in this study the effect of these changes is perceived in a unique way, however, there is also consensus among them in many areas.

## The Interview Process

**Contextualization.** As the field researcher I conducted the interviews. Since I had taught the respondents in the past as a visual arts trainer at YAS, I had a prior relationship and familiarity with them. I hoped this familiarity would help them feel relaxed and willing to share their subjectivities as openly and honestly as possible. In the interviews I applied an Interview Guide Approach (Patton, 1980) using predetermined question categories and a more ‘conversational’ mode that requires the investigator to have sound prior knowledge of the subject matter if not about the specific person being interviewed (Yin, 2013). My prior knowledge of the environment and participants in this case was well suited to drawing out the subjective views and feelings of the selected participants. My background, having been a part of their experience in the YAS programme, is sometimes reflected in the narration of their stories and as such constitutes a critical ethnographic, reflexive approach.

Contemporary discussions on ethnography consider the researcher’s role as an integral part of the research process and should be contemplated upon in depth as part of the research study... it is imperative that the researcher’s role and background are included, in order to present a more complete picture of the research methodology and motivations of the study

(Hogan, Dolan, & Donnelly, 2009, p. 43)

**My Background at YAS.** In 2008-2009 I was recommended as a visual arts trainer for YAS. After meeting the Director I began working at YAS as a visual arts trainer. I taught several different classes of different age groups on Saturdays and Sundays, the busiest days of the school. At that time I met a few of the students that are in this study through teaching them. The following year YAS decided to group the school's outstanding visual arts students together in an advanced and experimental class. The Director approached me and it was decided that the approach would be something like an Atelier with students using their own ideas and working towards a year-end public exhibition, the concept was to be entirely student-centered and student-directed with myself acting as a facilitator to encourage and provide technical assistance. This was an exciting idea for me as I had taught art to young people for many years but almost always within the confines of a restrictive curriculum. As a practicing artist I welcomed the opportunity to work with these youth in a progressive way where artistic autonomy was encouraged. It should be noted that at this time I had little training as an educator and was not familiar with major theorists and thinkers in Arts education such as Howard Gardner, Vygotsky or Piaget.

As their former trainer, I viewed myself as a figure in their history that had earned a degree of trust through mutual experience. While my own perspective on my past with these three individuals influences my interpretations, it does not prevent readers or other researchers from imagining or interpreting different conclusions from those found in this study. One of the expected effects from a consciously reflexive approach is that conclusions may often be tentative, a quality leaving the research open to new questions (Creswell, 2015). A reflexive approach is important in this case for its ability to excavate a more complete history that adds to the data through detailed elaboration of an accessible story-like form.

## **The Research Site**

**Description of the Site.** At the time of this research the YAS research site, consisted of two separate locations within Singapore, and was one of, if not the only informal arts school in Singapore devoted to delivering fully subsidized, long-term arts programmes for at-risk and underprivileged young people. Its uniqueness and success in attracting practicing artists as trainers and in being able to hold the consistent attendance of many students from childhood through to young adulthood made it a model worthy of study.

## **Recruiting Participants**

**Recruitment Process.** The case studies that resulted from the research revolve around three students both female and male. For the purpose of anonymity due to the fact that YAS is one of the only schools of this nature, I have in one or more cases changed the sex of the students for the purposes of this study. At the beginning of the recruitment process a preliminary meeting with four to five students of the original participants was held where I explained the purpose and expectations of the study. During this meeting the ratio of male to female and number of participants were as yet unconfirmed as some of the four to five invited students were unsure of their participation. The conditions for participation were that they will have attended the YAS visual arts programme consistently for four or more years and had been part of

the advanced class that I had taught. The participants were approximately nine to twelve years of age when they entered the YAS programme and at the time of the interviews were between fifteen and seventeen years of age.

The school, the students and their parents were informed of the confidentiality of their identities through preliminary meetings and written communications. Within this research paper their identities are hidden through aliases and the previously mentioned arbitrary gender changes of the respondents. These meetings and communications served to ensure that the school, the participants, and their families were comfortable with the process and helped to establish rapport.

**Interview Process and Procedures.** All participants were issued a letter of consent and made aware that participation in this study was voluntary. Permission was sought from the current Principal, the parents/guardians of the participants and the participants themselves. All participants were informed they were free to withdraw from the research project at any time and that anything said in the interviews was confidential and would not affect their standing within YAS.

The interviews were conducted using open-ended questions focused on the experience of participants in the programme. Care was taken in the wording of the questions to avoid preconceived outcomes associated with leading questions (Brenner, 2006). In order to protect the students from any harm it was decided this investigation would not pursue questioning that may delve into student's personal family issues. Any questions related to family were oriented to the student's own thinking about family support for attending YAS.

Interview questions were framed chronologically and the interview process began by asking participants to recall their early years at the school and how they came to attend. I made it clear that I was open to commentary on any experience at the school including any negative experiences or feelings, however, I was always conscious of the fact that students would likely censor their responses particularly around my own practice with them. I had planned to conduct further interviews with both the current Principal and past Director but only the interview with the past Director materialized as communication with the current Principal became non-existent over the course of the interview process. The focus of the interview that did take place with YAS's original Director was to reveal the institution's original goals and to extricate any changes over time that may have affected participant experience. To maintain the foregrounding of the voices of the young people in this study the former Director's interview was not retold in a narrative format but does inform my interpretation of the findings and adds to the richness of the description the YAS site.

Interviews were filmed and recorded at the original school site as well as at the new branch of the school located in an affluent location in a busy downtown shopping area. These sites were chosen because the rooms provided by the school, gave us a quiet, comfortable and psychologically safe space within a very active and often noisy environment. At each location the interviews took place in comfortable meeting rooms with typical office tables and chairs, the doors to the rooms had small windows and the rooms as in most schools in Singapore were monitored via security camera. The interview with the former Director was recorded offsite under similar conditions in a room generously provided by a local Arts Funding Council. The Director

interview took place in an alternative site due to time constraints of the former Director and due to the fact that he/she was no longer affiliated with YAS.

### **Qualitative Procedures**

**Data Collection.** The research as a whole followed narrative/ethnographic procedures and methods: one-to-one interviews, field-note taking by myself as the researcher during and after visits to the site, my personal recollections of past classroom interactions and events which were recorded in a journal, collected artifacts such as exhibition catalogues, photographs of past student artworks, newspaper articles and various digital records of student artworks and events such as online articles, arts blogs and the YAS website and examples of past lesson approaches, all contributed to the body of data.

A narrative research approach was used because this study's foundation rests on the exploration of the stories of the three participants and their art-making experiences at the school. Narrative research is used, as in this study, when there are individuals willing to share their stories and personal experiences from a specific site. The close tie between myself, as the researcher with the participants can make the respondents feel their stories are important and that they are given a voice. This may help the participants understand their own experiences and in this story- telling format, narrative research represents these everyday events in a widely accessible form (Creswell, 2015).

The interview questions were developed for this study by thinking about the chronological story of the participant's at YAS. Developing question categories in advance did not however preclude that the sequence remain flexible during the interviews (Patton, 1980). The advantage of this strategy is that the data collection is somewhat more systematic than in a purely open-ended conversational interview and results in a more straight- forward analysis. (Patton, 1980). The categories below represent sub-headings under which interview questions were developed:

- Participant introduction to the YAS programme
- Past participant experience with the arts
- Participant experience at YAS
- YAS trainer methods compared with formal school art experience
- Participant thoughts on motivation for continuing at YAS
- Student feelings and thoughts about art-making

Interview with the former Director:

- Perceptions of original goals and the inception of YAS
- Tensions between the original goals and administrative concerns
- Reflections on at-risk student needs
- Reflections on successful and unsuccessful pedagogies

The current YAS management generously volunteered to liaison between myself the researcher, and the participants and their parents for communications needed to begin the interview process. The interviews took place at the convenience of the participants

and the school. Students were informed that each interview may last from thirty minutes to one hour and they did vary as such. It was intended that each participant would be interviewed twice over a four to ten week period and that they would participate in a single focus group discussion. It was also hoped they would be consulted in an additional single informal review of some of their contributions by reading through the transcripts as a means of internal self-checking and validation.

Out of the three participants only two were interviewed twice. The one that was interviewed only once was present at the school during the second batch of interviews but declined to participate citing a sore throat. This particular participant had a record of high achievement and involvement at the YAS site and at the time of the interviews was holding a mentorship position. Upon reflection of the interview with this participant a reluctance to talk about anything that may be perceived as reflecting negatively on the school was apparent. Plans for achieving secondary validation did not materialize due to the constantly expanding timelines of the project resulting from difficulty with participant commitment to interview dates and with sometimes delayed responses from the YAS management. As a result the interview process extended far beyond the original four to ten weeks.

**Transcription.** The interviews were transcribed by the researcher/interviewer. A type-based transcribing software (F5) was used to control the audio recordings and efficiently label the conversation. By transcribing the recordings myself I had the advantage of repeatedly re-listening to the audio. This gave me an opportunity to become extremely familiar with the content and was a factor in locating significant themes. Subtleties of respondent reactions were noted in the transcription, for instance, “ she smiled after responding...” or “he visible shifted as if uncomfortable...” Including these kinds of details is a way to capture the subtleties of in-person communication with its pauses, intonations and stutters (Silverman, 2001) and serves to remind the researcher of the experience of the interview and allows human qualities to carry over into interpretation.

**Analysis.** The analysis of the data began with open-coding of the transcribed interviews where I formed initial categories of information from experiences, thoughts and feelings of the participants as found in the data (Creswell, 2015). The interviews, as previously mentioned, were ordered chronologically to echo the stories of these particular students at the research site. Although this chronological structure was already present I looked for more broad themes that may emerge from the discussion of the respondents within this framework. What emerged upon a first reading were three major areas under which all other areas of discussion could be categorized:

Teacher /Student Interaction  
 Student Thoughts and Feelings about Art and Art-making  
 Parental Support and Personal History

These first three categories were colour coded using orange, pink and green, however, it became apparent that the colour coding was confusing matters due to the complexity of the overlap of many student responses. I soon became aware there were many more than three distinct categories and after multiple reviews the data was finally refined into seven categories. These seven categories were helpful in



identifying significant themes and were also used to frame the narratives of the case studies. The seven categories are as follows:

- Student Descriptions
- Introduction to the School
- Art Experience and Art Making
- Learning and Perceived Benefits
- Altruism and Community
- Teachers and the Environment
- Changes in the School

Although coding was used to identify and clarify categories of data it should be emphasized that the end goal of this research was the foregrounding of the stories, thoughts and feelings of these three participants about their experience at YAS.

In reviewing the interview data I attempted to identify significant correlations between each participant's thoughts and feelings as grouped under the categories. It became apparent there were unique responses to some questions from each participant. This disparity became valuable in representing the complexity of their characters and experience within the school environment and revealed significant negative factors for two of the participants. Many more of their responses, however, indicate clear correlations between each of the participant's thoughts and feelings about factors that motivate them to continue attending.

All of the categories, themes and insights from the analysis emerged from the raw interview data through an organic process of open coding that included copious margin notes and revisions of redundant categories. A rough form of axial coding was later used to represent the resulting categories as a form of visual representation through a bubble diagram. This visual representation (see Figure 1.) helped to refine correlations with certain categories being subsumed by others where the data was overlapping to such an extent that it was inseparable.

**Emergent Themes.** The themes that began to emerge from these categories were reduced to five and represent the most prominent subjects found in the interviews. Categories with the most detailed and correlated discussion by participants and with the most significant and surprising data became coalesced into the following five themes for discussion: The Environment, Altruism and Community, Feelings of Learning, Beliefs about Art, Dissatisfaction and Voice. These themes were revised once more in order to accurately reflect and align the subject matter of the narratives and efficient cross-referencing between the narrative and the findings and discussion of this study. The final themes are: 1. Art Experience: Feelings and Thoughts, 2. Student Beliefs: Learning and Benefits, 3. Feelings of Altruism and Community, 4. Teachers and the Environment, and 5. Responding to Changes in the School.

## Conclusion

The Narrative approach and qualitative procedures used in this research, combined with reflexive thinking, revealed some unknown perspectives these long-term, at-risk/underprivileged students hold about their present and past art experience within the YAS visual arts programme. Many of the positive benefits associated with other

major research on the subject seem to be confirmed within this project, likewise certain negative factors that may inhibit attendance were also confirmed. This kind of research can contribute valuable knowledge that comes directly from the feelings and thoughts of the recipients based on their actual experience of such programmes and can benefit all stakeholders who are interested in sustaining and improving such programmes. The ability to reveal previously hidden perspectives seems to justify the need for more such research that locates the participant's feelings about their experience at the centre of investigation. This approach does not preclude other types of research but can be seen as a parallel source of knowledge that is adept at extracting subtle and often unknown affects that happen in complex learning environments like those found in this study.

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### ***Learning CAT Tools Using eLearning Tools – A Case Study***

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#### **Abstract**

The Post-Graduation Program in Translation at Universidade Autónoma de Lisboa, a private university in Portugal, is in its fifteenth edition. The program has undergone various changes, including from face-to-face to b-learning and eLearning formats. Though initially only Moodle was used, in recent years, different Virtual Learning Environments (VLE) were introduced, the first was WizIQ. In the past three years, the VLE in use is Colibri - a multimedia collaborative environment developed by FCCN (the Portuguese foundation for scientific computing) to provide free videoconferencing service to Portuguese Higher Education Institutions. A social network has also been added (Facebook) to foster interaction among students and lecturers beyond the learning environment. One of the seminars taught is on Computer-Assisted Translation (CAT) tools, which implies students' learning electronic tools using other electronic (eLearning) tools. It has then been the case that software has become both a means and an end in the learning process. Given the fact that eLearning tools can represent a constraint for students in general, this so-called metalinguistic pedagogical scenario seemed to bring additional impediments to the success of the learning process. So as to analyze the impact of this setting, a survey was designed with a twofold objective. On the one hand, we aim to understand how determinant the inclusion of VLE and other eLearning resources has been in the general knowledge acquisition. On the other hand, we also assess the significance of these eLearning tools in the learning of CAT tools.

Keywords: eLearning tools, CAT tools, knowledge acquisition

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## Introduction

This paper aims to analyze the importance of several eLearning tools in students' general learning and in their learning of Computer-Assisted Translation (CAT) tools. This is a case study based on a survey conducted to students who attended a Post-Graduation Program in Translation held at a Portuguese university – Universidade Autónoma de Lisboa in the past five years (2012/2013 to 2015/2016).

The Post-Graduation in Translation has been in place since 2001. Initially it was only available as a face-to-face (f2f) program but, in 2006, with the introduction of Moodle, some seminars were made available in blended-learning. In 2012, a Virtual Learning Environment (VLE) - WizIQ - <https://www.wiziq.com/> - was introduced and, since 2015, the program has been available and can be attended in an eLearning environment.

Using a case study, we aim to conduct an exploratory analysis so as to, firstly, understand how determinant the inclusion of a Virtual Learning Environment (VLE) and other eLearning resources has been in the general knowledge acquisition and, secondly, assess the significance of these eLearning tools in the learning of CAT tools.

A survey was sent to all the students who attended the program from 2012/2013 to 2015/2016, in a total of thirty-six. From these, sixteen (44.4%) responded and the results were analyzed quantitatively (using SurveyMonkey - <https://pt.surveymonkey.com/> - a cloud-based software) and qualitatively.

The paper starts with a section on literature review, which focuses on the learning process, learning regimes, eLearning tools and CAT tools; this is followed by a section on the methodology used to conduct the study, the case study itself and, finally, the analysis and discussion of our findings.

## Literature review

The main focus of any educational system is to ensure successful learning, which has led to numerous theoretical approaches on how to best fulfil such process. Such theoretical contributions vary on the nature of learning and its factors, but share the common agreement that individuals learn while producing a behavioral change by means of certain stimuli to which a determined answer corresponds (Palangana, 2015). Learning theories are also unanimous in recognizing the importance of social interaction within the learning system.

The Bologna Process was agreed upon on June 19<sup>th</sup>, 1999, by twenty-nine European States with the aim to create a Common European Space for Higher Education. In this context a paradigm shift takes place, moving from a knowledge acquisition centered model to a focus on learning and skills' development.

In this way, and even though the Bologna Process was originally conceived for university degree programs only, it has, in fact, become transversal within the educational system. This results from the fact that its main objective is to create the referred common European space for higher education, safeguarding transversal

competences and geographical mobility. This system has also implied the validation of more participative teaching methodologies, which place the student at the center of the learning process. This has, therefore, replaced the more traditional methodologies, with an expository nature and in which the student plays a more passive role as a recipient of knowledge facilitated by the teacher.

Not only has the role of the student been under construction throughout the Bologna Process, but also the class format / regime has been under significant changes. Today, a considerable number of universities offer complete degree programs online and the concept of virtual universities has become a common reality (Lundberg, Castillo-Merino & Dahmani, 2008). Considering today's ubiquity of Information and Communication Technology, its influence on communication and the building of knowledge is not surprising.

Blended-learning (b-learning) blends face-to-face (f2f) learning, now regarded as "traditional," and eLearning, viewed as innovative but challenging. According to Steffens & Reiss (2010), the success of b-learning methodology implies information infrastructure (backup sources to inform users); human resources infrastructure (to promote motivation and competencies of the learners); technocratic infrastructure (tools to plan and evaluate the learning performance); organizational infrastructure (networking with other institutions); cultural infrastructure (the university's teaching philosophy and adopted policies).

Studies have been developed on the impact of the learning regime on learning effectiveness and on students' different responses to eLearning, face-to-face and b-learning approaches. Generally speaking, there is a unanimous conclusion that learners prefer eLearning and f2f regimes in distinct learning contexts and with different learning purposes. The study conducted by Nenagh Kemp and Rachel Grieve (2014), on undergraduates' opinion and test performance in classroom versus online learning at an Australian university, concludes that students prefer face-to-face contact when it comes to topic discussions/activities, therefore favoring a more personalized sense of academic community. Nonetheless, students have mentioned that eLearning tasks are convenient in the sense that they allow for a more flexible time management for task completion.

The b-learning approach has, therefore, been seen as an optimal learning approach, since both lecturers and learners can conciliate the advantages of computer-mediated education and of face-to-face interaction, considering it fosters effectiveness, boosts the quality of teacher-learner interaction, and provides students and teachers with instant feedback (Fernandes Silva, Quintas & Teixeira, 2017, Gómez & Igado, 2008). More importantly, studies have shown that, rather than the sole teaching / learning regime adopted, as well as the students' past experience with it, it is the role played by the teacher as facilitator of knowledge, being partially mentor and partially allowing for learners' autonomy, that is most significant for a successful learning process (Dell, Low & Wilker, 2010).

Globalization has also demanded a higher and higher number of professionals devoted to translation, localization and interpretation, while simultaneously imposing deep changes in the referred fields, especially in terms of technology and of its relevance to the activity.

As the study by Gouadec (2007), indicates knowing translation memory (TM) systems is now a requirement in most job advertisements though not all technologies have been successfully adopted by translators. In any case, “Translators must get accustomed to using CAT tools” (Odacioglu & Kokturk, 2015, p. 15) and both professionals and future professionals must focus their training beyond the traditional linguistic and interpretative skills. Nowadays, translators and interpreters must develop instrumental skills, including technical competence in using translation tools, programs and applications that both speed and provide quality-assurance to their work.

Sikora and Walczynski (2015, p. 122) state that “developing (...) ‘instrumental competence’ requires, in fact, mastering skills in (...): Efficient use of CAT tools (including ‘general’ and ‘specialized’ translation technologies),” and mastering these skills will allow for professionals having a competitive advantage over those who are non-professional translators. Moreover, these technical skills have been recognized as relevant in several works on translation skills and competences, such as those by the European Committee for Standardization, by the research group PACTE 2011, among others.

Though TM systems have advantages – standardization, higher level of productivity, lower costs and higher consistency (Silva & Fernandes, 2016, p. 68) - and disadvantages – higher focus on segments and lower quality translation due to use of contaminated TMs – they are indeed crucial to translators in general and must therefore be a relevant element in the training of future professionals.

Considering the Post-Graduation’s practical approach, the teaching and learning of CAT tools which will be relevant and transferrable to professional practice is line with what Kirkpatrick (1994) defines as one of the assessment stages of professional training, stage 4 - transferring knowledge to organizational contexts. The other stages are: 1-training satisfaction; 2- learning assessment; 3-transferring knowledge to work processes.

Considering the specificity of our study, we aimed to identify transference of knowledge on CAT tools acquired during the program and professional practice.

## **Methodology**

Our work stems from a case study, conceptually conceived as an in-depth analysis, which, cannot, in reality, be applied to other contexts. (Stake, 2010; Yin, 2015).

We have applied a survey, as a core technique for gathering data, in order to obtain responses to three fundamental questions:

1. What translation tools have you learned in this Post-graduation program?
2. What CAT tools do you use in your professional activity?
3. Which factors have influenced your learning process?

The questionnaire was built online, keeping in mind the study’s objectives and our original questions, and it was emailed to students who had attended the program between 2012/2013 and 2014/2016, in a total of thirty-six.

We received 16 replies, which, as stated earlier, corresponds to 44.4% of the number of program participants in the referred five academic years. These were subjected to descriptive statistics (closed questions) (Ghiglione & Matalon, 1997; Bardin, 2009), and to category-based thematic analysis, in case of open questions (Nascimento & Menandro, 2006). Our aim was then to identify general patterns and, simultaneously, to make an in-depth analysis of such patterns, based on the discourse resulting from the open questions.

### **Case study**

The graduate program in Translation Studies, offered by Universidade Autónoma, was launched in the academic year of 2001-2002. Since then, it has been through significant changes, always taking into account the need for acknowledging the growing significance of the role played by technology within the learning process. Consequently, Moodle (which stands for modular object-oriented dynamic learning environment) was introduced in 2006, allowing students to partake in a virtual learning environment and thus initiate an exchange of knowledge that went beyond the classroom. Later on, Skype was added as a means for students to present their final projects. Individual wikis were also an optional possibility, even though those have turned out not to be very popular amongst students.

In 2013-2014, the greatest turn-point took place, with the introduction of WizIQ - “an easy to use, mobile-ready Learning Delivery Platform to deliver live & self-paced online courses” (<https://www.wiziq.com/>), together with the creation of a Facebook page, where students and teachers alike began to share a space for what we could call academic and professionally-oriented socializing. The greatest change had by then been set, as live sessions (with recording possibility) were channeled by WizIQ, and Facebook made it possible for students to be constantly updated on academic initiatives, professional opportunities or even when and where a colleague and/or a lecturer would be available to discuss a project or clarify a question.

In the following academic year, 2014-2015, another step forward was taken, as we replaced WizIQ for Colibri, “a collaboration service that allows one to hold meetings remotely between two or more participants in the academic and scientific community, facilitating meetings, workgroups, classes and tutorials over the Internet. The service enables the sharing of the participants’ audio, video, text, images, white board and the computer screens and includes a recording facility in order to record and play the sessions back afterwards” (<https://www.fccn.pt/en/collaboration/colibri/>). Colibri was developed by FCCN, which is a state agency focused on the development of computer technology and managed by the Portuguese Foundation for Science and Technology (Fundação para a Ciência e a Tecnologia - FCT). FCCN also provides support for the integration of this service with eLearning tools used by the institutions connected to RCTS (Network for Science, Technology and Society).

Colibri has been kept for three consecutive academic years, together with the university’s Moodle platform and the program’s Facebook page. Live sessions are recorded and students are all given access to the recordings whether they have been able to attend classes face-to-face or online, or not at all. This means that information is kept and accessible to all, as time and space boundaries cease to exist.



Since 2006, the Post-Graduation in Translation at Autónoma has included the learning of CAT tools in its study plan. Initially, students would have to do this course face-to-face and the tools taught were Wordfast (<http://www.wordfast.com/>), more precisely, Wordfast Classic – which operates inside of MS Word –, Catscradle - web page editor for professional freelance language translators developed by Stormdance (<https://www.stormdance.net/software/catscradle/overview.htm>) – and Trados (<http://www.sdltrados.com/products/trados-studio/>) – the leading computer-assisted translation software suite.

Gradually, as with other courses, students were able to do this course in b-learning and in eLearning. Yet, commonly students prefer to attend most sessions face-to-face, which has led us to consider that CAT tools may pose a special challenge to students if doing the course online.

Today, Wordfast is still part of the course, though the professional version – Wordfast Pro 4 – and the cloud version – Wordfast Anywhere; and Trados is still included – Trados Studio 2015. But new software has been added – MemoQ (<https://www.memoq.com/en/>) and Memsource (<https://www.memsource.com/>). MemoQ is an upcoming translation tool created by Kilgray and Memsource is a cloud-based translation management system.

So as to allow students the time to learn about and practice using these tools, the course on Translation Tools spreads throughout the two semesters of the program and students are able to use Trados, MemoQ and Memsource for several months or even a year, as the university has an agreement with the companies owning the software. In regards to Wordfast, the software offers a demo version that allows students to use it for unlimited time though with limited (but rather high) number of segments.

## **Findings and discussions**

Our survey included closed and open questions, which were subject to different analyses: closed questions were analyzed based on a descriptive analysis provided by the software (SurveyMonkey) and a category-based content analysis was conducted of the open questions. One of the conclusions to be drawn from our case study is the gradual change in the way academic population perceives and conceives knowledge transmission and knowledge acquisition. We can observe a growing confidence, in both students and lecturers, in their performance within new learning environments.

Observing our survey results, we can conclude that there is a balanced distribution between the number of students who have opted for a face-to-face regime (37.5%) and those who have chosen an eLearning possibility (37.5%), leaving 25% of the student population opting for a b-learning environment (Figure 1).

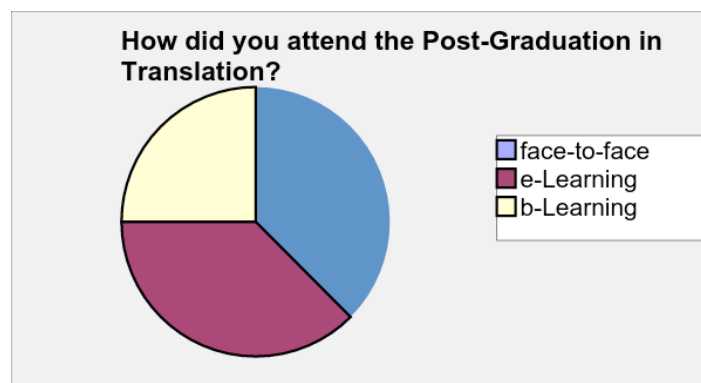


Figure 1: Different attendance regimes

The leading percentages, as far as eLearning tools are concerned, go for Moodle and Colibri, followed by Facebook, WizIQ and Wikis, which leads us to conclude that the changes implemented in the last two academic years have, indeed, proven to be more efficient within the learning process and more appreciated by the student population. These results are evidenced in Figure 2.

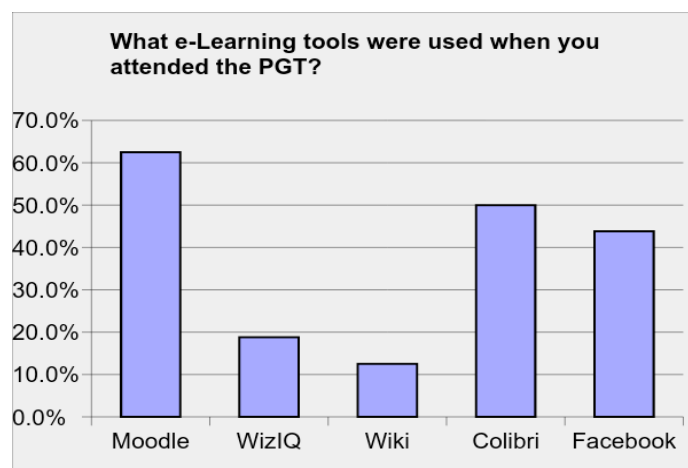


Figure 2: eLearning tools

A significant part of our student population, 93.3 %, stressed the importance of pedagogical relationships which have been established with both peers and professors. This backs up the fact that the introduction of more complex eLearning environments has contributed to the strengthening of human relations and communication within the learning process. We must nevertheless point out that the low number of students attending the program each year does foster a close relation among participants and between participants and lecturers.

As made evident in Figure 3, almost two-thirds (73.3%) of the students who have answered our survey have considered that these teaching methodologies were very important and a significant 66.7% of participants have pointed out eLearning tools as very important, also.

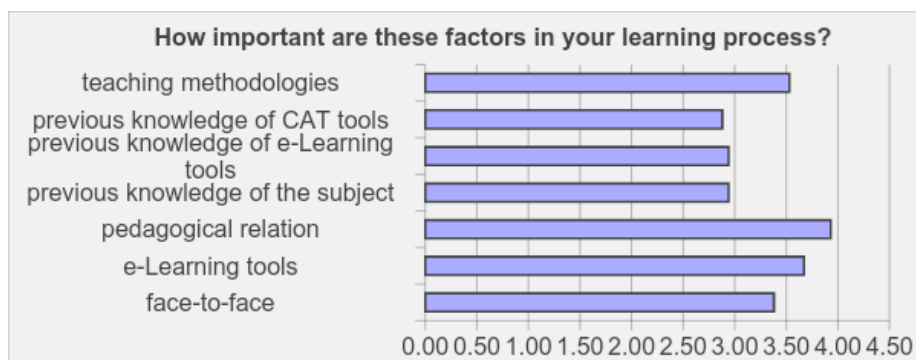


Figure 3: Learning factors

As far as CAT tools are concerned, students have pointed out Trados, Wordfast Anywhere and Wordfast Classic as the leading tools newly learned (Figure 4). As you may see in Figure 5, Trados and Wordfast have also been referred as the CAT tools most used currently by those students who are professionally engaged in translation (40% of the participants).

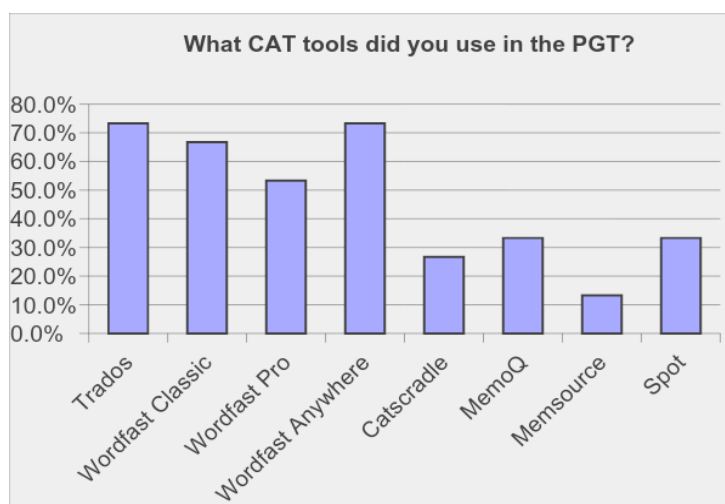


Figure 4: CAT tools used in the Program

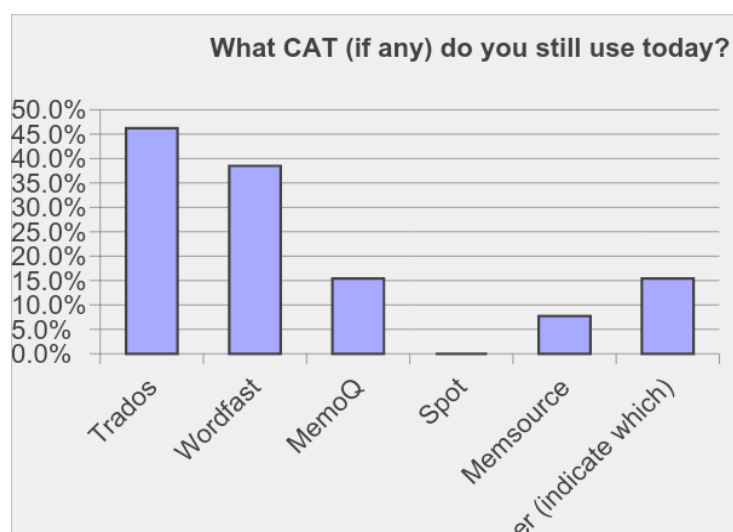


Figure 5: CAT tools used in professional life

It is also important to point out that the highest number of participants in our survey has answered that the Post-graduation Program in Translation Studies has either been determinant in their professional careers (10 out of 16 answers) and/or very helpful in establishing a professional network (13 out of 16 answers).

As evidenced in Figure 5, the learning of CAT tools during the program is deemed transferrable to professional practice – one of the stages of training assessment referred to by Kirkpatrick in 1994, in this case, the impact of training in professional life.

The main conclusions, therefore, to be drawn are that eLearning tools have contributed to strengthening the team spirit between students and students and professors, as well. We can also infer from our study's preliminary results that there has been a balanced appreciation of both f2f and eLearning possibilities by students, which then leads us to conclude that f2f learning environments are not set to fade away, but have rather been enriched by eLearning additional possibilities.

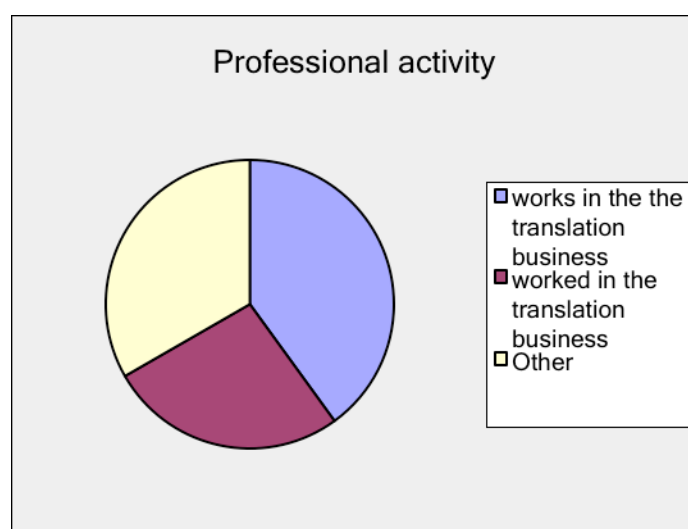


Figure 6: Professional activity

Learning CAT tools through eLearning methodologies has also proven to be a successful venture, as students have shown a positive response to this interchange between the roles of subject and object of study subsequently taken by technology.

In terms of the category-based content analysis conducted of the open questions of the survey (Nascimento & Menandro, 2006), the following categories were identified: (e-)Learning tools; learning regime and learning CAT tools; and Post-Graduation and professional practice.

In regards to the first category - (e-)Learning tools – two aspects are deemed relevant by the respondents: the fact that these tools allow to store information (Moodle) and to record classes, and that the recording is later made available (WizIQ and Colibri). We may consider that students/respondents value “frozen information” – information that is kept as is and made available for study and download. An example of this is the answers given by Respondent 5, “Moodle para partilha de informação, WizIQ para os vídeos e o Facebook para agendamentos” (“Moodle to share information, WizIQ for the videos and Facebook for scheduling (classes, meetings, for example)”) and by

Respondent 4 “Considero o Colibri importante porque é uma possibilidade de ter acesso à aula mesmo para quem não tenha podido assistir” (I consider Colibri because it allows us to access the class even if we were not able to attend the class”).

Respondent 5 mentions another tool – Facebook – which students consider important and some criticism is made to Colibri in technical terms – Respondent 8 states that “Colibri e Moodle embora embora o funcionamento do Colibri não tenha sido dos melhores (demasiado tempo para carregar, extremamente complicado manter uma ligação em direto, interrupções, etc.)” (“Colibri and Moodle though Colibri did not work very well (took too long to start, it was difficult to keep the connection, there were interruptions, etc.).

In the second category - learning regime and learning CAT tools – the core idea of most statements is the link between f2f learning–practical approach-pedagogical relations. Most statements by respondents state that this link is highly relevant: Respondent 6, for example, says that the relationship with students and lecturers was crucial to the learning process and that, more importantly than acquiring knowledge, she found mentors (“A relação com os Professores e colegas foi fundamental para o progresso e aprendizagem. Mais do que conteúdos, ganhei mentores”) and Respondent 8 stated that f2f classes are much better than online ones and that she never again used some of the CAT tools she had learned during the program (“Acho que aulas presenciais são sempre melhores. Via videoconferência é sempre mais difícil, pelo que houve algumas ferramentas que nem lhes toquei mais após a pós-graduação”). There was also mention of the importance of recorded classes for reviewing (“Facilidade em explicar a utilização da ferramenta e possibilidade de rever a gravação da aula ajudaram na aprendizagem” – Respondent 5) and to the advantage of attending classes online – the lack of noise allows for more quickly doing the exercises and this respondent (Respondent 16) affirmed having had no difficulty asking questions if any doubt arose even if he or she was not in class (“À distância tive mais tranquilidade para fazer os exercícios durante as aulas. Não tive nenhum problema em colocar dúvidas mesmo não estando presencialmente”).

Finally, in the third category - Post-Graduation and professional practice – among those who are translators today (not all respondents are), the most relevant seems to be that the Post-Graduation in Program allowed them to acquire technical knowledge, to further their professional and personal knowledge and to widen their networking. Respondent 10 said the program was the basis for his/her professional development (“Praticamente para mim significou tudo, foi a base do meu desenvolvimento profissional.”), Respondent 4 emphasized the personal connections and the role of Facebook in keeping in touch with former classmates and as a tool for advertising job offers (“Aprendi bastante com a pós-graduação e aprofundei também outros conhecimentos. No que respeita às relações estabelecidas, parece-me que o Facebook é uma ferramenta fantástica para manter os contactos e partilhar ofertas de emprego.”) and Respondent 7 summarized by saying the program was important both for acquiring technical knowledge and for personal development (“Na altura foi muito importante, tanto para o conhecimento pessoal como para o aperfeiçoamento técnico.”)

## Conclusions

This study aimed to assess the influence of VLE and other eLearning resources on students' knowledge acquisition and on their learning of CAT tools.

Based on the results of the study and our analysis of both open and closed questions, we may conclude that students considered f2f learning, the relationship established with teachers and students and the practical approach of the program the most influential elements in their learning process. Additionally, eLearning tools and participating methodologies also contributed to their successful learning.

Among the eLearning tools used, students emphasized the role of Moodle and Colibri, since Moodle allowed them to store and retrieve information and Colibri allowed the recording and viewing of sessions with no time restrictions.

In terms of the CAT tools taught, Trados and Wordfast are those most frequently used by former students who are nowadays still professionally engaged in translation, as well as the tools which have been transversal to different editions. Even though most students opted for attending the seminar on CAT tools f2f, there are no statements by those attending it online and experiencing difficulties. We can, thus, conclude that learning CAT tools using eLearning tools may be more challenging but it is nevertheless achievable.

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PACTE <http://grupsderecerca.uab.cat/pacte/en>

WizIQ <https://www.wiziq.com/>

Wordfast <http://www.wordfast.com/>

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***Negotiation Strategies to Support Misbehaving Children:  
The “Deal” Strategy***

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**Abstract**

**Purpose:** To negotiate behavioural changes with children, while developing an attitude of personal accountability for progressing the kindergarten program.

**Method:** The child is asked about their favourite fruit, the name of which is then used as a code for a deal on a behavioural change. The child becomes excited to share what their favourite fruit is, e.g. banana. When this child misbehaves, a negotiation process commences that entails asking them to demonstrate an improved behaviour. The agreement will then be known as the “Deal Banana”. Henceforth, calling out “Deal Banana” prompts the child to modify the behaviour specified in the “Deal Banana” agreement. Each deal is linked to a specific behavioural change by a specific child, e.g. “Deal watermelon” equals “child X not to throw rocks at others”.

**Results:** Children were excited about the strategy and started negotiating their own deals with peers. Furthermore, they held each other accountable for their actions and behaviours, by reminding each other of the deals they negotiated.

**Conclusion:** This “deal” strategy proved to be successful in managing children’s behaviours, while involving them in a negotiating process. Children felt they were given the choice to decide, and they indeed would decide to honour their deal and adhere to the negotiated behavioural plan. Furthermore, the strategy fostered a sense of collaboration and teamwork among the children, as they became more autonomous in collectively honouring the deals they negotiated, thus facilitating their daily routine and curricular activities.

**Keywords:** Negotiation strategy; misbehaviour; deal; behaviour modification; collaboration; teamwork; accountability; daily routine

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## Negotiation strategies to support misbehaving children: The “Deal” strategy

### Purpose

The purpose of this strategy was to support and develop children’s behaviour and negotiation skills. The main purpose is to reinforce the child’s right of choice, and to negotiate a behavioural action plan, while fostering a sense of ownership by the child. Another purpose of the strategy was to encourage children to progress the daily routine of the centre and to follow the educational program planned for them, through developing an attitude of doing the right thing while feeling this is their own choice.

### Method

The strategy begins by asking the child to divulge what his favourite fruit is, and to use this fruit name as a code for a deal to do the right thing. The child becomes excited to share what his favourite fruit is, e.g. banana, and thus a deal with this particular child for a specific behaviour becomes known as the “Deal Banana”. When this child misbehaves, s/he is called and a negotiation process commences, that entails asking them to right the wrong they have done or demonstrate an improved behaviour. The agreement will be sealed by our “Deal Banana”, which he chose. Just like at an auction when the auctioneer calls out “sold” to conclude the sale, we call out “Deal Banana” to seal our agreement for certain behavioural changes. Henceforth, the “Deal Banana” becomes a prompt to remind the child to modify the behaviour specified in the “Deal Banana” agreement.

Similar “deals” were negotiated with other children. Two more children were engaged in similar deals, and this led to engaging a larger group of 20 children. Each child picked their favourite fruit to be the code used for negotiating a deal of behavioural modification. The deal is linked to a specific behavioural change, e.g. not throwing rocks at other children, for a specific child. Other examples of behavioural changes included: not deliberately breaking another child’s work, using words such as “please”/“thank you”, and not hitting other children.

Child	Deal Name	Behavioural Change
K	Kiwifruit	No throwing rocks
J	Apple	No hurting
H	Strawberries	No kicking
F	Orange	No crying but using words instead
A	Pear	No hurting
A	Alsa	No shouting
A	Plants	No hurting of plants
E	Strawberries	No snatching of anything
A	Pineapple	No running in indoor area
B	Grapes	No throwing cardboard
D	Coconut	No hitting peers with toys
M	Raspberries	No breaking of peers’ work
L	Peach	No breaking of peers’ work
J	JM	No throwing sand on anyone’s hair
P	Nectarine	No spitting
A	Mandarin	Listen to mum, dad and teachers

## Results

This strategy was extremely successful, beyond what I anticipated. It was observed that children had a sharp memory of each of their peer's "Deals". Many (how many?) children were very excited about the strategy and started negotiating their own deals with peers. Thus, the strategy went beyond the educator's reach, and negotiations were observed everywhere among the children themselves. Furthermore, it was observed that children held each other accountable for their actions and behaviours by reminding them of the deal they negotiated. The first deal was negotiated by the author in April 2015, and by the end of 2016, deals were still being negotiated among children and behaviours modified accordingly.

An example of a successful deal involved a child who never wanted to eat at the childcare centre. This was serious, and went on for a couple of years since he commenced attending the centre. A negotiation process commenced with him where the author finally reached with the child "Deal nectarine", which translated into "listening to parents & teachers when it is meal time". Because the "deal" was his choice, he held himself accountable and started to eat at the centre slowly, until his eating habits became commendable, and comparable to other children at the centre. The deal made him proud of himself, and believed that the other party to the deal, i.e. the author, was one of his best friends, probably attributable to the experience of having some power in deciding on a deal and for friendly negotiations.

Another example involved a new kinder child who was always unsettled when his parents dropped her off in the morning. Using this strategy with her led to negotiating "Deal Apple", which meant "No crying in the morning and to have a happy face". The strategy worked well; when "Deal Apple" was called to her, she would smile and say her good byes to her mum in the morning. The parents confirmed the success of the strategy and emailed to thank the author.

## Discussion

This "deal" strategy proved to be a practical and successful method to manage children's behaviours, while involving them in a negotiating process they feel is their own. Calling upon the "deal" and reminding the child of it was effective, as the child felt they were given the choice to make a decision, and they indeed would decide to honour their deal and adhere to the behavioural plan negotiated.

A pedagogical aspect of this strategy involved children negotiating deals with each other, and becoming aware of the deals negotiated by their peers. This leads children to encourage each other, in a friendly and often funny manner, to honour their deals and to follow the rules and the educational program. This instils in them a sense of ownership of the curriculum, as they contribute their ideas and make decisions, involving deals that negotiate behavioural changes and effective implementation of curricular activities.

The "Deal" strategy seems to boost children's self-esteem and build their friendship with others, by sharing stories about their deals and their favourite fruits. Moreover, the strategy fosters a sense of collaboration and teamwork among the children, as they become more autonomous in collectively honouring the deals they negotiate, thus

facilitating the daily routine and learning experiences planned for them. As the strategy advances, children end up proposing their own behavioural plans, so they can strike the relevant deals and make them part of their daily experience.

This strategy could be a modified example of Pavlov's classical conditioning. The link becomes strong between the "deal" code, e.g. "Deal Apple" and the specific behaviour agreed on, e.g. "not crying when mummy leaves". However, the learning process here involves some cognitive component and social negotiation where the child is given some power and the ability to choose. First, they choose their code, then choose to enter the behavioural modification agreement, and then decide to honour that agreement when prompted by the deal call out. The process involves an elaborate set up, where several points of exit are available to the child to end the agreement. Yet, it has been observed that most children decide to honour the "deal" and continue to demonstrate the modified behaviour agreed on. They quickly develop a sense of ownership of the decision, and become accountable for the deal they formed.

The social context in which "deals" are formed may have contributed to the success of the strategy. This is because children start to become aware of each other's deals, share stories about how they negotiated their behavioural changes, and their favourite fruits. They then start encouraging each other to adhere to their behavioural changes, mostly in a funny manner. They seem to have fun holding each other accountable by calling out the deals they formed.

The Deal Strategy seems to acquire inherent strength by the mere empowerment that is granted to children. They develop that sense of ownership making them the focus of the strategy and indeed the entire process. A previous study by Boules (2016) demonstrated that discussing the historical background of a child's name, in the presence of their peers during group time at kindergarten, improved self-esteem and contributed to more social interactions among children. Similarly, the focus of the Deal Strategy is the individual child, and again the same trend was apparent. Social interactions were generated, and each child developed a strong sense of self-esteem and their ability to drive their own behaviours in an interesting and amusing way. Children's participation became embedded in the process rather than be presented as a one-off opportunity (Sinclair, 2004). Behaviour modifications were negotiated and deals reached once, but children had ongoing control over implementing them.

On the other hand, engaging each child in planning their own behaviour modification plan aligns with Article 12 of the Convention on the Rights of the Child. In each Deal that was formed, the child had an effective and meaningful role in making the decision. Moreover, because of the multiple exit points available to the child, they had continued choice to quit the deal and not to honour it. This is an essential aspect of voluntary participation (Lansdown, 2001), which respects the child's right of participation throughout the entire process. However, having been given the responsibility of honouring a deal children themselves established and progressed, this study shows that they were more likely to honour their deals and to follow through with their behaviour modification plan.

The Melbourne Declaration on Educational Goals for Young Australians (MCEETYA, 2008), which gave rise to the current Australian Curriculum stipulated that children should be educated to become active participants in society, being

confident learners and responsible citizens. Even though this Declaration aims mainly at school children, pre-schoolers can develop deep-rooted principles that support the stated goals of the Declaration. Their ability to negotiate outcomes, be accountable for their behaviours and forming collective responsibility for holding each other accountable is a significant step in becoming the citizens described by that Declaration.

In summary, the Deal Strategy described in the current study is an effective method of engaging children to modify their behaviour. It fosters a sense of ownership in the decision-making process, and promotes accountability in children. The social aspect seems to be an integral component of the success of the strategy, as children learn to collectively be accountable for the behavioural plans that have been devised for them as a group, and encourage the individual to assume responsibility in fulfilling their part of the deal. Children learn to negotiate and to reach mutual understanding with their educators and with other children. This further enhances their social skills and dispute resolution abilities that facilitate their participation in many other aspects of their learning and development.

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***Achieving Sustainability Learning through a Cloud-Based Online Learning Platform***

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The European Conference on Education 2017  
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**Abstract**

It is undeniable that the utmost goal of education is to enlighten one's critical thinking and allow one to appropriately utilize knowledge while being able to pass knowledge to the next generation effectively. However, learning atmosphere is always discouraged with piles of learning materials and lack of hands-on experiences. With only the completion of verbal lectures, including some brief concepts, it cannot help students thoroughly understand the capabilities of some sound systems, like Enterprise Resource Planning (ERP) system, in practical corporate operations. Apart from knowledge management, acquisition of more hands-on experience is absolutely another essential topic which helps students in developing a self-competitive advantage. Therefore, a sophisticated Cloud-based Online Learning Platform (COLP) with role playing model is proposed. This proposed platform is to be jointly carried out by departments across faculties so as to take advantages of interdisciplinary subjects and programs, as well as to support the learning process of interdisciplinary programs. Students can equip themselves well for the real business environment by hands-on simulation practices, as well as experience the importance of a seamless information system, while teachers can collect and evaluate performances and learning behaviours of students for continuous improvement in learning and teaching. It is expected to create an increased value learning experience by an interesting, role-playing approach, but at the same time, reduce cost concerns and disturbance risks, in terms of demanding specifications of the server and computers, in holding a medium sized laboratory session.

Keywords: Online Learning Platform, Cloud Computing, Virtual Lectures

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## 1. Introduction

In this fast moving society, education industry has been putting an increasing effort to focus on improvement in learning experience rather than only the teaching quality, by which can only be achieved if teachers understand students' learning behaviours and difficulties, so that proper subjects' syllabuses and materials can be formulated. However, it will not be an easy task for teachers to figure out the exact learning difficulties among students and correct their misunderstanding when they have a lack of hands-on experience and actual vision what they learned. This kind of ineffective communication between teachers and students may result in discouraging the learning atmosphere in the class, and underestimate the power of some outstanding systems, like Enterprise Resource Planning (ERP), Material requirements planning (MRP), and Customer Relationship Management (CRM). On the other hand, as a result of the interdisciplinary intention, more and more students from different disciplines in business and engineering are attending particular subjects together. However, the differences in ability, background, and thinking could be a barrier between them and bring a negative effect to the overall learning process. Engineering students with superior technical knowledge are more practical and specialized in development while business students work well in planning and organizing issues using their business management knowledge. Thus, in order to initiate participation and integration, a cloud-based online learning platform is proposed to assist students to prepare themselves well for the real business environment, and facilitate intercommunication, knowledge sharing, and reflection on the learning outcome.

## 2. Literature Review

A massive development in E-learning has been discovered in recent years, not only in the industry but also in academia (Aparicio & Bacao, 2013). E-learning is a concept that emerged with the use of networked information and communications technology (ICT) to deliver digital content in a learner-oriented environment (Maskare & Sulke, 2014). There are various terms used to identify modes of teaching and learning, such as blended learning (Bensch & Rager, 2012), online learning (Madan, Pant, Kumar & Arora, 2012), virtual learning (Chen, 2016) and so on. Nowadays, the above-mentioned modes have already become an essential component in the education industry, which enables a flexible learning venue, many teaching modules and content deliverables (Dykman & Davis, 2008; Bosamia & Patel, 2016). It is undeniable the evolution of learning environments provides us many advantages, yet there are still difficulties for its implementation (Masud & Huang, 2012). It was common to find out more than one online learning platforms were using in a single department or faculty, even though some major functions overlapped (Frankfurth & Schellhase, 2006; Balina, Baumgarte & Salna, 2017). Some researchers, such as Woelk (2002), revealed that this phenomenon was contrary to the economic and technological standpoints. On the other hand, some researchers defended that many of the educational institutions may not have sufficient resources for developing and managing an isolated learning system. In order to prevent a high investment cost of tailor making a one-stop E-learning solution, they concern about what the commercial platform could be provided, rather than the proportion of duplicated functions. With the help of growing popularity of cloud computing technology, the

infrastructure of E-learning has been evolved into the next generation, which is even more flexible, cost saving and demand driven platform (Don, Zheng, Yang, Li & Qiao, 2009; Bensch & Rager, 2012).

## **2.1 Cloud-based Online Learning Platforms**

Cloud computing technology can be identified as a delivery model of computing resources, which provides a pool of highly scalable services over the Internet (Maskare & Sulke, 2014). It enables real time development, deployment and consumption of a broad range of products, services, and solutions. There are several modules can be configured based on user requirements, and then delivered by variable distribution channels.

It has been proven that using cloud computing for education has brought many advantages over the traditional way. For example, low initial investment cost (i.e. hardware, software, and experts), and high scalability, mobility, and accessibility (Madan et al., 2012). Cloud-based platforms make centralized potentials of the software installation, storage requirement share, and maintenance. Thus, licensing costs are expected to be decreased (Chandran & Kempegowda, 2010). A data centre can be used to serve the whole institution by providing infrastructure and storage as a service. Users can use any devices connected to the Internet, including Personal Computer (PC), smart phones, tablets, and so on. As technology brings convenience to our life, Blackboard (Beran, Mach, Schikuta & Vigne, 2011) and Moodle (Morgado & Schmidt, 2012), as the leading companies in the online education software industry, have also expanded to the cloud-oriented market (Pocatilu, 2010). However, the learning platform for students is still not totally integrated with the academic assessment and management, especially for those duplicated subject contents. Hence, there is a need of a comprehensive enterprise system that enables sound information system integration, management, and supervision. In this paper, a sophisticated Cloud-based Online Learning Platform (COLP) will be introduced which can scale the online learning system both horizontally and vertically.

## **3. Design of Proposed Cloud-based Online Learning Platform**

To develop a Cloud-based Online Learning Platform (COLP), there are several steps needed, namely system definition, learning platform development, teaching materials preparation, platform testing, trial deployment, and system evaluation. This paper is using Enterprise Resource Planning (ERP) for study, because this system, being employed in most enterprises and along their supply chains, is a comprehensive enterprise system that enables sound information system integration, management, and supervision. Other than monitoring information, resources and capital flows, this system also allows better planning process in many operations, such as procurement, production, storage, etc. Students in different disciplines involve as different parties. It is a system that can show the greatest contribution of what online learning platform can bring.

Figure 1 highlights the main issues on the systems' characteristics have to consider, namely the application scope, system's flexibility, complexity and strategic importance, users' involvement, consultant employment, technological infrastructure, vendor

relationship and organizational process. The comprehensive designs of the system modules enable practical experiences for students and personalized teaching.

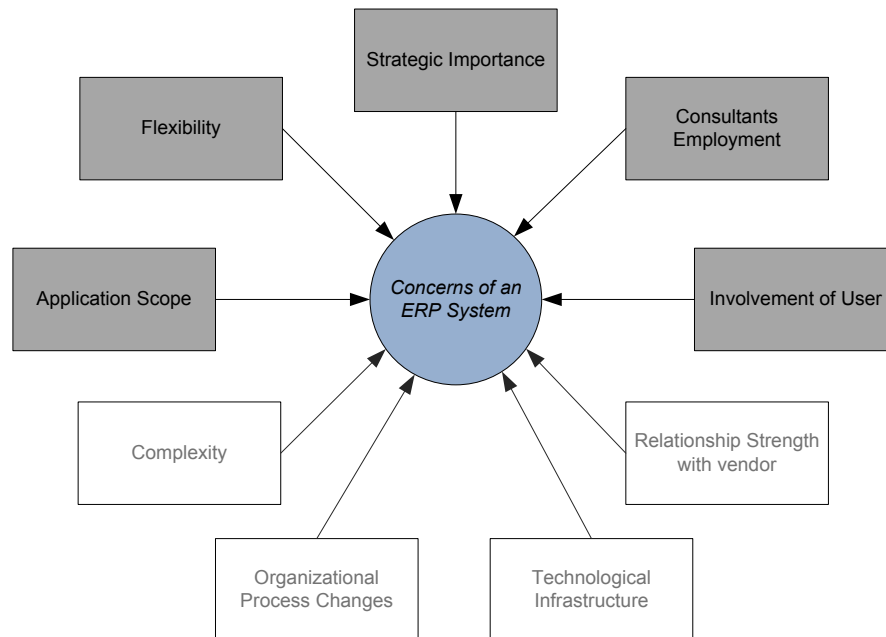


Figure 1: Main characteristics issues of setting up a virtual ERP system

After defining the system characteristics, the development of learning platform needs to match with the academic syllabus, which to ensure what they could experience are what they learnt. Currently, the traditional teaching approach is to introduce the operations to students in black and white. Apparently, students will get bored and confused in piles of worksheets because they do not think the learning experience is valuable, so the effectiveness of learning is diminished. This is what will happen if students cannot actually experience the systems in a real business situation. To solve this problem, some learning tasks in interesting, yet practical competition is put inside in order to draw students' interest and attention on how the functions and capability of the system can help in various industries. Moreover, students may not be able to experience the documentation, information flow and cooperation in the system. In view of this, it is proposed to let students act as different parties along the supply chain as a practical group project and carry out daily operations intra- and inter-corporation wise via the simulation environment.

As shown in Figure 2, the proposed Cloud-based Online Learning Platform (COLP) for ERP system enjoys the benefits of cloud technology with high-performance computing and centralized data storage. The entire ERP simulation system located at the cloud centre is constructed to perform numerous management tasks, such as procurement, production planning, inventory control, sales, etc., in order to cope with the simulated market demand so that students have to provide strategies to become more adaptable to market changes. For the back end server, the scattered computation equipment is gathered and aggregated into a more powerful processor to handle various tasks while the students' commands distribute over the whole day instead of being limited to laboratory sessions.

This cloud approach not only strengthens the processing and computation power but also lowers the access barrier by using a browser or desktops or mobile devices, even students use the platform at home. Students with different roles can communicate with other parties through a user-friendly front end interface. When a student receives a task notification, he or she can log in to the ERP simulation system using the given identity, role and account details which are assigned beforehand and perform their duties using the mobile device application.

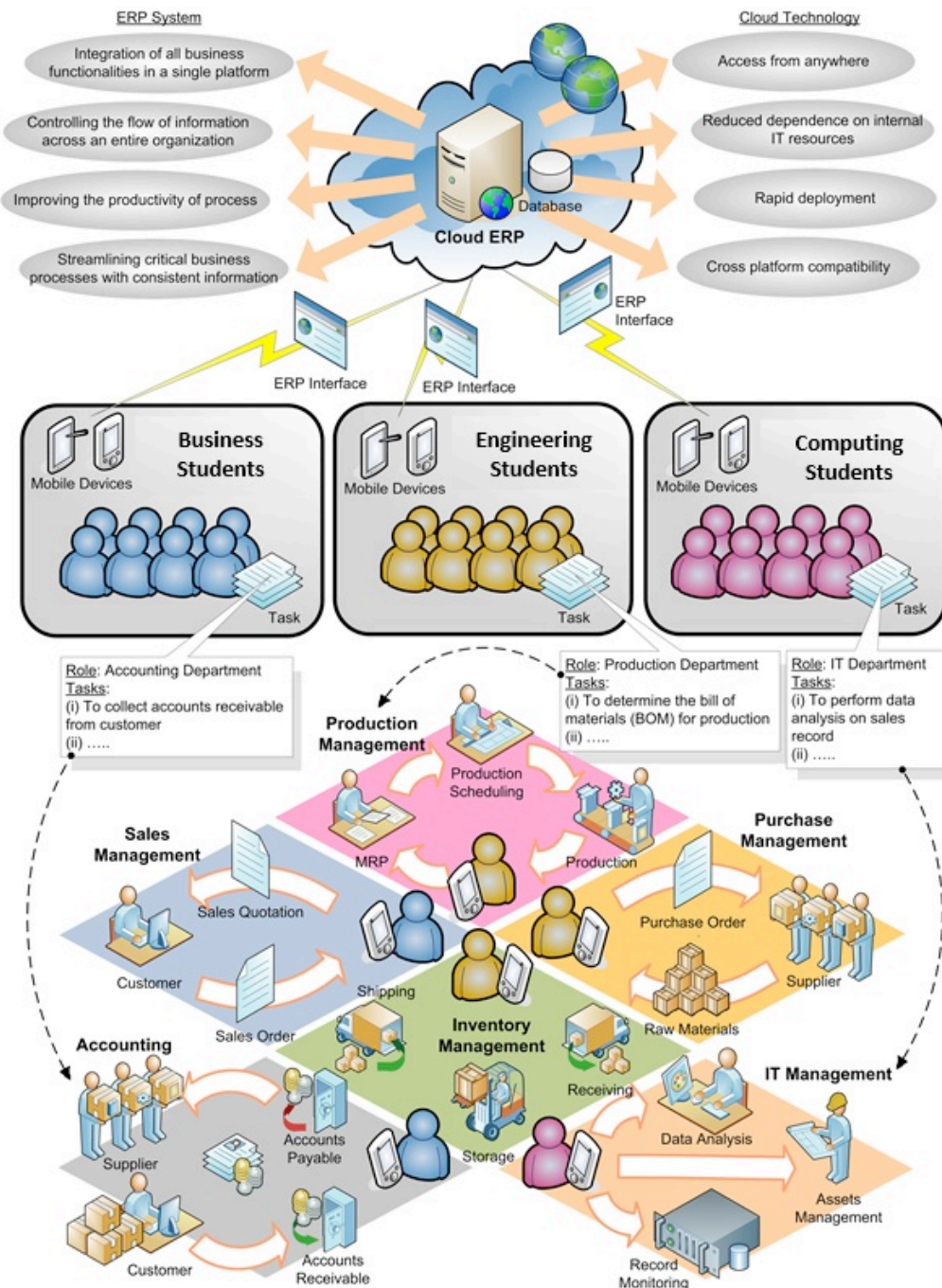


Figure 2: Framework of the Cloud-based Online Learning Platform for ERP system

The learning platform will occupy two or three laboratory sessions by giving students an introduction to this platform and some hands-on experience about the ERP simulation system. Before these laboratory sessions, taught lectures are still the core channel delivering the basic concepts and general knowledge to students. In general, the laboratory sessions can be divided into two parts, self-learning and case-based demos will be conducted in the first half while the second half is review and discussion.

Once students get the idea of this learning platform after self-learning, they are then assigned with roles and corresponding tasks for the real run in a period of time, say, a week, outside the laboratory. According to the given information, they have to analyse and perform their duties by transmitting the right information at the right time via the platform. When there is uncertainty or difficulty, they can search for useful information in the learning platform application or the guidebook. After a period of time, the roles of the students will be changed and rotated among the modules under the ERP system. So, they can familiarize the system well in the view of different roles.

Finally, this innovative teaching method not only provides students with an invaluable hands-on experience but also gives the teacher a better performance measurement in their work and also the course itself.

### **3.1 Role playing model**

Cloud computation is the major trends of future business operations, students can take this advantage to experience the operations of the simulated cloud-based ERP system. It is believed that exposure to these state-of-the-art technologies, such as cloud technology, internet of service and online learning platform, equips our students well for better business environment adaption in their near future. Students will be given a valuable chance to develop their own insights no matter in the system structure or the supply chain workflow by earning real operational and practical experience other than pure theoretical knowledge. On the other hand, their professional competences can be strengthened to handle daily operations, business coordination, system implementation and even information system establishment in a working environment through this hands-on experience. This new problem-based learning approach shall nurture students to become life-long learners and benefit even after graduation. It is believed that this platform can enhance knowledge and experience acquisition for students, especially for those studying subjects related to business flows and information systems.

### **3.2 Interdisciplinary platform**

This online learning platform development project is to be jointly carried out by departments across faculties so as to take advantages of interdisciplinary subjects and programs as well as to support the learning process of interdisciplinary programmes (Balina, Baumgarte & Salna, 2017). With the involvement of students in different disciplines, participants are expected to integrate knowledge learnt, communicate and share thoughts from different backgrounds, in order to contribute to in-depth group discussions when facing difficulties. What is more, the learning platform promotes

students to work as a team to experience the capability of a powerful information system and the importance of seamless coordination in the current business environment. After completion of this proposed online learning module, it is believed that students will be able to develop their professional capabilities, sharpen their senses and mind sets and get ready to make contributions in the current competitive environment.

### **3.3 Online communication and assessment**

In the view of teaching, this approach does not restrict this laboratory to be held within the scheduled session only but enables the experiment to last longer and continue even when students are not in the same field. In addition, with the help of tailor-made analytical tools, the performance of both individuals and groups, say, department, corporation, or supply chain, can be reviewed so that appropriate feedback and advice can be given to students for improvement. On the website, a list of frequently-asked questions will be uploaded for students to self-learn and tackle their problems found in the learning process. At the same time, an online Q&A session will also be produced to cope with students' questions and consultation needs. Subject lecturers and supporting teaching assistants will be responsible for answering any question which is beyond the Q&A section.

To evaluate students' ability under this new approach, apart from lecture performance, teachers can easily make reference to the transactional record and some other corresponding results from the system as well. Students' learning effectiveness can help reflect teaching performance while the students' thought behaviour demonstrated can greatly help teachers understand their strengths, weaknesses, and learning difficulties. It offers a crucial way for teachers to recognize each individual's strength and weakness in learning, and promote students' feedback and involvement so to help achieve continuous improvement. Interactive communication and positive complementary effects are encouraged in various issues, such as studying, thinking, and development, between student and teachers with different backgrounds over this platform. Continuous improvement in both the teaching and learning experience could then be achieved.

### **3.4 Virtual Lectures**

The animation is a core media in the taught lectures, which will also be applied instead of case sharing and the case study presented in "black-and-white". Virtual lectures with animations will be well produced in the project as shown in Figure 3. A teaching staff can deliver a virtual lecture by providing a single photo and teaching materials. A vividly "animated lecturer" will be created by using Auto Motion engine and Facial Animation Software (Kasperuniene, Jariwala, Vaskevicius & Satkauskas, 2016). The "animated lecturer" can deliver a lecture, namely a virtual lecture, with smooth lip-syncing results and facial expression created for meeting the needs in talking and speech. Hence, students can attend the virtual lectures with the highest time flexibility. Also, the virtual lectures can be updated anytime which is far much more time-saving than traditional education clips production or recording. More importantly, in terms of continuous improvement, students' involvement and feedback are the first-hand and real input for

performance measurement and evaluation. The valuable information benefits not only a specific subject but also the related ones from this interactive approach. The gained experience and peer sharing could further light up the improvement direction in both teaching preparation and lecture delivery.

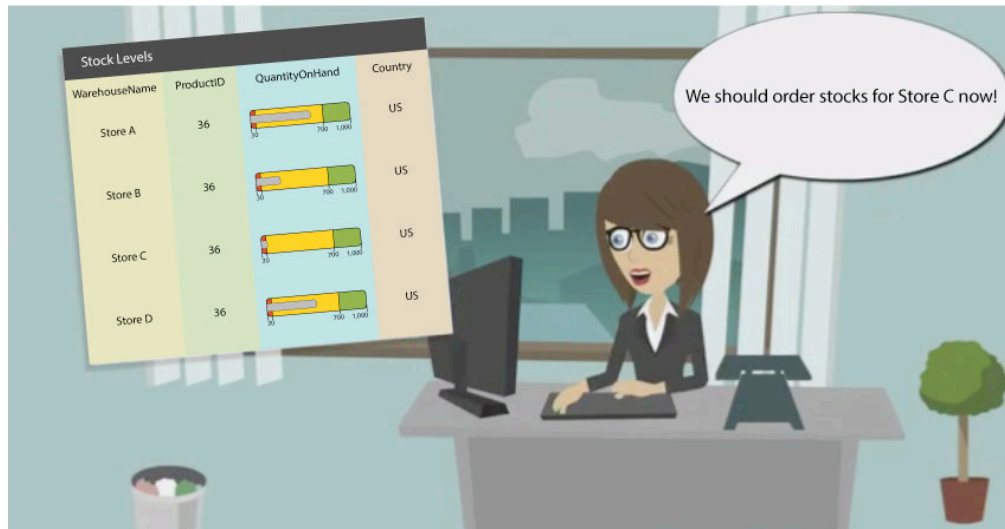


Figure 3: Example of Animation for a Case/Scenario illustration

To evaluate the quality of the deliverables of this learning platform, an evaluation plan is established which is shown in Figure 6. At first, numbers of measurements have to be defined before a trial run, for example, learning experience and effectiveness, platform suitability, and teaching performance. To facilitate the evaluation process, two trial deployments will be carried out for reviewing how the learning platform performs and users experiences. After the deployment period, we will use questionnaires to collect comments and opinions on the platform and materials, and moreover, the impressions of this innovative learning approach. In general, the feedback and quantitative data including the maximum number of students handed, the operation and loading time, the number of errors occurring, and so on, are turned into improvement requests to the project team and system developer for debugging and refinement. For the last phase, the second trial will be deployed in-class to about 60 students for a completed evaluation of the project's deliverables. The students will be given a predefined time period for performing functions in this ERP simulation system, after that, we will distribute the questionnaires to all of the students through the corresponding function module in the system. Furthermore, the teacher can get the result which is ready for statistical or analytical use. In this section, the questionnaires will focus more on the qualitative data, say the overall learning experience, effectiveness and usefulness, so as to give a general idea of how this teaching approach performs and is an improvement indicator in the comparison with the traditional method. Finally, a review meeting will be held to gather and analyse the information and feedback collected in order to find out the effectiveness and efficiency of this proposal, and as well as the pros and cons.



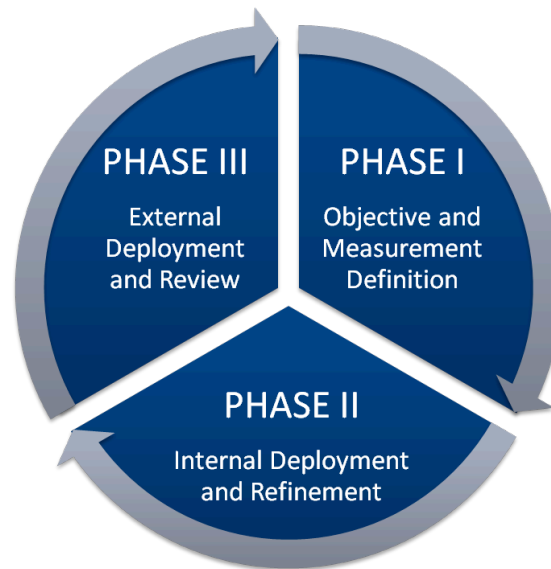


Figure 6: Evaluation plan of developing the Cloud-based Online Learning Platform

## Conclusions

Education is the key to develop a good personality. The more we learn, the more we grow. This research has proposed a Cloud-based Online Learning Platform (COLP) that enables hands-on experiences in real case scenario simulations, knowledge exchange between interdisciplinary students, highly accessible and flexible teaching materials, and also continuous improvement via performances monitoring and learning behaviour evaluation. The developed platform allows flexible access, operate and learn anytime and anywhere via web browsers or mobile applications. Students can experience and apply what the learnt in a cross departmental manner, while teachers can collect and evaluate students' performance and learning behaviour for continuous improvement in learning and teaching. As the fast-growing and sophisticated cloud computing technologies, online learning platform will certainly enter a new generation.



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***Needed Interventions for More Effective Counsellors' Role Performance in the School System in Edo and Delta States of Nigeria***

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**Abstract**

This study investigated teachers' opinions about principals needed interventions for more effective counselling services in schools. The purpose of the study was to ascertain teachers' opinion on what principals should do towards improving counselling services in schools. This study adopted the expo factor descriptive survey research design. The population of this study consisted of all teachers of secondary schools in Edo and Delta States. Purposive sampling procedure was used to select thirty-one schools with professional counsellors. The first five teachers, from each of the selected schools, who volunteered to participate in the study, were used. An instrument with open ended format was used to elicit responses from the subjects. The choice of open-ended format was to provide opportunity for respondents to speak their minds objectively and make meaningful responses without restraint. The instrument was personally administered to the respondents. The completed questionnaires were collected on the spot. The results obtained indicated ineffective planning for counselling activities, inadequate provision of enabling environment and work tools for counsellors and the deployment of school counsellors to perform non-counselling duties as constraints to effective performance of counselling roles in schools studied. The results also indicated that the non-existence of a collaborative working relationship between principals and counsellors and non inclusion of counselling periods in the school time-table are key areas of intervention by the school principal for effective counselling services. Based on the findings, it is concluded that school principals as major actors in the promotion of counselling services in school must rise up to their responsibilities. Principals' support for counseling services in a major ingredient for boosting performance of counsellors in schools. The study recommended a cocktail of principals' needed interventions to promote effective counselling services in schools.

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## Introduction

### Background of the study

The 2014 edition of the National Policy on Education in Nigeria places a premium on the role of school counsellors in actualizing the goal of education in Nigeria in primary and secondary schools in particular. School counsellors usually are statutory service providers in the school system. As stated in the policy, counsellors are expected to assist school children to overcome their educational, vocational and personality problems. In most school situations however, observations by concerned professionals have shown that school counsellors are rather used for rendering other services outside their cognate roles. Some schools make them to teach students in different subject areas where they have competence. This is contrary to their expected roles and a distraction from their core counselling duties in the school system. In order to overcome or correct this situation in Nigerian education, it is inevitable that the school counsellors need the support of other stakeholders in the school such as the principals and the teachers. This assertion is in agreement with the position of some scholars. Aluede and Egbochuku (2007) asserted that school counselling programme cannot be successful without the support of school principals and assistance of the teachers in the school. They stated further that team work between principals, teachers and counsellors is a necessity for the guidance programme to thrive in the school system. Also, Iwuama (2008) remarked that the failure of a school counsellor in the discharge of his or her professional duties, begin when the school principal is ill-disposed towards guidance programmes. Unachukwu and Igbogbor (2008) noted that the efforts of a genuinely active counsellor to organize and administer a guidance programme could be thwarted by the uncooperative attitude of the school principal. The major responsibility of the school principal in the area of guidance is to ensure that the great possibilities of the guidance programmes are realized at all times.

In view of the foregoing, it becomes relevant to find out what needs to be done to solve this problem. It is considered important in this regard that since teachers in the school situation constitute a significant other, their views or opinions about what the school heads or principals should do to help counsellors perform better, is considered vital to correcting the anomaly mentioned earlier in this paper above.

Teachers' opinions properly gathered or collated in an objective manner will be useful or convincing to school principals in changing their disposition towards assisting counsellors to do their work better. This is considered important because the school principal is the head of the school and where he or she stands on issues to a large extent, determines what happens. But if there are areas where principals are not doing well enough as in the case of counsellors, then useful information from other respected stakeholders in the schools such as teachers might help to change positively the situations of counsellors in terms of role performance.

Studies Adeyemo, Daodu & Elegbede (2012), Ogu (2014) and Ojeme,(2011) have shown that most of the time the school counsellors are prepared to do their best but when there are a lot of constraints in the school environment, it is possible that school counsellors become significantly incapacitated in carrying out their functions.

It is the role of scholars who are desirous of helping counsellors to improve their functions to find ways and means of re-engineering the school system through research in order to help it function better, particularly with reference to the role of the school counsellor.

This provides a strong rationale for this study which is focused on finding, in an objective and systematic manner, what principals should actually do to help counsellors improve on their counselling services in the school system.

## **Literature Review**

The review of literature covers the following topics:

- i. The critical roles of the school counsellor in Nigerian schools.
- ii. Constraints affecting school counsellors' roles in Nigerian schools.

### **The Critical Roles of the School Counsellor in Nigerian Schools**

The school counsellor is critically involved in all facets of the guidance activities. The counsellor can be described as professionally trained personnel, who provide services to students based on their needs, understanding of their immediate environment, the influences of the environmental factors on the students and the unique features of their schools. The counsellor in the school system has many vital roles to play, as indicated later in this paper. With the current trends in technology, it has become relevant to widen the scope of counselling in order to meet with the challenges of modern society in Nigerian schools. Ngwakwe (2016) asserted that school counsellors assist students to have an increased understanding of the educational, vocational and social information needed to make wise choices. Fakule (2011) views the school counsellor as one who renders professional assistance to students in order to help them solve their developmental and adjustment problem. Okeke (2003) posited that school counsellors provide technical services through which students' problems in academics, vocational and personal-social areas are tackled to enable students understand themselves and become more useful to selves and society. Egbo (2015), Rasdaq, Abdullahi and Gafar (2015), Okeke (2003), Ipaye (1983), Ngwakwe (2016), Ojeme (2011), Agi (2013) and Alutu (2006), are in agreement with the following as the key roles or functions of the school counsellor: Counselling, planning and development of the guidance programme, collection and dissemination of information, appraisal, educational and occupational planning, referral work and placement. In furtherance appreciation of the roles of school counsellors, CASSON (2013), posited the following:

- i. Educational guidance and counselling. This is the assistance given by the school counsellor to students in order to help them function more effectively in their school progress.
- ii. Vocational guidance and counselling. This is the process of helping students to identify their potentials, aptitudes/abilities and interest and match such with available job opportunities to facilitate their effective adjustment in their chosen career.

- iii. Personal-social guidance and counselling. This is the counselling services given to students in order to assist them overcome their personal social problems and needs.

Others include: orientation of new students, referral services, Liaison and follow-up services, keeping of students' records etc.

From the above highlighted functions of the school counsellor, the roles of the counsellors are varied, sensitive and cumulative in nature. It is conceivable from the foregoing, that the school counsellor is professionally trained to identify the specific needs of each student and to plan an appropriate programme to assist students to overcome their educational, vocational and personal-social problems

### **Constraints of School Counsellors' Roles in Nigerian Schools**

In spite of the values or importance of guidance and counselling services and the progress it has made in recent times, it is not without issues and challenges. Ikeotuonye and Ukwueze (2014) noted that there are issues in the implementation of guidance and counselling programme over the years. They claimed that the implementation of guidance and counselling activities in the school is bedeviled by the lack of administrative support, inadequate office accommodation and working tools. Scholars have opined that the effectiveness of a counsellor in the school system depends largely on principals' support and provision for the school counsellors' work. Nwigwe (2008), also observed that guidance and counselling functions are being hijacked by non-professional in many schools in Nigeria. Ojeme (2011), in a study on Critical Incidents Facilitating school Counsellor-Principal relationship, established that school counsellors were deployed to perform non-counselling duties such as teaching, registration and scheduling of all new students etc. This performance of non-counselling functions distract from the conduct of core counselling roles and could lead to the neglect of counsellings duties as stipulated in the National Policy on Education (1977) and its subsequent editions.

Nwamuo and Ugwuegbulem (2011), in their study on challenges of effective implementation of guidance and counselling Programme, found out that the lack of policy documentation backing up guidance and counselling programme enabled principals to assign teaching role to school counsellors. Bukoye (2012), observed from a study on challenges facing counsellors in schools that many schools do not have professional counsellors and where there are, they are not usually more than one or two counsellors in large schools. This has led to a very high ratio of students to a counsellor. From the foregoing literature review, the constraints of counselling services in schools are summarized as follows:

- i. Lack of administrative support and provision of enabling environment, working materials and tools.
- ii. Deployment of counsellors to perform non-counselling duties.
- iii. Assigning counselling duties to school teachers.
- iv. Non-inclusion of counselling periods in school time table.
- v. Shortage of professional counsellors in schools.
- vi. High ratio of students to a counsellor.

## **Statement of the Problem**

Arising from the foregoing background, the problem of this study is predicated on the need to provide credible information on how school principals can best assist counsellors to do their work from the perspective of the school teachers.

## **Purpose of the Study**

The purpose of this study therefore, is to conduct an empirical survey to find out what teachers opinions or views are on what principals should do to help counsellors to perform their duties better.

## **Research Question**

As a guide to this study, the research question below was raised for the study:  
What are the teachers' opinions about principals needed interventions towards the enhancement of counselling services in Edo and Delta States of Nigerian school system?

## **Methodology**

### **Research Design**

This study adopted the expo-factor descriptive survey research design. The choice of this research design according to Owie (2006) is informed by the fact that it is suitable for collecting data on the teachers' opinions or views on what school principals should do to promote counselling services as they believe without any manipulation of the subjects. The research design explains opinions that are held by teachers and processes that are going on as they exist.

### **Sample and Sampling Technique**

Purposive sampling procedure was used to select thirty-one schools from Edo and Delta States of Nigeria, seventeen schools from Delta State, and fourteen schools from Edo State. Only schools with professional school counsellors were used for the study. It was observed that some schools do not have professional counsellors. The first five teachers to volunteer from each of the thirty-one schools were used for the study. This gave a total of one hundred and fifty-five teachers who participated in the study.

### **Instrumentation**

An unstructured instrument, which consisted of one question put in an open ended format, was designed to elicit responses from the teachers in Edo and Delta States of Nigerian school systems. The open ended format was used for the study in order to provide opportunity for respondents to speak their minds and make meaningful responses without restraint.

The instrument was validated by two experts in the field of guidance and counselling and one expert in measurement and evaluation. Their inputs were applied to prepare



the final draft. A reliability co-efficient of 0.63 was obtained using the test retest method.

### **Technique of Data Collection**

In order to ascertain teachers' opinions or views on what principals should do to help counsellors to perform their duties better, a total of one hundred and fifty-five questionnaire copies were personally administered to the respondents. However, only one hundred and twenty-nine questionnaires that were completely filled were analyzed for the study.

### **Technique of Data Analysis**

To analyze the data on teachers' opinion or views collected, each of the responses were coded for themes. Similar themes were grouped together while duplicated themes were collapsed in order to provide greater focus and clarity of results. The data were analyzed using frequency counts and percentage of responses to determine the needed interventions of school principals towards the enhancement of counselling services.

### **Presentation of Result**

Research Question: What are the teachers' opinions about principals' needed interventions towards the enhancement of counselling services in Edo and Delta States of Nigeria school system?

The data of this research question is presented in Table I below

Table I: Teachers' Responses on Principals' needed interventions in Enhancing Counselling Service.

S/N	Theme	Sub-Theme	n= 129 Frequency
1	Effective planning for counselling activities and programmes	Planning orientation	2(1.55)
		Sending counsellors to attend seminars and workshop	4(3.10)
		Planning career day and excursion	
		Involvement of counsellors in decision making	4(3.10)
		Inclusion of counselling periods in the school time table	2(1.55) 10(7.75)
2	Support and provision of enabling environment for counsellors	To be supportive of counsellors	15(11.63)
		Provision of fund	8(6.20)
		Provision of enabling environment and work tools	52(40.31)
3	Positive relationship with counsellors	Collaborative working relationship with counsellors	11(8.53)
		Creating interactive session between counsellors and students	4(3.10)
4	Deployment of counsellors to professional duties	Professional counsellors to mind counselling duties	8(6.20)
		Deployment of male and female counsellors to large schools	1(0.77)
		Counsellors to spend longer hours in schools	1(0.77)
5	Negative comments	Counsellors should be made to teach	3(2.33)
		No need for counsellors, teachers can perform their roles.	4(3.10)

Figures in parenthesis represent percentage distribution of responses.

An examination of the Table reveals that teachers' responses are grouped into five themes. Theme one consists of five sub-themes n=22 (17.05). Theme two consists of three sub-themes n=75 (58.14). Theme three consist of two sub-themes n=15 (11.63). Theme four consists of three sub-themes n=10 (7.74). Theme five consists of two sub-themes n=7 (5.43). The total n=129(99.99)

### Discussion of Findings

The school principal is a major actor in the promotion of counselling services, as an authority figure. The opinions of the school teachers in this study concerning what the

principals need to do to promote counselling services in Edo and Delta States school system are presented in Table I. 58.14% of teachers indicated that school principals' provision of enabling counselling resources is the most effective way to promote counselling activities in the school system. This suggestion is a pointer that counsellors' needs are possibly not being met satisfactorily. The finding seems to be in consonance with the findings of Ikeotuonye and Ukwueze (2014), Odeniyi (2011), Ojeme (2015) Aluede and Egbochuku (2007) which revealed that counselling materials are partially provided in schools. Also the study of Ohovwore (2015), which revealed that counsellors' needs are not being met satisfactorily in schools, aligns with the findings of this study. Precisely, Ohovwore, in his research, reported that only 56.03% of the principals sampled indicated that they have counselling room for their counsellors to perform their duties creditably. This is to say that there is still much to be done in terms of meeting the needs of counsellors in schools inspite of the recognition of the relevance of guidance and counselling services in the National Policy of Education (1977) and the subsequent editions. Perhaps one of the reasons for the neglect of counsellors' needs could be because many school heads erroneously believed that administrators and teachers could perform counselling duties and that there is no special skills required in performing counselling services. This explains also the reason why teachers are assigned to perform counselling roles as observed by Ojeme (2011) Nwigwe (2008) and Nwamuo and Ngwegbulem (2011). The reason for this could also be because of the lack of policy documentation backing functional guidance and counselling programmes in schools as opined by Nwamuo and Ugwegbulem (2011). The issue of fund also could deter the provision of counselling materials and work tools. Perhaps, fund allocated for guidance and counselling programme by the Ministry of Education may be grossly inadequate. Lack of proper funding could inhibit the rapid growth and spread of counselling activities leading to the failure of the actualization of the aims of education as stipulated in the National Policy on Education.

Also, 17.05% of teachers also suggested effective planning of counselling programmes such as inclusion of counselling period in the school time table, planning career day and excursion as well as sending counsellors to attend seminars and workshops. 11.63% of responding teachers suggested maintenance of positive relationship with school counsellors. While 7.74% of teachers suggested deployment of counsellors to mind professional duties only. However, Ohovwore (2015), found out from his study that teachers acknowledged the relevance of school counsellors in the school system. 71% of teachers' awareness of the relevance of counsellors is reported in the findings of his study. This corroborates the views of Aluede and Egbochuku (2007) who reported that most teachers perceived counsellors as positive contributors to the school instructional programme. They further stated that many teachers strongly acknowledged the caring attitude of counsellors, their accessibility and time spent with the students. These responses are viewed as very useful and indicative of teachers' critical knowledge of the role of school principals in promoting counselling services in schools. School teachers' recognition of the relevance of school counsellors is worthy of note. Teachers are professional colleagues in the school system and their support of the place of counsellors is a vital factor for the latter's success in their professional roles. School teachers are most likely, therefore, to reciprocally collaborate with school counsellors in their work. This should be hardly surprising because as co-professionals who are involved in the education enterprise in the school system, their own need for principal's support may just be

similar to the counsellors' needs. It also means that school counsellors must band with teachers or seek teachers' support in pressuring school principals to meet their needs particularly in those areas in which they share agreement.

## **Conclusions**

The following conclusions were drawn from the findings of the study.

1. The provision of enabling environment and work tools for counsellors' conduct of their cognate roles in the school system in Edo and Delta States of Nigeria, is unsatisfactory as perceived by teachers.
2. School principals are not very supportive of counsellors in the schools studied in Edo and Delta States of Nigeria.
3. There is little or no collaborative working relationship between the school principals and school counsellors.
4. The schools' curriculum do not satisfactorily accommodate counselling sessions in the school time-table.
5. Professional counsellors are deployed to perform non-counselling duties in the schools studied.

## **Recommendations**

Based on the findings, the following recommendations are put forward as effective ways for school principals to promote counselling activities in the school system.

1. Principals should be re-oriented through workshops and seminars on the need for a change of attitude towards the enhancement of counselling services in schools.
2. Principals should endeavour to lend support to school counsellors' quest and desire to properly execute their professional roles in schools, by providing enabling environment and logistics support, such as working materials and tools.
3. There is need for school principals to maintain a cordial and collaborative working relationship with the school counsellors as a basis for counsellors' effectiveness in the school system.
4. Efforts should be made by Government supervisory agencies to enact policies that would dissuade school principals from deploying school counsellors to perform non-counselling duties in the schools as this is a distraction from their cognate roles.
5. The school time-table should be revisited to accommodate regular counselling session in and out of school hours.

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***We are All Related: Course Design for Reconciliation –  
Indigenous Teachings Nehiyaw (Cree) and Critical Thinking***

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The European Conference on Education 2017  
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**Abstract**

The Truth and Reconciliation Commission (TRC) of Canada was established in 2008 and worked for six years to “...reveal to Canadians the complex truth about the history and the ongoing legacy of the church-run residential schools...[and] guide and inspire a process of truth and healing” (TRC, 2012, p. 23). The final report (2015) led to many initiatives to acknowledge both truth and healing. A course was designed by a member of the Faculty of Extension, University of Alberta, Canada, who is a Nehiyaw Iskwew (Cree woman), Indigenous Scholar and Activist, in partnership with an Indigenous Knowledge Keeper. Incorporating traditional teachings, ceremony and song, in addition to writings from the western Academy, the course introduced an Indigenous worldview and understanding of critical thinking from the perspective of Nehiyaw (Cree) teaching and learning. The instructors worked to connect western views of critical thinking to the Nehiyaw (Cree) worldview. This paper will model/explore the creation of this course; the experiences of the course instructors to ‘translate’ and negotiate Nehiyaw (Cree) knowledge to western constructs; the need for a Faculty membership to support such undertakings; and the ways that instructional design can assist in the recovery and rebuilding of an Indigenous knowledgebase, while tying these worldviews to western theory and articulate ancient Indigenous philosophy in a way that the western academy understands through theory.

Key words: Reconciliation, Indigenous teaching, instructional design

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## Introduction

The Indian residential school system was a network of boarding schools for Indigenous peoples, orchestrated and funded by the Canadian government's Department of Indian Affairs and administered by Christian churches. The school system was created for the purpose of removing children from the influence of their own culture, often forcefully, and assimilating them into the dominant Canadian culture. Characterized now as agents of cultural genocide, residential schools were justified by arguments that they “would assist Aboriginal people in making the leap to civilization” (TRC, 2012, p. 4). Survivors of residential schools and their families have been found to suffer from historic trauma that has had a lasting and adverse effect on the transmission of Indigenous culture from one generation to the next. Passed on intergenerationally, historic trauma is the “cumulative stress and grief experienced by Aboriginal communities is translated into a collective experience of cultural disruption and a collective memory of powerlessness and loss” (Reimer, 2010, p. 12). This trauma is implicated in persistent negative social and cultural impacts of colonial rule and residential schools, including the prevalence of sexual abuse, alcoholism, drug addiction, lateral violence, mental illness and suicide among Indigenous peoples (Reimer, 2010).

Consequently, although it is the fastest growing community in Canada, more than half of the Indigenous population hasn't finished high school, and just six per cent have a university degree. The lifespan of Indigenous people living on reserve is many times lower than the average Canadian. Indigenous youth are seven times more likely to be victims of homicide, five times more likely to commit suicide and twice as likely to die an alcohol-related death. One in three teenagers are in custody, the infant mortality rate is double the Canadian average, and Indigenous children are at higher risk of a wide array of serious health problems. Indigenous girls are at greater risk of sexual assault, domestic violence and teenage pregnancies; an Indigenous woman is twice as likely to be sexually assaulted or murdered. Unemployment among these communities is more than twice the Canadian average; a third of the population is on social assistance, rising to more than 80 per cent in some communities (c.f. Barman, Hébert, and McCaskill 1986; Brody 1987; McMillan and Yellowhorn 2004; Pettipas 1994).

Justice Murray Sinclair, Chair of the Truth and Reconciliation Commission (TRC), explains that the system of Residential Schools, established under Canada's first Prime Minister John A. MacDonald to “civilize” (i.e. colonize) the Indian, was no less than a total assault on Indigenous values, beliefs and traditional family structures.

Historically Aboriginal people throughout North America lived in successful and dynamic societies...(that) had their own languages, history, cultures, spirituality, technologies, and values. The security and survival of these societies depended on passing on this cultural legacy from one generation to the next...through a seamless mixture of teachings, ceremonies, and daily activities...traditional Aboriginal teachings described a coherent, interconnected world... There was no rigid separation of daily secular life and spiritual life...Ceremonial feasts could bring people together for a variety of spiritual, cultural, and economic purposes. At such feasts, people could fulfill spiritual

commitments, exchange goods and information, and impart traditional teachings. Elders were the keepers and transmitters of this knowledge... education was woven into everyday activities. In this way, living and learning were integrated. Children learned through storytelling, through example, and by participation in rituals, festivals, and individual coming-of-age ceremonies.... This teaching method was strong enough to assure the survival of identity, history, traditions, and beliefs... Given that the Aboriginal education system was intertwined so tightly with both spiritual belief and daily life, it is not surprising that Aboriginal people were reluctant to give their children over to others to raise. (TRC, 2012, p. 7-11)

Established in 2008 the Truth and Reconciliation Commission of Canada (TRC) was organized by the parties of the Indian Residential Schools Settlement Agreement. The commission was meant to be part of a holistic and comprehensive response to the experiences of Indigenous Peoples attending Indian residential schools; a system implemented in the last half of the 19<sup>th</sup> century. The Commission worked within an indigenous process cross-country to gather stories of survivors, and survivors of survivors, of the Residential School System implemented in the last half of the 19<sup>th</sup> century, and concluded with 94 Calls to Action for “reconciliation”. According to the TRC promoting “reconciliation” requires not only learning about Canada’s colonial past and intergenerational impacts, but also creating spaces and places within the academy that bring equity and value to Indigenous knowledge systems, and expanding appreciation for the role Indigenous knowledge and traditional ways of learning contribute to social and environmental sustainability.

### **Faculty Support for Reconciliation**

In 2016 the Provost’s Office at the University of Alberta invited proposals for funding of activities to address TRC Calls to Action # 62 and #63 and the University’s commitment to decolonizing the curriculum. TRC (2015) Call to Action 62 calls “upon the federal, provincial, and territorial governments, in consultation and collaboration with Survivors, Aboriginal peoples, and educators, to provide the necessary funding to post-secondary institutions to educate teachers on how to integrate Indigenous knowledge and teaching methods into classrooms (ii)”. TRC (2015) Call to Action 63 calls “on Canada to maintain an annual commitment to Aboriginal education issues, including sharing information and best practices on teaching curriculum related to residential schools and Aboriginal history (ii); building student capacity for intercultural understanding, empathy, and mutual respect (iii); and identifying teacher-training needs relating to the above”. One step to reconciliation is learning the history and historical impacts that have negatively impacted all treaty people, Indigenous and non-Indigenous. Further to that, reconciliation demands that we privilege knowledge systems that have been silenced for generations. The Faculty of Extension responded to this call.

### **Instructional Design**

From our experience as instructional designers, we know learners are more successful in environments in which knowledge is organized and made accessible in ways that reflect the worldview of their cultures. Further, evidence is strong that knowledge

domains are structured in different ways and that the “skills and competencies” demanded by our societies cannot be universally applied. Learning styles and preferences vary widely while Western education has privileged verbal learners. However storytelling, ceremony, spirituality, and ritual - learning processes through which identity is formed – these are now acknowledged as essential attributes of programs for Indigenous learners. Ethical program development and/or research with indigenous communities occur in ceremony, and are presented to community Elders and Knowledge Keepers for their input and guidance. The location of the teaching is land based and story-based, and “Indigenous and non-Indigenous learners come together in an environment that promotes healthy, respectful discussions of sensitive issues and contributes to relationship building for future networking and advocacy work” (personal correspondence with Fletcher, June 2015).

Committed to “the collective lift” of reconciliation (Fletcher and others, 2017) the Faculty of Extension submitted a request to the Provost’s Office to fund a 3-year project, *We Are All Related*, proposing to pilot and document several approaches to privileging Indigenous knowledge with the intent of improving relations between Indigenous and non-Indigenous people through public education events, undergraduate and non-credit programming. The *We Are All Related* team has 11 academic staff representing 4 university units/faculties and Yellowhead Tribal College, 2 support staff, and 2 graduate students - 3 of our team are Indigenous. Our collective activities have directly impacted: 68 undergraduate students, 24 Faculty of Extension continuing education students, and hundreds of members of the public (Hibbert, 2017).

Typically, instructional design practice in higher education has reflected a client-consultant relationship in which instructors are paired with instructional designers, each with a specific role in the interaction. The client brings an instructional problem to be resolved and shares content, while the designer provides expert pedagogical advice and support. Usually, the designer’s role is not one of active pedagogue or as learner in the relationship. But decolonizing the curriculum requires challenging the God’s-eye practice of Western design practices, as it encourages both designers, teachers and learners to “understand how unequal power relations are embodied in, and result from, mainstream design practice and products” (Nieusma, 2004, p. 13).

In other words the balance of design agency is shifting from the all-knowing designer who creates things that are good for passively grateful consumers, to a dialogue...in which an emerging design democracy turns the designer into conversationalist, facilitator, mentor, pedagogue (and learner). Designing as an act of reconciliation plays through tensions between historical roles and contemporary expectations, and is appropriate for the relational design of learning activities that teach and reflect reconciliation (Campbell, Janes, Makokis, and Steinhauer, 2017). In this case the Faculty instructional designer was an active learner and the teacher/clients, who were Elders and Knowledge Keepers, became the designers.

## **Introduction of the Workshop**

In July of 2017, a workshop was presented to the European Conference on Education in Brighton, UK to share the curriculum design process initiated by Extension Faculty, to address reconciliation efforts within their offerings. The Conference

participants were welcomed into the workshop room to find the chairs were moved into a circular format; this is a setup that is consistent with many classrooms that embrace and follow Indigenous pedagogical practices aimed at decolonizing the academy. In the University of Alberta's Faculty of Extension's Indigenous Programs', all classes are taught with chairs arranged in a circle, smudge (or sacred medicines) are placed in the centre of the circle which is then followed by the 'smudging'<sup>1</sup> of every student/ person that enters the room. Either a rock or eagle feather is then passed around as students introduce themselves in a grounding talking circle. Indigenous scholars leading in the Indigenous Programs utilise these teaching practices as a way to show the "importance of clearing the mind through prayer, smudging and engaging in ceremony to prepare to receive Traditional Knowledge" as Mitchell (2013, p. 61) explains about the importance of Indigenous ceremonies in places of higher learning.

Once all participants joined the workshop Janice and Diana (the two faculty members) smudged the room and the participants; they followed the opening of the workshop with a Cree song. After they finished singing, all participants were asked to hold a rock while they spoke and introduced themselves by answering the following questions: What is your name? Where are you from? What brought you to the workshop? Participants held the rock and introduced themselves by answering the questions posed by the presenters. There were academic scholars in attendance from Canada, China, New Zealand, South America, United Arab Emirates and the United States.

### **Iyiniw Askamikāw Healing Lands: Indigenous Cosmology**

At the center of the circle of chairs in the workshop room, four baskets had been placed. Each basket contained a medicine gathered from the earth. The medicines represent the human family. In the beginning of time, Creator gave humans free will to exercise responsibility to all that was created - land, water, air, and fire. Humans have physical, emotional, spiritual, and mental capacities and these too are represented in the baskets by four colored cloths. Each medicine is in one of the four cardinal directions to honour and represent the original instructions of Creation as to how 'We are all Related' as a human family.

The medicines were dried, grounded up, and then combined into the smudge that was taken to each workshop participant in a basic cleansing ceremony, at the beginning of the workshop. A cleansing ceremony is conducted in preparation to speak to our Creator. By way of waving the smudge over ourselves, we cleanse our bodies, thoughts, emotions, and spirits and stand as one unified collective. Facing each direction starting in the east, we sang the song of our teacher, Wīśahkecak, in honouring the places participants came from to be part of this conference. The circle of chairs represented the intention or the vision of Creator as related by this very, very old story (abbreviated for this paper) passed down orally in the Cree and Anishnabe languages through the generations.

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<sup>1</sup> McAdam, Sylvia (2014). Video explaining Cree Teachings of "Protocol and Smudging": <https://www.youtube.com/watch?v=00Bb1xGqO20>

Our first teacher walked upon the lands referred to as Great Turtle Island (North and Central America). In so doing, he prepared Creator's creation for the people who were to be made by Creator. Creator pulled together the soils, plants, seeds, and roots to make our bodies. When each female and male representative of the four soils was completed, the pair was bestowed with a gift and a responsibility to learn about in depth to share with the family of humankind. The pairs were placed on different continents for this purpose. The story is told and retold and is the reason that all of the peoples would return and were to be welcomed to Iyiniw Askamikāw, Great Turtle Island, to realize this vision of Creation.

First, Creator took up primarily the yellow soil, to which he also added traces of the red, dark green and white soils to make the bodies of the first two Asian Peoples. This is the eastern part of the circle and the fungus medicine represents these peoples who have the responsibility of the fire and emotion.

To the south sits a basket lined with red and holding the sweetgrass medicine. Creator took up primarily the red soil, to which was added trace amounts of the yellow, dark green, and white soils to create the bodies of the first two Iyiniwak (Indigenous Peoples). The responsibility of the Iyiniw Peoples is to the physical and the water.

To the west sits the basket lined with a dark green cloth holding the cedar medicine. Creator took up primarily the dark green soil, to which was added trace amounts of the yellow, red, and white soils to create bodies of the first two African Peoples. This part of the human family agreed to take responsibility of the land and the spirit aspect of the circle.

To the north sits the basket lined with a white coloured cloth holding the sage medicine. Creator took up primarily the white soil, to which was added trace amounts of the yellow, red, and dark green soils to create the bodies of the first two Caucasian Peoples. The Caucasian Peoples have the responsibility of the air and the mind (thought).

### **Process for Course Development (Critical Thinking)**

The formal process of educating children through the public education system and later, adults through institutions of higher learning (colleges, universities etc.) is central to the development of any society. It is the foundation of how people become socialized to be citizens within the societal group they belong to or the nation state they live in. For Indigenous Peoples however, the process of education has not been a positive experience, especially with the introduction of forced industrial and residential schooling mandated by the Canadian government purposely and intentionally aimed at "killing the Indian in the child" (TRC, 2015a, p. 130; Makokis, 2000). Coleman (2012) in conversation with Indigenous educator and scholar Marie Battiste, affirms the role of forced government education stating:

For Indigenous people around the world, our knowledges have been diminished in the kind of forced education that we've had to be part of, not by a choice of our own, nor by a choice of our parents, and our ancestors, but because of federal policy enacted by government. We were taken away from our indigenous knowledges about how we

should live in a human, humane way with each other and put into a system that was inhumane (p. 144).

How we educate children and adults impact their perspective(s) of the world, who they become and how they interact with the world around them. One of the authors (an Indigenous scholar) was teaching a course alongside an Elder at an Indigenous Tribal College in Edmonton, Alberta, Canada during the summer of 2016 and observed her students to be very withdrawn and quiet during class and wondered why. Even though the course content, the classroom setup and presence of an Elder was a part of the course design and delivery, the students continued to exhibit behaviour that was disconnected from the material. Many of the students in the class were young, of high school age, and the course was their first or second class on content that was infused with Indigenous knowledge perspectives.

After several classes, the instructor began to reflect on her own experience with the public education system (grades 1-12) and realized that during her first few years of university, she also exhibited similar behaviour to her students. Many indigenous students learn about indigenous history, indigenous knowledge and perspective(s) for the first time through an Indigenous lens from Indigenous academics in their university/college studies (Mitchell, 2013). It is not uncommon for Indigenous and non-Indigenous students to feel angry and to withdraw as they hear the Indigenous perspective(s) on history, law, health, and education, etc., for the first time.

In an effort to respond to the class dynamics, the instructor met with the class Elder to discuss ways to address the disconnection they were observing. This reflective process with the class Elder and the Indigenous knowledge keeper she was working with, and learning from, created the idea to develop a course on Indigenous critical thinking. Out of her own learning experience came the idea to pursue the development of a foundational course based in Indigenous critical thinking, specific to nehiyaw (Cree) stories, storytelling and teachings to facilitate the similar educational environment she had undergone.

The development of the Indigenous critical thinking course was done with the guidance of an Indigenous knowledge keeper; several conversations, questions and reflective process(es) took place over a number of months. Through this intensive learning, self-discovery and reflection process the instructor underwent, it became the template for the development of the course; focused on learners becoming immersed in nehiyaw thinking, nehiyaw knowledge/ systems and ways of learning. In the process of her learning, she was being exposed to nehiyaw (Cree) pedagogy through storytelling and how nehiyaw (Cree) children and people learned about different issues, as they grew up.

McLeod (2007) discusses the significance of narrative storytelling in Cree learning processes "Cree narrative memory is a large, intergenerational, collective memory. Cree narratives form part of a larger, collective memory...Part of decolonizing Cree consciousness is for the collective memory to be awakened. Part of the process of recovering this ancient memory held in sound lies in recording the oral history of our elders while we still have them with us" (p. 8-9). The instructor did not have the opportunity to grow up in this way or with these teaching methods. Her grandparents went to residential school, and had passed away before she could learn these ways.

The learning processes were disrupted and not passed on to her parents, through, what is known as “collective memory”.

McLeod (2007) elaborates on this concept stating “Collective memory is the echo of old stories that links grandparents with their grandchildren” (p. 11). The process of the instructor learning from the two nehiyaw (Cree) elders was facilitated through an Indigenous knowledge keeper who assisted in co-developing the critical thinking course. He spoke fluent nehiyawewin (the Cree language) and could translate between Cree and English to ask the questions and then translate responses. Some of the questions posed to the Cree Elders included: “How did Cree people learn? How did Cree people develop their minds? How did Cree people develop intelligence?” The responses to these questions were long and usually involved stories; this reflective process using the stories, replicated how ceremonies and spiritual connection elevated one’s self-actualization and consciousness. The process of course development that the Indigenous instructor and Indigenous knowledge keeper underwent is best understood by this illustration:

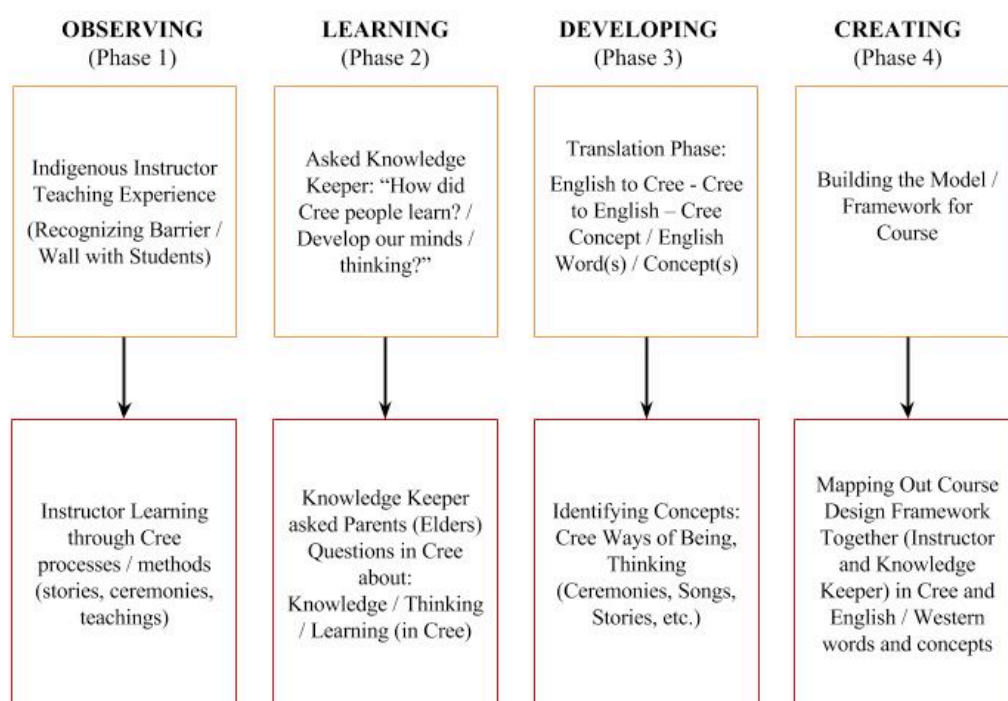


Figure 1: Course Development Frame Overview

The experience of developing a university course through this process was rewarding, with reciprocal learning taking place between the instructor, the knowledge keeper and the Elders. This incorporation of Indigenous knowledge (within a university course and within a Faculty) reflects the process of decolonizing the academy, by creating what Ermine (2007) calls an “ethical space” where learning takes place between two contrasting worldviews (Indigenous and non-Indigenous). During the UK conference workshop, the presenters asked the workshop participants to dialogue with the person next to them on these questions and report back to the group: 1) What is knowledge? 2) What is intelligence? 3) What is the difference between knowledge, knowing and understanding? These questions were inspired by

Indigenous Hawaiian educator/philosopher Manulani Meyer in her work on Indigenous Epistemology<sup>2</sup>. The discussion that occurred from these questions facilitated thinking through how Indigenous knowledge is learned, where it is learned, how it is accessed through Indigenous learning protocols and how it can be incorporated within mainstream educational institutions of higher learning.

The work the Faculty of Extension is undertaking through Bill 3 and the “We are All Related” project is unique in that very few mainstream Universities across Canada are supporting the development of courses and programs that centres Indigenous knowledge, Knowledge Keepers and Elders at the core of course development. This action reflects the recognition and importance that Indigenous knowledge holds in the development, delivery and educational process of both Indigenous and non-Indigenous students aimed at decolonizing education to privilege Indigenous knowledge structures that have historically been marginalized and devalued within mainstream institutions. Battiste (2013) affirms the importance of decolonizing the educational processes stating, “Decolonizing Indigenous education first and foremost must be framed within concepts of dialogue, respect for educational pluralities, multiplicities and pluralities. It’s about self-determination, deconstructing decisions about curricular knowledge and re-energizing education and knowledge to the context of lives” (p. 107).

### **Iyiniwak (Indigenous Peoples) Ways of Learning**

The Iyiniwak (Indigenous Peoples) continue to use the spirituality of the healing lands, iyiniw askamikāw, and the laws and original instructions of Creation. The conference workshop opening Smudging Circle and song has served as a means of providing a spiritual experience of this wider cosmology. Within this cosmology, successive generations of iyiniw children are raised to live these instructions to achieve miyo pimātisiwin, a good life.

The original instructions for raising conscious generations of iyiniwak is known as miyo opihikinawāsiwin, good child raising, and are continued in many Indigenous families across Turtle Island. The primary tenant of miyo opihikinawāsiwin is the recognition that these children come from the place of spirit and they are therefore to be raised on a spiritual path called, wīhkask meskanaw, the Sweetgrass Trail.

The teachings of miyo opihikinawāsiwin are simple yet profoundly solid in forming the child’s place within wāhkōhtowin, the relationships between the people to the lands, animal, bird, plant, and star nations. This is to honour the place the children came from, the stars, and to teach them about their relatives here on the lands, Mother Earth. Ultimately, the child grows into adulthood with fully functioning capacities of spirit, emotion, intellect, and physical attributes to share his or her gift within the family, clan, nation, and the world.

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<sup>2</sup> Manulani Meyer (2010) “An Introduction to Indigenous Epistemology”:  
<https://www.youtube.com/watch?v=lmJJiliBdzc>



Consider the words of Cree Knowledge Keeper and President of University Blue Quills, Vincent Steinhauer, in the video (see Sayers, Cardinal & King, 2016) entitled, *Part 1: Worldview*:

Our science comes from the earth;  
Our language comes from the earth;  
Our bodies come from the earth;  
And we are all connected that way.  
Wāhkōhtowin is that connection we all share.  
We are all related.  
We are related -  
To those stars up above;  
To this one star that we stand on;  
And everything in between that;  
We are all related  
(V. Steinhauer, May 2016).

## Conclusion

One step to reconciliation involves learning the history and historical impacts that have negatively impacted all treaty people, Indigenous and non-Indigenous, by privileging alternate knowledge systems that have been silenced for generations. This project, *We are all Related*, is intended to result in foundational changes to the learning experience of the entire University of Alberta (UofA) community in ways that promote positive engagement and relationships with Indigenous people locally and nationally, and globally. Privileging Indigenous knowledge within the formal education systems of Canada is a complex challenge that requires institutional and community support. Our approach, framed by settler/ally relations and the “collective lift” (Fletcher and others, 2017; Rice & Snyder, 2012) is ethically aligned with indigenous knowledge creation, a lifelong process, starting and staying grounded in community with Elders and other Knowledge Keepers.

While the TRC (2015) Calls to Action are urgent, the approach to curriculum redevelopment in the context of Western higher education is at best challenging and at worst exhausting. However, the critical settler-ally work that frames this project has created a community of practice that is foundational, supportive, collaborative, and essential to relational practice. Simply put, the project would have no moral authority in either the University or Indigenous communities.

At this point in time, early in the process of post-secondary response to the TRC, Western institutions embody barriers to reconciliation. It is ironic that on the one hand significant internal funds are dedicated to this work while institutional policies and procedures militate against real change. For example, we have been frustrated when trying to compensate the Elders with whom we work. These individuals often live outside the expectations of Western Canadian workplaces, i.e. from Revenue Canada’s viewpoint they are neither designated as “sole proprietors” nor as employees of the institution. We have experienced a great deal of frustration working with the financial services and human resources departments trying to find a way to legally pay Elders for their work. Transportation to and from communities on reserves has been an issue. Initiating a relationship by offering protocol, which involves a gift of tobacco, has presented legal and cultural barriers in a smoke-free

environment. Imaging the response of government auditors to each of these, and many other, culturally appropriate requirements requires sensitive problem solving. Of great concern are the slow acceptance of alternative, land-based learning in four-year degree programs; and the validation of alternative knowledge systems as authentic intellectual currency.

The Faculty of Extension has gone further than challenging university policy, investing substantially in culturally appropriate learning spaces. We have capitalized on our location in a renovated, historic building in the downtown core, creating a ceremonial room that is vented to allow smudging. Designed by architects, guided by input from Elders, and reflecting traditional Indigenous beliefs, the new room serves as a teaching, ceremony and meeting space for community members and students. The floor features a stained wood medicine circle at the centre of the room and includes traditional associations between colours, land-based teachings and the cardinal directions: red flooring to the south (the water), green to the west (the bear), white to the north (the air) and yellow to the east (the sun). The ceiling has logs positioned to reflect the circle in the flooring, and symbolizes a dwelling on the land, symbolizing a traditional tepee.

Eaglechild, a granite sculpture alongside four other traditional, stone carvings, created by Indigenous artist Stewart Steinhauer, anchors the space. The polished granite carving of a woman holding a child tells the story of a boy—half eagle and half child—and his journey into manhood as he receives gifts of wisdom and growth from rock grandfathers. The child is clasped by a female figure, representing a sweatlodge. The same artist created Spirit Bear who resides in the building's atrium, a public space. Through carvings on its base, Spirit Bear represents the concept that “We Are All Related”. Many of the project activities take place in Spirit Bear’s sight, and are open to the public free of charge.

We are also fortunate to be co-located with the main branch of Edmonton Public Libraries, who are well known for their community-based, sanctuary model. During public learning events our learners, staff and partners are thus integrated with library clients, many of whom are members of marginalized or vulnerable communities. And, in turn, library clients may take advantage of non-formal learning opportunities. Our Faculty has a long history of identifying and leveraging resources for the public good. Quite often fulfilling our mission requires intentional subversion of the assumptions of Western academe, including acceptable curriculum design; learning assessment; intellectual authority; place, time and structure of the learning environment; employer-employee relations; and institutional policy. Only with our community partners are we able to encourage colleagues within and external to the academy to participate in this type of creative disruption.

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***Sustainability Education (SE) in Primary School Curriculum in Tanzania:  
Exploring Teachers' Views and Perceptions***

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**Abstract**

This study explores the views and perceptions of teachers on the integration of sustainability education into primary education in Tanzania, East Africa. Empirical studies by Kimaryo (2011) and Mtaita (2007) discovered that although EE is included in Tanzanian primary schools since 1960's and even stressed in the policy of education in 1990's yet, the condition of environment has not improved. Numerous studies also found that the implementation of EE has not been successful while the state of environment is deteriorating (Morrison 2013, Kimaryo 2011, Mtaita 2007). Despite the fact that research shows the integration of EE in primary schools in Tanzania has yielded little results, yet there is dearth of research in this area. The study is qualitative in nature based on grounded theory approach mainly Straussian perspective. Data was gathered from five primary schools' teachers using interviews and document review. A thematically focused analysis of data from teachers revealed that environmental changes and challenges are mainly seen as anthropogenic. Awareness of pillars of sustainability is generally low and their balance is impossible without addressing the poverty issue. Further the study shows that both multidisciplinary and single subject approaches are effective ways to integrate EE into the curriculum. Teachers' competence and motivation are lowered by lack of resources and professional training, large class sizes and work load as well as lack of government priority on environmental issues.

Keywords: sustainability education, teachers' perceptions, school curriculum

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## Introduction

Environmental challenges have enormously dominated global, regional and local levels' agenda over the past four decades. Evidence from numerous studies have shown that, biodiversity is declining rapidly due to human activities such as overexploitation, harvesting, habitat destruction and modification, pollution and the introduction of exotic species (Trombulak et al. 2004; Hooper et al. 2005). As a consequence, the loss of biodiversity and deteriorating ecosystems has contributed to worsening human health, higher food insecurity, increasing vulnerability of ecosystems to natural disasters, lower material wealth, worsening social relations by damage to ecosystems highly valued for their aesthetic, recreational or spiritual values (MEA, 2005). Moreover, studies have associated environmental changes with a host of negative problems including altered distributions of some infectious disease vector (ticks at high latitudes, malaria mosquitoes at high altitudes), and an uptrend in extreme weather events and associated deaths, injuries and other health outcomes (McMichael & Lindgren, 2011). Worldwide, environmental related problems have become a multi sectoral issue with reports on the projected severe impacts of climate change on human existence, beginning to shape educational research in areas such as curriculum and learning (Lister, 2010; Selby & Kagwa, 2009). With this in mind, both educational policy makers and curriculum developers play active roles on environmental agenda (Mutisya & Barker 2011). On this basis, Environmental Education (EE) has continued to dominate global agendas for the past decades and became a recognized area of the curriculum in many parts of the world since 1990's. Initiated by international documents such as '*Our Common Future*' calling for the integration of environmental education into curricula at all levels of national educational systems (WCED, 1987), both environmental education and environmental education for sustainable development (EESD) are now aspects of curricula in many European countries and Third World nations (Bonnett, 2003).

As pointed out by Sarabhai, Pandya and Namagiri (2007), the 1977 Tbilisi intergovernmental conference on EE is considered as the defining milestone in the field of EE. Amongst the very important recommendations of the conference was emphasis on knowledge, awareness and understanding of environmental problems, their causes and solutions, both locally and globally (UNESCO, 1978). And according to the, UNESCO, Tbilisi Declaration (1978), 'Environmental Education means a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges and fosters attitudes motivation and commitment to make informed decisions and take responsible action. The need and importance of EE has been emphasized in various national policies and strategies, on the other hand the United Nations Decade of Education for Sustainable Development (DESD) (2005-2014) aimed at providing people with skills, values and knowledge to create a sustainable present and future including environmental, social and economic dimensions.

This echoes the Tbilisi declaration that EE should be provided to all ages and grade levels and be interdisciplinary in its approach (UNESCO 1977), that is to say, it should be taught in multiple disciplines and not isolating EE in one course or discipline.

We all understand that environmental problems and challenges are global and borderless, affecting life supporting systems of the earth across countries including Tanzania. These problems include; environmental pollution, deforestation, land degradation, lack of access to safe and clean water, loss of biodiversity and global warming (UN, 2010). As a consequence, these problems incapacitate the earth's ability to provide for her diverse population. In cognizance of the environmental problems and the associated impacts, Tanzania like many other countries has shown a strong commitment in efforts to implement Agenda 21 by emphasizing EE in schools. Hence, Tanzania's educational system, through the curriculum of the different levels, has in one way or another included in its curriculum EE content.

## **Literature**

Sustainability education and environmental education are terms that have given rise to debate concerning how they are defined and relate to each other. Some arguments state that education for sustainable development has evolved from environmental education (Yang, Lam & Wong, 2010; Tilbury and Cooke, 2005). Other authors claim that these terms are the same and can be used interchangeably, EE has acquired another name to become ESD (McKeown & Hopkins, 2009). Hence, there are varying perspectives concerning the relationship that exist between them. A closer relationship between education for sustainable development and environmental education reveals that both have the same vision with a focus of creating a better world and balance between the economy, ecology, and society. It seeks to balance the human well-being and cultural values and traditions with respect to the earth's natural resources. Both EE and ESD are seen as tools for bringing about sustainable development. EE is therefore inseparable from sustainable development and they have more common features than differences. The model of Education for sustainable development is based on the UNESCO declaration which capitalizes on the balance between ecological, economical and social development. This article adapts the understanding of the concept of sustainability education to be the same as environmental education which focuses in enabling pupils to acquire knowledge and skills, participate in making informed decisions individually and collectively, both locally and globally that will improve the quality of life now without damaging the planet for the future (DfEE 1999).

## **Sustainability Education and School Curriculum**

A school curriculum reflects the political and ideological values of a society. Its philosophy is inseparable from the social political system that education is called to serve. Factors such as religion, culture, technology, economy, political regime, history, research and tradition influence the curriculum directly or indirectly. The curriculum is not a neutral document but rather a cultural artefact and its analysis is political in essence (Sofou 2010). According to Kessler (1991), curriculum decisions depend on what the community believes to be important and involve assumptions about the nature of knowledge, about what is valued and considered important as well as answers to the questions of how to live 'the good life'. Philosophical analysis is central to all discussions about the curriculum. Cuban (1995) advocated that there are actually four types of curriculum in schools: The *official* curriculum, these are curricular frameworks and course of study set forth by the state or district officials and expect teachers to teach it and assume students to learn it. The *taught* curriculum,



this is what teachers, working alone in their classrooms, actually choose to teach. Their choices derive from their knowledge of the subject, experiences in teaching the content, the like or dislike for topics and their attitudes towards the students they attend daily. The *learned* curriculum, this is much more inclusive than the overtly taught curriculum. It is beyond what the test scores reveal about content knowledge. Students also learn many other unspecified lessons embedded in the classroom atmosphere. They will learn to process information in meticulous ways not in others, when to or not to ask questions, respect for others depending on teacher models. The last is the *tested* curriculum, what is tested in schools is limited to what is prescribed by policy makers, taught by teachers and learned by the students. Standardized tests often represent the poorest assessment of the other curriculums.

Teaching about the natural and built environment provides a real world context for learning by linking the classroom to the pupils' community. Pupils are engaged in hands on activities, active learning that increases their awareness and knowledge about their environment. Since EE encourages inquiry and investigation, pupils develop critical thinking, problem solving and effective decision making skills. Pupils who are environmentally literate become citizens who can weigh various sides of environmental issues and make responsible decisions as individuals and as members of the community (EPA 2003). EE is therefore very crucial considering the current environmental issues such as climate change as a result of global warming, which is also advancing in most areas of the world, in ways that feature increasing storm intensities, shifting rainfall patterns, melting glaciers, rising sea levels and other manifold alterations (Philander 2008; Parry et al. 2007).

### **Environmental Education in Primary School**

One can assume that if EE is adequately addressed at primary school level, awareness will be created and most likely sustained, since personalities are easily molded and shaped at earlier ages (Kimario, 2011). Enrolment rates for primary school have been above 95% between 2003 and 2013 (BEST, 2014), while only 15% progress to start secondary school (Stralin & Wiman, 2009; BEST 2012), even with a decreasing trend of 13% in 2016 (BEST, 2016). Therefore, conducting this study at the level of primary education may have significant qualitative and quantitative impacts when it comes to young peoples' thinking, attitudes, feelings and behaviors towards the environment. Research indicates that early investments in human capital offer significant returns both to individuals and to the wider community (Davis, 2008). Moreover, from developmental science, studies have shown that experiences deeply felt by children are likely to be carried with them in their life span (Pressoir, 2008; McCain, Mustard & Shanker, 2007). Mustard (2000) and Rutter, (2002) add that, childhood years are the period of the greatest and most significant developments in a person's life and are generally regarded as the foundation upon which the rest of life is constructed. Yet, the early years are those that traditionally receive the least attention from the educational world especially in the field of environmental education and education for sustainable development (OECD 2006).

In line with that, both the old and new Tanzanian education and training policies of (1995 & 2014) emphasize in their objectives the need to provide knowledge from childhood on, that means pre-primary and primary school children. The rationale has been on the holistic development of the child in physical, mental, moral, attitude and

social dimensions. It further emphasizes the education that is provided in schools must build capacity to students and the community to be responsible citizens and have a culture to love and care for the environment. Education should help children acquire values, appreciate, respect and develop pride and identity in their societies. In countries like Finland EE has been placed in the national core curricula for primary education and the responsibility for the environment, well-being and sustainable future is the core objective of basic education (National core curriculum for basic education, 2004). In other countries including Australia, Germany, USA, Hongkong, France, and Kenya it is well placed. Nevertheless, in many countries EE is still a non-mandatory content in school curriculum (Mutisya & Barker, 2011; Eames et al., 2008; Tilbury, 2004)

Following the education and training policy of 1995, the government of Tanzania necessitated the formation of National Environmental Policy (NEP) of 1997. It stresses that, the lives of all Tanzanians are intimately connected to the environment. The economy of the country depends entirely on the country's environment and natural resources, and 66% of the Gross Domestic Product (GDP) is realized from agriculture, forestry, fisheries, livestock, water, energy, tourism and mining activities (URT, 2009). Thus, the current survival and that of future generations depends very much on the relationship with the natural elements. The Tanzania development vision 2025, states inter alia that a strong and competitive economy will be pursued while "effectively reversing current adverse trends in the loss and degradation of environmental resources and the accumulation of hazardous substances" The National Strategy for Growth and Reduction of Poverty (NSGRP), has mainstreamed environment and set a framework on national efforts from 2005-2010 on achieving higher and sustainable levels of growth and reduction of poverty. Poverty is a widespread phenomenon in Tanzania and is perceived by many as both a cause and consequence of environmental degradation. People who lack adequate resources have little alternatives and are likely to overuse their environment. Thus, the issue of how poverty impacts the environment and how a degraded environment reinforces poverty are mutually interrelated processes. The National environmental policy identified the country's six major environmental problems which include: environmental pollution, land degradation, lack of accessible, good quality water for urban and rural inhabitants, loss of wildlife habitats and biodiversity, deterioration of aquatic systems and deforestation. Following these problems/challenges, the policy stipulated among other objectives; to raise public awareness and understanding of the essential linkages between environment and development, and to promote individual and community participation in environmental action; to ensure sustainability, security and equitable use of resources for meeting the basic needs of the present and future generations without degrading the environment or risking health or safety (URT, 1997).

Despite these strategies, literature shows that implementation of EE has yielded little results and environmental problems in Tanzania keep mounting day by day (Wells et al., 2007).

Nevertheless, teachers are regarded as key to successful integration and implementation of EE in schools. A comprehensive integration strategy demands a great deal of cooperation from the teachers and they must be in favor of the integrated EE curriculum (Volk 1993). Other researchers agree that for EE to be successfully integrated into the curriculum, teachers need background information to provide ideas

and strategies to teach about environmental issues (Disinger, 1993; Braus 1993; Simmons, 1989 & Hayden et al., 1987). A plethora of studies have found that the teaching of EE in many schools is not implemented effectively not only in Tanzania but also in many other countries (Kimaryo 2011; Mtaita 2007; Barraza, Duque-Aristizabal & Rebolledo, 2003). Studies by Mastrilli (2005) and McKeown-Ice (2000) have pointed out that actual implementation depends on the motivation of the individual instructor. This suggests that the implementation of EE is a complex and a challenging process to educators. As argued by Rauch and Steiner (2005), the integration of EE into school curriculum is a new innovation in education therefore it requires an appropriate design and implementation of teacher programmes and in conceptual changes. Hence, an understanding of the implementation of EE in Tanzania elementary schools remains important.

### **Statement of the Problem**

Teachers' beliefs, thoughts and decisions on educational matters make up a highly significant part of the teaching process. (Fullan, 1989). Many researchers have argued that greater understanding of teachers' beliefs and perceptions is paramount to the improvement of educational practices (Lumpe et al., 1998; Fang 1996 & Tobin et al., 1994). Therefore to conduct research on perceptions, however, is critical for better understanding the varied ways people (in this case educators) frame and enact environmental beliefs (Hemlich et al. 2013). In search of empirical evidence literature shows that there is paucity of research done to explore teachers' perceptions and beliefs despite the fact that teachers are the main determinant to successful implementation of school curriculum (Pedretti & Nazir 2014; Potsi 2013). Some researchers in other countries have conducted studies on perceptions including Van Petegem & Blieck 2007. Literature reveals that there is little research with regard to teachers' views and perceptions in Tanzania primary education in particular. Studies done by Kimaryo 2011; Mtaita 2007; Lindhe 1999 and Osaki 1995 capitalized on secondary education. Their main focus was on perceptions of stakeholders on EE and on complementary basic education. In general, there is dearth of research that gives a critical analysis of the integration of EE in the primary school curriculum specifically exploring views and perceptions of implementers. This study therefore intends to explore the views and perceptions of teachers as key education stakeholders on the integration of EE into Primary school curriculum and whether it promotes Education for Sustainable Development (ESD).

### **Purpose of the Study**

The aim of this study is to explore teachers' views and perceptions on the integration of EE in the primary school curriculum.

Specifically the study intends to answer the following questions

1. *What views and perceptions do teachers have on environmental changes and challenges?*
2. *What views and perceptions do teachers have on EE content, instructional methods and resources used in integrating EE content into their subject curriculum?*

## Methodology

The study included five primary schools, three from Dar es Salaam and two from Kilimanjaro regions. The sampling constituted 28 respondents under the following categories: 5 heads of schools, 21 subject teachers including environmental clubs teachers, 2 curriculum developers. The researcher employed purposive or theoretical sampling, which involved the deliberate selection of individuals by the researcher based on predefined criteria, because the researcher needed to consider the sample that would generate rich data for the study (Best and Kahn, 2006; Cohen, et al., 2007). Data was collected through interviews and document review.

The study used qualitative methods with in depth interviews and document analysis to gather data for the analysis. The study applied some of the grounded theory procedures from (Straussian perspective) due to its ability to interpret complex phenomena, its ability to accommodate social issues and appropriateness for socially constructed experiences. (Charmaz, 2006; Strauss and Corbin 1990). Straussian school of thought has its roots from the social constructionist ontology and post structuralist paradigm which emphasizes on diverse local worlds, multiple realities and complexities of particular worlds, views and actions (Devadas et al., 2011; Mills et al., 2006). The study also applied thematic data analysis and content analysis to analyze the data (Braun & Clarke, 2006; Kuckartz, 2014).

## Conclusions

### Analysis and Discussion

#### *Environmental changes and challenges*

Teachers' responses show that there are a lot of changes and challenges they have observed and experienced in a period between five to ten years past. According to frequency and intensity of occurrence in teacher's responses one can say that changes and challenges are visible since they are mentioned by almost every participant and they can be categorized as follows:

Climate change is an important general topic raised. Its severe consequences such as extreme weather conditions have led to changes in rainfall pattern resulting in alternating drought periods and flooding as observed by many teachers. This coincides to the findings by Umar and Ozohu, (2015). The issue of climate change and global warming was raised although it showed that teachers could not make a clear link between the two, neither could they explain in detail which gases when emitted cause the change in the natural atmospheric condition of the earth's surface.

Besides that, main changes and challenges are different between rural and urban environments. In the rural area of Kilimanjaro deforestation was the main environmental topic and issue for the teachers. For many, it is associated with soil erosion and land degradation leading to drought and at the utmost to desertification. Economic factors were seen as the main source for the destruction of forests. For example the need for timber, charcoal, firewood, honey and lands for farming activities accelerate the destruction. Teachers also were of the opinion that if the government will subsidize energy costs like gas and electricity people will reduce cutting trees for charcoal and firewood which a majority population of Tanzanians

depend upon. Teachers also emphasized that if poverty issue is not addressed, it is very difficult for people to conserve the environment especially forest resources.

On the other hand in the densely populated urban area of Dar es Salaam, waste management and pollution are the main issues mentioned. Here poor town planning and lack of sound infrastructure are contributing very much to the situation. Teachers had varied perceptions on the causes of poor waste management. Some teachers attributed the causes with irresponsible leaders and some perceived the problem to be a result of lacking commitment among the citizens themselves. The majority of teachers viewed the prevalence of cholera in urban areas as a result of using contaminated food and water, which is associated with the poor management of wastes. High rates of population growth and poor town planning are worsening the situation rapidly. World Bank data (2002) shows that more than 70% of population in Dar es Salaam city live in poor, unplanned settlements. Moreover, few teachers also talked about inorganic wastes from plastic products like water bottles and nylon bags. Teachers articulate that despite the advantages they have to the community, these inorganic wastes do not decompose and therefore are dangerous to plant growth and animals.

Air pollution was also a major concern for teachers. Industrialized countries have been pointed out by teachers to be the major contributors of emissions and therefore a major cause of air pollution. Majority of teachers believe that air pollution have contributed to the depletion of ozone layer and thus accelerate the cancer disease especially skin cancer. Teachers rarely talked about air pollution from their country or other developing nations, despite the fact that the trend of emissions even in developing countries is significantly rising. As found in Tanzania alone that green house gases (GHG) are expected to double between 2005 and 2030 (URT 2011). Other forms of pollution like land and water pollution were raised by a few teachers. They believe that toxins from industries and the use of pesticides and fertilizers are the main causes for land and water pollution.

It has to be noticed for further discussion that teachers are mixing up in their statements the issues of pollution by poisonous substances, ozone layer depletion and global warming leading to climate change.

Environmental changes and challenges are generally seen as resulting from solely human activities, being influenced by economic interests and poverty issues and aggravated by rapid population growth. This observation showed that teachers are not informed so much on the natural influences to environmental changes for example climate change. The natural occurrence of volcanic eruptions, ocean currents, the earth's orbital changes and solar variation contribute to climate change (Umar & Ozohu, 2015).

#### *The rationale for sustainability education in primary schools*

Education is seen by the teachers as a major factor to contribute for solutions of the different problems. They emphasized that environmental education, especially 'education by doing', is very essential and will contribute a lot to solve these challenges. They advice that the government should put priority on environmental issues since a healthy life comes from a healthy environment. Teachers believe that education forms a very strong foundation in one's life and therefore environmental

education should begin very early in life, even with preschool children, so that it becomes part and parcel of life. This will develop responsible environmental behavior and a community that is well informed of their daily actions towards the environment. Research done by Hungerford and Volk (1990) found that, citizenship behavior can be developed through environmental education, however, the challenge lies in the willingness to act or do things differently than how done in the past.

Teachers also think that there should be coordinated efforts in order to make the learning of environmental education effective. Teachers and parents need to work together to help the children acquire the necessary skills and values, for them to become responsible citizens now and in future. However, teachers in the urban private schools complained that parents did not want their children to do manual work. These schools had children from well off families and their parents pay a lot of money. So these schools hired people to do the cleaning of the environment and gardening. Teachers said that parents viewed manual activities as punishment and a waste of time. This shows that parents have not understood the importance of EE and teachers recommended that parents need also to be educated. Teachers complained that schools are too academic and the quality of schools was based only on academic achievement. This problem was not found in the public schools where the majority of children are from low income families.

Majority of teachers were of the view that exposing young children to learning EE is crucial. Teachers argued that the development of personality depends on the age. Teachers perceived that sustainable skills and values of a person demand early age learning. Teachers believe that early EE determines the type of citizens the nation will have in future. They see that environmental behavior can be easily developed when children are taught environmental issues at an early stage in life. Many teachers thought that EE should begin as early as preschool education in order to have effective outcomes. However they emphasized that teaching EE is very appropriate too in primary education since the majority Tanzanians can only access this level of education. Research findings from numerous studies have also supported the importance of early education. The study by Mustard, (2000) and Rutter, (2002) also prove that childhood years are critical and most significant developments in a person's life and regarded as the foundation upon which the rest of life is constructed. Kopnina, (2013); Heimlich & Ardoin, (2008) and Domka, (2004) also found that EE is vital at early ages since it ensures positive attitudes towards the environment.

Majority of teachers believed that by providing EE to the people many societal environmental challenges can be solved. However teachers emphasized that EE can be able to bring solution to problems only if it is done practically. To them learning by doing is what brings about changes and make people make informed decisions in the environment. However a group of teachers emphasized the importance of educating the entire society, since the majority population is not in school and they are the main actors on the environment. These teachers also called the role of both the government and the society for effective learning of environmental education that will bring about solutions. Government should show commitment and have an environmental strategy that will coordinate environmental education activities from lower levels such as village to the national levels. A study by Nwanekezi, et al. (2011) confirms that education is a major and effective instrument for the attainment of sustainable development in all human society today.

*Teachers' awareness on integration of EE and pillars of sustainability in subjects*

It was also revealed that majority of teachers were not aware of the pillars of sustainability, which are ecology, economy and culture. However, they gave their opinion on how it should be after understanding what it meant, with the explanation from the researcher. According to UNESCO (2005) the three main pillars of sustainability include environmental or ecological, economical and social cultural. Teachers said that the pillars are interrelated and therefore there is a need to balance. Here teachers differed in their perceptions. Some thought culture is the strongest pillar while others said economy is the strongest. In general teachers believed that man plays a central role and determines the success or failure of environmental protection. While majority of teachers believed that EE has a greater chance to bring about balance of pillars, a group of teachers had a different view that it is very difficult to bring about balance if people are not economically empowered, so they believe poverty needs to be addressed first for environmental sustainability.

*Teachers' views and perceptions on sustainability education content adequacy*

Teachers had varying perceptions regarding content adequacy for the subjects and levels they taught. Majority of teachers were of the view that the content placed on their subject curriculum was inadequate.

*The best way to integrate sustainability education into the curriculum*

The responses from teachers on this category varied among teachers. Some said that EE should be *integrated as a separate subject* to ensure its effective implementation. Other teachers said EE needs to be *integrated in few subjects as topics* those that have environmental nature like geography and science. The third category proposed EE be *integrated in all subjects*.

*Teachers' instructional methods and resources*

Majority of teachers declared to use direct transmission in their teaching and with very little teaching and learning resources. Large class sizes also hindered active learning due to insufficient time for individual interaction. Majority of teachers also said they had never been trained on-job, but even the pre service training was of poor quality.

*The main challenge to successful sustainability education implementation*

Majority of teachers said lack of EE and abject poverty were the main hindrance to effective EE implementation. Above all, government priority to EE issues was very low. It was believed by majority of teachers that failure to address poverty is a major threat and obstacle to environmental sustainability.

**Limitations**

The scope of this study was limited to a small sample and area making it difficult to generalize the findings to a large population. The study also concentrated on only one educational pillar which is teachers, among all educational stakeholders. Successful implementation of sustainability education does not depend on teachers only. The position and role of government in formulating and enforcing proactive educational and sustainability policies cannot be underestimated. The role of curriculum specialists and heads of schools are also paramount. However, the study targeted only the formal schooling system. The majority population is outside this system but yet

are main stakeholders of environment that also need sustainability education and to understand their perceptions on sustainability issues.

Suffice it to say that, there is very little concern on sustainability affairs in primary schools despite the fact that majority of teachers were aware of environmental changes and challenges.

### **Summary**

The study has shown that majority of teachers were aware of environmental change and challenges. Climate change was a general factor pointed out by majority of teachers in both urban and rural to be the source of extreme weather conditions such as floods and drought as well as changes in rainfall patterns. Issues such as population growth, pollution and waste management were seen as urban challenges, while deforestation was mainly a rural challenge. Majority of teachers acknowledged the importance of EE in primary education and even in pre-school education; however, it was not practiced actively by majority of teachers. Teachers were of the view that, lack of educational resources such as human, finance and time were main obstacles for not engaging in active learning of EE. Poor professional training was also a major problem, majority of teachers were not aware of major pillars of sustainability. Teachers commented that their poor competence was a result of government poor priority on environmental issues. Majority of teachers said that EE content in the curriculum was quite insufficient despite the urgency state of environmental issues worldwide. According to teachers successful implementation of EE must include school children as well as the society at large because every human being has a role to play in ensuring environmental sustainability. Teachers also said that it is absolutely important to address the poverty issue in order to achieve environmental sustainability.



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***The Use of Digital Means in the Teaching and Learning of  
Multiplatform and Social Media News Reporting***

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**Abstract**

The debate promoted decades ago on the use of the ICT as a key factor for the learning processes in the university teaching, together with the advancements in the journalistic field support this paper approach (Scott, 2002). The main aim is to determine the value of using social media when training journalism students on the specific aptitudes that are being currently demanded by the media companies. In the light of these circumstances, this paper studies how online journalism and communication related subjects are dealing with these current instructional challenges. It provides data of an innovation education project aimed at developing Spanish and Brazil journalism students' reporting skills via the use of social media and multiplatform news coverage. This project carried out jointly by the University of the Basque Country (UPV/EHU) in Spain and the Mato Grosso do Sul Federal University (UFMS) in Brazil develops the competences required to create multimedia features and social media reporting through cooperation between online journalism students from both universities.

Keywords: Journalism, ICT, innovation, social media, convergence

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## 1. Multiplatform professional and teaching environments

Over recent years, journalism has witnessed the crumbling of many of the traditional principles upon which the profession was based. The widespread deployment and use of the 2.0 tools and social media have provided citizens with simple means of creating and disseminating news content, which in turn has enabled a greater degree of audience participation and put an end to the media's monopoly over the news discourse.

The consolidation of new journalistic practices thus is the main challenge currently being faced by media companies in their attempts to innovate and redefine their business models in the 21st century. This is changing the manner in which newsrooms are structured and the work they perform, which is giving rise to a higher degree of cooperation between employees, more flexible and versatile job profiles, and a more-balanced relationship between media platforms and professionals who work for different divisions. These adjustments have allowed online media, platforms and newsrooms to shed their prior second-rank status and compete more successfully with their more traditional counterparts.

These changes the sector has undergone and continue to undergo have sparked a debate concerning the skills the media sector now expects entrance-level employees to have and, by extension, the type of formal and practical training universities should be offering their communications students. The university sphere cannot afford to remain on the margins of these large-scale changes and a key question has emerged from this discussion: given the instrumental as well as a pedagogical role they play in the classroom, what is the best strategy for incorporating digital tools into courses meant to prepare students to be versatile multimedia communicators?

For decades, universities themselves have been undergoing a structural transformation and experiencing a gradual change in the culture of learning. As analysed in this paper, this has prompted university instructors to rethink teaching methodologies, orienting their practice towards fostering greater student participation and effort, as well as greater interaction between students and faculty. This paper thus aims to contribute to current debate on innovative teaching methods being applied in recently introduced courses related to internet-based journalism that were added to university communications studies curricula as part of the process of adaptation to European Higher Education Area (EHEA) standards. The analysis it contains draws on the results of surveys the authors conducted with students enrolled in these courses during the academic years subsequent to their introduction into a specific communications curriculum and data relative to their classroom interaction and dialogue with students.

This reflection on teaching innovation in the areas of communication and journalism is based on the premise that digital tools and social media can be effectively used by university communications instructors, especially in the context of courses focusing on Internet-based journalism practices, by virtue of their utility in hands-on assignments that immerse students in situations that closely resemble or replicate the real daily experience of multitasking and multimedia communications professionals working in the sector today. Educational experiences of this type are particularly valuable in the light of multimedia, media and journalistic convergence, a complicated process that has affected various aspects of journalism from the way that

content is being produced as a result of digitisation to the expanding array of distribution platforms (press, radio, television, online editions of news publications and social media) now available to journalists.

## 2. Professional and teaching innovation in the field of Journalism

As a result of the reform prompted by the need to adapt to the European Higher Education Area, degree course syllabuses developed since 2010 in Spanish Communications Faculties have been based on a broad-ranging analysis of degree-level content taught in both Spanish and European universities. The result was a *White Paper on Communications Degrees* (Aneca, 2004), which defined the principal professional profiles established for each degree. One of the most important changes included in this white paper was the specific identification of the professional opportunities offered by the new online media, the inclusion of which was a *de facto* declaration of the need to take such aspects into account in all new degree syllabuses, since this field was hardly touched upon at all in existing study programmes.

The result of this process of reflection was the incorporation of specific subjects designed to develop competences in this area in all Communications and Media degree syllabuses from 2010/2011 onwards. While in former degrees taught at the UPV/EHU, the study of online media was limited to one optional subject in the Journalism degree course and one free-choice subject on the Virtual Campus, in the new degree courses, the compulsory 2nd year subject entitled Online Journalism and Reporting establishes the basics of Internet-based communications, an area further developed later on in each individual degree through a number of specific subjects: in the case of Journalism, these subjects are *Multimedia editing and production* and *Social and participatory journalism on the Internet*, in Publicity and Public Relations it is *Multimedia production in Advertising* and in Audiovisual Communications they are *Graphic design and multimedia environments* and *The Internet and cultural industries*. In addition to these changes, the subject matter was also mainstreamed and included across the board in all teaching guides.

Specifically, Journalism and Communication university teaching focuses currently on the work in the above referred professional multiplatform and social media environment, and relates to the development of basic aptitudes, such as news writing and reporting, as well as to transversal ones, such as cooperative work. Even if the educators' efforts to prepare students to practice online journalism have centered mainly on the hypertextual, multimedia, and interactive aspects of online media (Deuze, 2001; Lowrey, Tumber 2005), in order to remain competitive academic journalism programs tend to address more and more media convergence and to include social media reporting in their curricula.

Online Journalism Reporting subject thus aims to develop students' capacity for creativity and innovation, as well as their ability to interact with both their public and their sources. It also aims to foster the skills required for composing messages specially adapted to the characteristics and possibilities of the online environment. In other words, it aims to teach students how to produce messages in real time and work in a collaborative manner to develop multiplatform projects. From a more general perspective, the subject aims to offer students the resources they need to 'learn how to learn' about the web culture, and ensure that they become familiarised with the media

ecosystem of the Internet. Consequently, the learning outcomes are described in the syllabus as the ability to 'plan and produce messages in accordance with the specific characteristics of the language of online journalism (hypertextuality, multimodality and interactivity) and the conventions, principles and narrative functions of Internet-based journalistic genres'.

Since the establishment of Online Journalism Reporting, faculty have introduced a number of new techniques with the aim of rendering the subject more competitive (Fernandes & Larrondo, 2015). In other words, the aim is to improve the quality of the teaching provided, ensuring that the classroom activities carried out are as similar as possible to real professional practice, and the capacities developed are as similar as possible to those required by digital editorial departments.

The subject aims to introduce students to the routines of online journalism, placing particular emphasis on the production of high-quality contents that make the best use possible of the characteristics of Internet-based news discourse (hypertextuality, multimodality and interactivity). It therefore combines conceptual knowledge with the practical use of tools that enable students not only to construct and manage websites, but also to participate on the social media and enter into a new relationship with their audiences. In short, it is an innovative subject that aims to move beyond mere technological fads and strives to instill in students professional values such as responsibility, teamwork, self-sufficiency and empathy with online audiences.

The subject encompasses 60 teaching hours, of which 32 are lectures and 28 practical classroom sessions (2 hours a week). Practical sessions are held in the multimedia rooms of the Social and Communication Sciences Faculty, meaning that students use on-site facilities for this part of their course.

The practical syllabus includes students setting up a blog as a support instrument for their activities. The blog is used for publishing online news items, multimedia features and dialogue-based online journalistic content. Students' other tasks include disseminating their practical activities over the social media. Students work in groups of between 4 and 5, using the cooperative practical learning methodology.

The teaching practices applied in the online journalism course evaluated during this research (Online Journalism Reporting) have focused on the use of blogs as interactive publication platforms and project-based learning (PBL) techniques. All of the courses covered by this study have required students to create and maintain blogs that have served to stimulate interaction and dialogue between them and their instructors. Each blog has functioned as a media outlet offering specific sections that students working individually and in groups have constantly updated with hypermedia news items, feature stories, reports, analytical pieces and other forms of online content. Format-specific characteristics of blogs that make them ideal for use in this type of course include:

- User-friendly publishing mechanisms and intuitive interfaces
- Hypermedia features that allow students to practice inserting hypertext links and experiment with a range of media formats (video, audio, text, image, etc.)
- Support for collaborative news production conducted from any location via a wide array of devices employed by students working on or off campus.

- Inclusion of mechanisms for stimulating interactivity in the form of user comments and feedback from instructors and peers.
- Capacity to enhance the visibility of student projects and showcase online portfolios useful to graduates entering the job market.

In addition to creating and maintaining a blog, students enrolled in the mandatory online journalism courses analysed are also required to carry out assignments involving the use of social media platforms (YouTube, Twitter and Facebook). The experience of establishing a social media presence allows students to develop their individual media brands by promoting blog content via social media platforms. Using social media in assignments related to online journalism stimulates students to be more autonomous and creative in performing other tasks required in Internet communications such as tracking down and establishing direct contact with official sources.

The inclusion of all of these resources in coursework is meant to deepen students' sense of initiative and responsibility. Familiarising themselves with these tools helps future professionals develop competences considered essential in journalism today such the ability to engage in team work and the habit of applying a 'learning-to-learn' approach to mastering new techniques in their field.

Given the broad panorama of changes in the social, professional and educational fields outlined above, this study aims to describe a specific educational innovation proposal related to online journalism and the dissemination of 2.0 and multiplatform news content. In the following sections, we argue that educational innovation has become a key concept, particularly in relation to the teaching of communications and journalism in today's new technological environments.

### **3. Innovation in Education through cooperative learning**

As Messersmith (2015: 219) points out, facilitating meaningful interaction amongst students is a significant challenge of teaching in the online environment. This interaction seems especially interesting in the teaching of abilities related to communication. According to the same author, virtual teams are increasingly becoming a part of the organizational landscape, capitalizing on diversity and resources that exist across locations; research suggests virtual teams can even outperform co-located teams.

These educational trends have given rise to increasingly collaborative learning environments in which technological issues are afforded ever greater importance. The university student body is mainly made up of young people or 'digital natives' who assimilate technology with ease. Moreover, it is important to note that the social media form an integral part of these young people's lives. Indeed, it could be said that the relationship between young people and new technological tools poses a major challenge for educators, particularly in the field of Communications and Journalism (Larrondo & Meso, 2013).

When using the social media in their teaching practice, university faculty from the field of Journalism strive to find a teaching method that takes into account the current demands of the profession. In other words, they seek to foster the development of the

skills and capacities that will be required by companies of their students once they graduate. The teaching innovations promoted by the *European Higher Education Area* (EHEA) have aroused a specific interest among teaching staff in focusing on those aspects that students should bear in mind when working in their chosen profession. In this sense, in addition to ensuring the educational qualities necessary to ensure effective, useful classes, faculty should also strive to develop qualities closely related to those demanded by the industry. The use of modern interaction technologies also seeks to increase motivation among students, since the realisation that what they do in class is similar to what they will be expected to do in the workplace will encourage a greater degree of engagement (Fanjul & González, 2010).

Networking is an activity that needs to be internalised; it should form part of professionals' everyday lives, particularly in the case of those choosing careers in the communications and online journalism fields. The term Web 2.0 or Social Web was coined in 2004 by Tim O'Reilly to refer to a second generation of webs based on user communications and a special range of services, such as social networking sites, blogs and wikis, which foster collaboration and the fast exchange of information between users. After just over a decade, the Social Web has proven itself to be something more than a passing fad, demonstrating its capacity to change both the form and the content of the traditional mass media paradigm.

The trend shift which occurred in Europe as the result of the development of a common higher education area prompted the setting up of new contact points between faculty and students that go beyond the tangibility of the classroom (Meso, Pérez and Mendiguren, 2011). This in turn required the re-adaptation of traditional forms of 'e-learning' to respond to new demands by web users, moving towards what has become known as 'e-learning 2.0', which enables greater interaction and collaboration in the generation and construction of knowledge. Faculty must encourage the design and development of interactive virtual social environments in which the true protagonists of the training processes are students themselves, with teachers acting as facilitators of educational reflection processes and generators of innovative social actions.

#### **4. An international experience involving the Basque Country and Brazil**

In this paper we consider the results of an Educational Innovation Project entitled 'Cooperative learning in Online Journalism Reporting using Web 2.0: a joint experience involving the Basque Country and Brazil'. This project goes one step further in developing the use of these digital tools and promoting this type of content and it has been carried out jointly by the University of the Basque Country (UPV/EHU) in Spain and the Mato Grosso do Sul Federal University (UFMS) in Brazil, with the aim of developing the competences required to create multimedia features through cooperation between online journalism students from both universities.

Thanks to an agreement reached between the two universities, within the subject entitled: *Laboratório de Ciberjornalismo I*, which is taught by Gerson Luiz Martins at the Mato Grosso do Sul Federal University in Brazil, students from both institutions use digital tools to exchange instructions, comments and advice (in the form of either text or video) with their counterparts on the other side of the Atlantic regarding the generation of multimedia content. The cooperative process employed in the practical

sessions has therefore been expanded from the physical classroom to the virtual, e-classroom.

The project's principal aim therefore was to foster learning in the field of multimedia feature generation for the online media, a task which requires the development of specific journalistic criteria and the honing of additional writing skills that are complementary to those required for the traditional media. In this undertaking, the ability to plan and produce messages in accordance with the specific characteristics of the language of online journalism (hypertextuality, multimodality and interactivity) is of particular importance, since these messages define the conventions, principles and narrative functions of the different Internet-based journalistic genres.

Specifically, the project has aimed to foster active and cooperative learning in the field of the previously described Online Journalism Reporting course, through the internationalisation of the subject and the use of ICT. The activities carried out as part of the practical side of the subject (writing news articles, creating a blog and multimedia features and using dialogue-based genres), using tools such as *Storify*, *Dipity*, *Meograph*, *Thinglink*, *Wix*, *Pictochart*, *Tumblr*, *Story Maps* and *Infogr.am*, are disseminated over the social media and other web 2.0 tools with the aim of extending the active and cooperative methodology used in the classroom to include other students who are going through the same learning process. The experience is a bidirectional one, with students from the UPV/EHU offering advice to their counterparts at the UFMS and assessing their work in equivalent areas of the syllabus, and vice versa.

The project is based on the hypothesis that the best way of promoting active responsibility in the professional competence acquisition process is to encourage students to complete their communicative processes and publish their journalistic work (which started out as classroom exercises) on a communications platform with widespread dissemination. The idea is that providing students with access to this level of dissemination, which is often overlooked in practical classroom activities, enriches their learning experience by creating an environment much more similar to that in which professional journalists carry out their daily work. Giving students the opportunity to publicly disseminate their unpublished work so that it can be seen by more than their teacher motivates them, enhances their sense of responsibility regarding the quality of the contents and helps encourage them to complete the assignment with a greater degree of dedication and effort.

The second hypothesis on which the project is based is that encouraging students to actively use web 2.0 tools to publish information serves not only to familiarise them with the technical multimedia characteristics of Internet-based communications (providing basic literacy training in digital environments), it is also the only way to enable them to gain first-hand experience of interaction with their audience, one of the key elements of the new media paradigm. The following aims were established in relation to these hypotheses:

- a) To motivate students to compile information in a way that transcends the traditional method of compiling content for a single format (written press, radio or TV), encouraging them to take different, interrelated, formats into consideration.

b) To familiarise students with the main characteristics of the new media models, particularly the multidirectional flow of information and the management of the community generated around their messages. This is important since, unlike the creation of static content which characterises the traditional media, Internet-based media content is now dynamic and must constantly adapt to reader suggestions, comments and corrections in a context in which today's news is tomorrow's context.

By engaging in this dialogue, students not only become more adept at using multimedia language, which is obviously common to both the Basque Country and Brazil, they also learn to interact in the development of their contents with a public located at a great physical distance, with a radically different yet at the same time complementary outlook on the world, using digital tools and the social media.

The aim of this exchange between two universities located at such a great physical distance in relation to the same course unit (multimedia news content) is not just to foster cooperation and an active attitude among students, who are obliged to face and respond to the readers of their messages on the web using specific online tools, but also (and in a complementary manner) to promote 'internationalisation at home', a concept which is particularly useful for students who are unable to participate in mobility programmes.

For the faculty of the two twinned subjects participating in this project, the first task was to review the most recent literature and then examine the teaching guides pertaining to each subject, which were found to be very similar in their approach and aims. The objective was not to adapt the theoretical syllabuses of the two subjects (which are taught in the same trimesters and in fact overlap, at least by a couple of weeks), but rather to align the timing of the practical activities and reach an agreement regarding the principal characteristics of the assignments sets, particularly in the case of the larger-scale ones (multimedia features). Faculty at both the UFMS and the UPV/EHU also agreed upon the thematic areas on which the assignments would focus, in order to ensure the highest possible level of universality and mutual understanding.

During the first phase, students taking Online Journalism Reporting engaged in practical activities in the usual manner, which requires them to work collaboratively in groups of 4-5 people. During the first phase, once the trimester had concluded and all the assignments had been published, the faculty selected the three best works from each group for peer review by their colleagues on the other side of the Atlantic.

To unify this review process, the following scheme was devised as a means of focusing attention on the analysis of the multimedia language used:

#### ARTISTIC AND/OR CREATIVE DESIGN

- How would you assess the feature's homepage?
- Do you think the initial visual impression made by the feature is attractive for readers (colours, font, balance between text and images, etc.)?
- Does the design and/or presentation of the written texts included into the feature make reading it easier through the use of bold type, italics, enumeration or links to hypertext, etc.?

## HYPERTEXTUAL DESIGN

- Can the reader move around or navigate through the special feature story easily and/or intuitively?
- How would you rate the sections and subsections used to organise the content of the feature (as regards both number and content)?
- Is it easy for the reader to distinguish or detect the presence of links in the text included in the Wix feature?
- How would you rate the number of links embedded in the text and the quality of the content to which they provide access? Do you think these links serve as key words for the content to which they lead?

## MULTIMEDIALITY

- Do you think the feature contains sufficient complementary multimedia resources such as photographs, videos, audio tracks, graphs and/or interactive elements?
- How would you rate the news interest or value and the number of audiovisual resources developed by the students themselves for this feature?
- How would you rate the news interest or value and the number of audiovisual resources used as a source and not developed by the students themselves (i.e. those obtained from the Internet, YouTube, Vimeo, etc.)?
- How would you rate the sound and visual resources used (in the case of videos, please consider editing also)?

## INTERACTIVITY

- Is it easy to detect the existence of tools which facilitate interactivity in the feature? If not, what tools would you recommend for a feature of this kind?

## MOBILE DEVICES

- Responsive design / Ubiquity, Mobility
- Is the feature adapted for mobile devices?

## OTHER ISSUES

- Do you consider this work to be a feature story?
- Are the sources used adequate, as regards both number and diversity (official, non-official, personal, documentary, etc.)? Are they related to the issue in question and do they provide relevant information?
- Is the work publishable? Could it be disseminated through an online media outlet (assessment of professionalism)?
- Do you think that the feature shows that the students responsible for it have acquired the competences required of an online journalist?

During the second phase, upon conclusion of each of the multimedia features compiled and published on the group blog (news, feature, dialogue-based genre), the results will be shared with the students' counterparts at the other university through



the social media and web 2.0 tools. Feedback between students will be provided through comments on blogs, tweets, Facebook entries and specially-made videos and will incorporate each group's recommendations and proposals for improving the content in question.

Moreover, both the results of the research project itself and a sample of the best work produced in each subject and in each country will be presented at two international online journalism conferences organised by the teachers themselves: the International Online Journalism Conference held in Bilbao in November, and the International Online Journalism Symposium held every June at Campus Grande (Brazil). This enables students to share their work at forums attended by some of the leading professionals currently working in the online media and top academics conducting research into this field.

Finally, at the end of this second phase, satisfaction questionnaires will be administered to participating students with the aim of identifying areas in which the training proposal can be improved in the future.

## **5. Conclusions**

Although the project is still in its first phase, there are two main preliminary conclusions can be drawn from an analysis of the experience so far:

1. The publication of the practical assignments on free-access public platforms fosters the acquisition of the competences and skills inherent in the subject and provides students with a more realistic idea of the characteristics and workings of professional practice. This change in the way Journalism is studied helps foster a greater degree of dedication and responsibility among students when completing their Online Journalism Reporting assignments, which in turn results in better quality work and helps students learn how to solve the problems inherent in the task in an autonomous and creative way.

2. The use of a web 2.0 tool for publishing the work produced helps students acquire the knowledge, skills and abilities they will need to generate content in the diverse formats required by today's new communications models. However, although they initiate students into the use of basic characteristics, advanced multimedia contents have also been found to necessitate the use of a greater range of tools and require more effort and dedication to technical aspects, while interaction with readers is limited.

In short, this educational innovation in teaching methods enables students to acquire a more realistic idea of what journalism is all about; it provides them with an insight into the responsibility involved in providing people with information and helps them to internalise certain basic characteristics of the profession and to dedicate more time to compiling information, bearing in mind at all times the consequences of the content they publish.

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***Innovative Pupils!***  
***Documentary Research on Teaching and Learning Approaches for Innovativeness***

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**Abstract**

The German educational system is replete with claims for participation. The aim of the German primary school subject *Sachunterricht* (Primary Social and Science Education) is to enable pupils to assess, question and change their environment. In this paper we argue that there is a strong connection between participation, critical thinking and *innovativeness*—the ability to participate in innovation processes. We argue that participation and critical thinking can be strengthened by focusing on innovativeness. However, an initial research approach regarding education for innovativeness in *Sachunterricht*, revealed that teaching and learning materials currently used in a textbook for this subject hardly evoke or foster innovativeness. Therefore, we broaden the field of research in this paper to include teaching and learning *approaches*—including teaching materials as well as educational concept as a whole—, which include, but are not limited to *Sachunterricht* and are not necessarily in current use. This paper presents the results of an initial and explorative documentary research which aims to identify interdisciplinary teaching and learning approaches which evoke or foster innovativeness. Especially those approaches that focus on pupils' autonomous development of ideas or concepts possibly are considered to evoke or foster innovativeness. In the next step, these approaches shall be transferred to *Sachunterricht* for education for innovativeness.

Keywords: innovation, innovativeness, participation, primary education, teaching and learning approaches, *Sachunterricht*, documentary research

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## Introduction:

### Why Education for Innovativeness?

In this ever-changing world, it is unpredictable what the future holds (e.g. Schack & Timmermann, 2008). Individuals are challenged by complexities and contradictions (Beck, 2007; see also Weis et al., accepted). So-called innovations are emerging that promise improvement of the way we live (Weis et al. 2017a; see also Weis et al., accepted), and provide new (pseudo) courses of action which can change the world again (Degele, 2002). Consequently, the ever increasing options for taking several courses of action lead to a higher demand for regulation and coordination (Degele, 2002). Therefore, individuals are increasingly challenged to react to (unexpected) changes that they face (Postman & Weingartner, 1973; Gryl, 2013; see also Scharf et al., in print). In order to cope with this uncertain future and to be able to reflect on complex changing processes, people need to develop a critical mind-set. Furthermore, individuals need to be enabled to (re-)act competently to these processes, with an ability to participate in and shape society according to their own conceptions (ibid.; Weis et al., 2017a, 2017b).

Today's educational goals for primary school are set with this uncertain future in mind, stressing the importance of participation that supposedly enables pupils to handle these challenges (Schack & Timmermann, 2008; for Germany e.g. KMK, 2007; Schulentwicklung NRW, 2008; MSW 2008; GDSU, 2013; see also Weis, 2016; Weis et al., 2017a; 2017b; Scharf et al., in print). Aligning with the educational goals claiming to foster participation and therefore especially following a humanistic perspective on education (Humboldt, 1792/93), Weis et al. (2017a) argue that education should include the empowerment of pupils in order to enable them to cope with the outlined challenges. For this, schools not only need to foster defined skills, but especially offer open teaching and learning spaces which allow pupils to question current circumstances and to participate in decision making processes (Weis, 2016; see also Weis et al. 2017a; Postmann & Weingartner, 1973; Gryl, 2013; Scharf et al., 2016). Therefore, pupils should be enabled to learn autonomously and collaboratively, as well as to present their own opinions while respecting the viewpoints of others (Schulentwicklung NRW, 2008; see also MSW, 2008, Weis et al., 2017a; Scharf et al., in print). According to Gryl (2013), Jekel et al., (2015), Scharf et al. (2016), and Weis et al. (2017a, 2017b), in order to meet new challenges and to shape the world, *innovativeness*—the ability to participate in innovation processes—supports pupils more than just focusing on participation. However, apart from focusing on participation in education, innovativeness is hardly considered in the German educational system (e.g. MSW 2008; see also Weis et al., 2017b; accepted).

In this contribution we argue that the constitution of the German school subject *Sachunterricht* (Primary Social and Science Education) meets (1) the claim for participation aligning with education policy, (2) the need for pupils' empowerment according to a humanistic ideal of education, as well as (3) the need to stimulate innovativeness within this complex world: *Sachunterricht* offers multidisciplinary teaching and learning approaches covering different disciplines, i.e. social sciences; geography; history; economics; and physical sciences (Weis et al., 2017a). Consequently, the teaching of the subject *Sachunterricht* may evoke or foster

innovativeness (ibid.; see also accepted)<sup>1</sup> as critical thinking and participation is strongly connected to innovativeness.

Previous research regarding innovativeness in education has focused on teaching and learning materials currently used in the subject *Sachunterricht* (Weis, 2016).<sup>2</sup> As the results reveal, these textbook tasks (Kraft, 2014) are hardly associated with a humanistic ideal of education, but follow a more neoliberal educational praxis (see also Krautz, 2007):<sup>3</sup> The analysed tasks do not tend to foster or evoke innovativeness—neither directly nor indirectly (e.g. by fostering skills or abilities that can be linked to innovativeness) (Weis, 2016; see also Weis et al., 2017a, 2017b). For example, out of 495 tasks only about 14% of the tasks foster critical thinking, e.g. by inviting pupils to reflect on results, to formulate questions/hypothesis, or to compare certain scenarios (ibid). No tasks could be identified that enable pupils to present their own ideas in a creative way. Instead, closed task types are dominant, which provide defined response options (ibid).

Since initial research has shown that materials currently used in *Sachunterricht* neither foster or evoke innovativeness nor meet humanistic educational goals (Weis, 2016; see also Weis et al., 2017a), our present research projects seek more fruitful approaches to finding methods that evoke or foster innovativeness in education (Scharf, forthcoming; Weis, forthcoming; Weis et al., accepted, 2017b). In addition, we attempt to widen the field by extending the research object to include those teaching and learning materials and approaches that are promising in terms of their innovativeness but that have not been authored for *Sachunterricht* (Scharf, forthcoming). We attempt to achieve this by conducting an initial explorative documentary research (e.g. Mayring, 2002) on interdisciplinary teaching and learning approaches which include valid instruments to evoking or fostering innovativeness in schools. This research aims to find fruitful approaches that can be transferred to *Sachunterricht*. Therefore, in the following section, the model of Innovativeness (Weis et al., 2017b; see also 2017a) will be introduced first as the theoretical framework for the conducted research. Subsequently, the method and the results of the explorative documentary research will be presented.

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<sup>1</sup> Fruitful grounds to foster innovativeness are not only limited to *Sachunterricht*, but extend to further educational contexts (the importance of participation is stressed in education policy in general (Weis et al., 2017a) and by several other subjects in particular as outlined above) as well as informal learning contexts that are described as “spaces of the in between” by Gryl et al. (in print).

<sup>2</sup> The analysis (Weis, 2016; see also Weis et al., 2017a) is based on a category system developed by Weis (2016), which contains didactical frameworks relevant for the subject (GDSU, 2013; MSW, 2008) as well as for innovativeness (Gryl, 2013; Jekel et al., 2015; Scharf et al., 2016; see also Weis et al., 2017a).

<sup>3</sup> Therefore, education aims primarily to market-readiness (e.g. Ptak, 2010, cited in Gille, 2013; Liessmann, 2006) whereas a reflexive analysis of the world and the possibilities of social resistance and participation (Gille, 2013) fade into the background (Gryl/Naumann, 2016).

## Theoretical Framework:

### The Model of Innovativeness

Based on Jekel et al. (2015; see also Gryl, 2013, Scharf et al., 2016), Weis (2016, p. 35, tbta) defines *innovativeness* as “the ability to participate in the innovation process”. Since individuals—in this case pupils—shall not only be able to participate in only one particular innovation process, but in innovation processes in general, this paper broadens the definition of innovativeness to include this plurality. This ability to participate in innovation processes contains three components: reflexivity, creativity and implementivity (Jekel et al., 2015; see also Gryl, 2013; Weis et al., 2017a, 2017b). (1) *Reflexivity* is “the ability to question current circumstances and reflect on (own) actions and point out issues” (Weis et al., 2017b, p. 386/4; see also 2017a; Gryl, 2013; Jekel et al., 2015). (2) *Creativity* means “the ability to develop new ideas, named *inventions*, as solutions for stated issues” (ibid.), and (3) *implementivity* is “the ability to convince others of the need to overcome issues through [...] developed solutions” (ibid.). These components are needed to participate in innovation processes, meaning to innovate (Weis et al., 2017b).

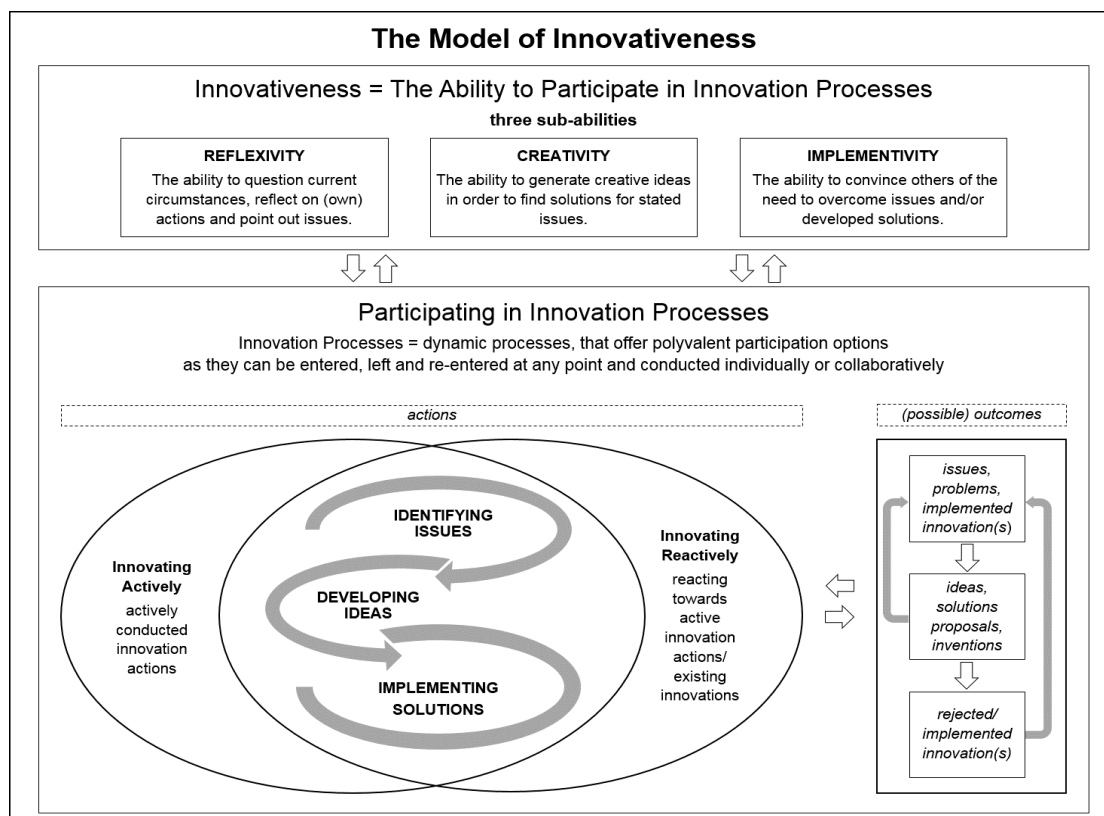


Figure 1: The model of Innovativeness (Weis et al. 2017b, p. 386/5).

Innovation processes contain three phases: *identifying issues*, *developing solutions*, and *implementing solutions* (ibid.). Figure 1 illustrates the model of Innovativeness, outlined by Weis et al. (2017b, p. 386/5; see also 2017a), including the relationship between abilities and innovation processes.

The three components are important at any point of this process (ibid.) because people need to be creative not only to develop a solution, but also to implement it. Since

innovation processes are dynamic, they “can [potentially] be entered, left and re-entered by [...] participants at any point” (Weis et al., 2017a, p. 213; see also Weis, 2016). In addition, people can participate in innovation processes individually or collaboratively (Weis, 2016). Thus, participating in innovation processes is not inevitably bound to participation in the whole sub-processes (ibid.). Furthermore, one can innovate either *actively*—meaning one takes an active role in the described processes or certain phases of the processes (Scharf et al., in print, 2016; see also Hartmann & Meyer-Wölfling, 2013; Weis et al., 2017b)—or *reactively* (ibid.). Innovating reactively refers to reactions to issues and (implementations of) solutions (ibid.). Thus, reflexivity plays an important role in the identification of issues as well as in reactively innovating in general. Stated issues and (implementations of) solutions can both be presented by others, and developed by means of intrapersonal communication (West & Turner, 2010). Due to possible rejections of the quality seal named *innovation* (Scharf et al., 2016), innovation processes and within this process developed inventions do not necessarily lead to innovations (Weis et al., 2016a). New production technologies can fail if they do not fit the cultural habits of use (Degele, 2002): for example, the new production technology of a hybrid corn by farmers in New Mexico in the 1940s was not successful as tortillas made from this corn were not as soft and considered less tasty than before, which lead to the use of the former production method (Volti, 1995, cited in Degele, 2002). Therefore, development and usage of solutions go hand in hand (Degele, 2002), and innovation processes consist not of linear, but alternating variations, as well as selections of designs and construction of issues as Pinch and Bijker (1987) illustrate with the invention of the bicycle (see also Degele, 2002).

The critical and reflexive approach of innovativeness described above mirrors the aims of the humanistic educational ideal (Humboldt, 1792/93) in which education fosters people’s awareness of their responsibility towards themselves and their environment. This ability enables people to have an emancipatory attitude (Heydorn, 2004), and helps to develop political maturity (e.g. Zichy, 2010; see also Scharf et al., 2016; in print, Weis et al., 2017a).

According to the model of Innovativeness, participating in innovation processes is highly demanding. However, the detailed illustration of the components and sub-processes can indeed be analysed by using a documentary research approach. This in turn can show the possibility of triggering components and/or sub-processes in order to evoke or foster innovativeness, even though innovativeness as a whole is not a topic addressed in the teaching and learning arrangement itself.

### **Documentary Research:**

#### **Analysing Interdisciplinary Teaching and Learning Approaches**

As the model of Innovativeness is in an early phase of its development, there is hardly any shared knowledge on innovativeness that would allow a quantitative approach (Kelle, 1994). According to him new knowledge neither evolves through generalisation of observations made without a theoretical background (induction), nor through speculative verbalisation of hypotheses (deduction). Instead, he argues for an abductive approach which combines theory and empirical work as a methodology for empirically reasoned theory construction (ibid.). In this context, Kelle and Kluge



(1999) plea for integrating empirical and theoretical work and a flexible analysis model in terms of a theoretical-driven qualitative approach (see also Weis, 2016). Following this, we used a documentary research approach (Mayring, 2002) in a first and explorative search of interdisciplinary teaching and learning approaches that evoke or foster innovativeness. The initial results are presented in this paper.

The main research questions are:

1. *Which teaching and learning approaches exist in other schooling environments that foster or evoke innovativeness?*
2. *Which teaching and learning approaches exist in other schooling environments that foster or evoke at least one of the three components of innovativeness: reflexivity, creativity, and implementivity?*

In order to answer these questions, we selected those teaching and learning approaches that had the potential for fostering or evoking innovativeness. We assume that pupils may also be innovative before they are exposed to a learning environment that evokes innovativeness and that therefore both scenarios—that of pupils learning to be innovative, and that they strengthen their existing innovativeness—are conceivable. Therefore, we differentiate between teaching and learning approaches that may evoke, and those that may foster pupils' innovativeness.

In accordance with Reimann and Mandl (2006) we define teaching and learning approaches as the construction of a learning environment considering certain didactical and methodological aspects which aim to impart and allow the acquisition of interdisciplinary abilities. Conforming to them and Reich (2005), we focus on constructivist learning theories and therefore constructivist teaching and learning approaches since those foster autonomous learning (ibid.). As Reinfried (2007) states, learning is a process which is active, self-regulated, constructive, emotional, social, and situational. Interest-related—and thus autonomous—learning leads to a subjective experience of positive emotions (Wild et al., 2006) which can result in an experience of flow (Csikszentmihályi, 2010). This experience can be characterised by the ability to concentrate on the actual activity; a change of the time perception; and a loss of negative concerns (ibid.). Besides, autonomous learning—following constructivist learning approaches—fosters intrinsic motivation (Wild et al., 2006) and fulfils one of the main psychological needs which is to experience autonomy (Deci & Ryan, 1993). Therefore, materials that provide the solution process(es) to given tasks, which to us would lead to avoiding pupils' independent mental construction, deconstruction and reconstruction of the world (Reich, 2006) was not considered in the analysis presented in this paper.

Following a humanistic education ideal (Humboldt, 1792/93), any corporate materials were also excluded from this analysis, as companies aim to convince pupils subversively that their products, methods or services are useful and reasonable (Kamella, 2013).<sup>4</sup> Due to pragmatic reasons and its explorative character, the research

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<sup>4</sup> We are aware that materials from school publishing houses are also subject to an economically driven sales agenda. Nevertheless, these providers are more likely to stick to state and public educational goals than lobby materials.

presented in this paper is also restricted to German teaching and learning approaches provided for schools (and not for universities, colleges, vocational schools, or adult education centres).

This initial and explorative enquiry leads to three main categories of possibly valuable teaching and learning approaches which represent powerful societal education approaches that may be used for education for innovativeness, particularly in *Sachunterricht: education policy, progressive education, and pupil competitions*<sup>5</sup>. These will be presented next.

### ***Education Policy***

Education policy can be understood as “state measures that aim to reform the education system” (bpb, 2016, tbta). In order to be part of this category, German teaching and learning approaches need to be recommended by a German ministry and/or provided by an institution/association which is funded by the German Federal Government.

This field was picked because education policy-recommended teaching and learning approaches may resonate with the political-educational claims of participation outlined above. Therefore, provided and/or recommended approaches from the *Bundeszentrale für Politische Bildung* (Federal Centre of Political Education) (bpb, n/d a), the *Verbraucherzentrale* (Consumer Advice Centre) (Verbraucherzentrale, 2017) and the *Ministerium für Schule und Weiterbildung des Landes Nordrhein-Westfalen* (Ministry of Education of North Rhine-Westphalia) (MSW, 2017) were analysed for initial research.<sup>6</sup> We focused on the state of North Rhine-Westphalia because of convenience (we live and work in this state) and because of the obligation of North Rhine-Westphalian standards for schooling in this federal state.<sup>7</sup> For this analysis, we did a word-search of the databases provided by these institutions, using terms derived from the model of Innovativeness. These were: *Innovativität* (innovativeness), *Innovation* (innovation), *Reflexivität* (reflexivity), *reflektieren* (reflect), *implementieren* (implement), *partizipieren* (participate), *Partizipation* (participation), *Mündigkeit* (maturity), *Problemlösen/Problem lösen* (problem solving), *gestalten* (shape), *erfinden* (invent).<sup>8</sup> The usage of these search terms allows a broader view on the evoking or fostering of innovativeness by teaching and learning approaches as the limited usage of only the outlined key terms of the model of innovativeness would provide. The results were then examined according to the

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<sup>5</sup> Future analyses may identify further approaches that foster or evoke innovativeness that can be used in *Sachunterricht*.

<sup>6</sup> As these entities do not involve all German education policy institutions/associations, further research is planned on other educational policy institutions/associations described above, for instance *Bundeszentrale für gesundheitliche Bildung* (Federal Centre for Health Education) (BZgA, n/d), and *Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit* (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety) (BMUB, n/d) (Scharf, forthcoming).

<sup>7</sup> In Germany each federal state has its own, independent educational policy.

<sup>8</sup> Further analysis will be extended to other word-searches related to the model of Innovativeness, e.g. *Kreativität* (creativity), and *innovieren* (innovate) (Scharf, forthcoming).

model of Innovativeness, i.e. constructivist learning approach, focus on reflexivity, creativity, and/or implementivity.

In contrast to the claims for participation made by the German education policy, only a few recommended teaching and learning approaches could be identified that would evoke or foster innovativeness. Actually, approaches of the *Bundeszentrale für politische Bildung* (bpb, n/d a.) do not seem to be valuable for education for innovativeness at all. The results are presented in table 1.

Table 1: Possible teaching and learning approaches that evoke or foster innovativeness approaches recommended by education policy (own research).

<u>Education policy source</u>	<u>category</u>	
	(1) civic participation/debating	(2) inventing/shaping
<i>Ministerium für Schule und Weiterbildung des Landes Nordrhein-Westfalen</i> (Ministry of Education of North Rhine-Westphalia) MSW (2017)	“Pupils Develop their Civic Consciousness on the Example of the Conflict of the Commuting Allowance” (Schulentwicklung NRW, 2010, tbta)	“Colourful Shaping. Developing and Collaging of City Pictures” (MSW, 2009, tbta)
	“Debate: Internet as School Subject?” (MSW, 2004, tbta)	“Pupils Invent Tasks of the Right-Angled Triangle” (Gymnasium Hohenlimburg, 2007, tbta)
	“Participation in Municipal Decision Making Processes” (MSW, n/d, tbta)	
<i>Verbraucherzentrale</i> (Consumer Advice Centre) (Verbraucherzentrale, 2017)	“Wikipedia. Shaping Knowledge Together” (Rack et al., 2014)	“Making Activities with Children” (Schön et al., 2016, tbta)
<i>Bundeszentrale für Politische Bildung</i> (Federal Centre of Political Education) (bpb, n/d a)	--	--

To pool the teaching and learning approaches which possibly evoke or foster innovativeness recommended by education policy, two categories were established: (1) *civic participation/debating*, and (2) *inventing/shaping*. To qualify for the first category, approaches needed to focus on the pupil’s civic participation and/or debating skills. For example, in one arrangement of this category, pupils learn how to share their knowledge on Wikipedia (Rack et al., 2014). Civic participation and debating are combined because debating plays a big role in convincing others of one’s own civic interests and because the only example on debating is an educational political topic which indeed is also about civic participation (e.g. if the internet should become a school subject; Schulentwicklung NRW, 2010). To qualify for the second category, approaches needed to ask pupils to invent or shape something new. The arrangement “Making Activities with Children” (Schön et al., 2016, tbta) for instance provides open learning spaces where pupils can realise their own ideas in workshops (ibid.) (see table 1).

### ***Progressive Education***

We decided to consider progressive education as teaching and learning approach that possibly evokes or fosters innovativeness since these education approaches focus on the child’s needs and interests; activity; creativity; and lifeworld (Skiera, 2003) which

are in accordance with the model of Innovativeness. According to these progressive approaches, school and civic lives are seen as belonging together (ibid.). Humanisation as well as democratisation of school life lies in the centre of education processes (ibid.). Progressive education is aimed at pupils who are seen as complex and comprehensive individuals, and therefore does not focus only on certain skills derived from neoliberal standards (ibid.). The didactical-methodological focus on aesthetic learning, interdisciplinarity, participation and pupil's autonomy (ibid.) of this approach resonates with the model of Innovativeness as well. In these types of approaches, our analysis focuses on already established progressive education models, based on Skiera (2003) with respect to the model of Innovativeness (Weis et al., 2017b), which will be presented in the next section.

*Montessori School* (e.g. Montessori, 1976) seems to foster innovativeness because it offers education within an environment that invites pupils to use provided materials on their own, both individually and collaboratively. Thus, the teacher's role is less focused on teaching in a classical sense, and more on supporting learning processes by arranging a fruitful environment for material usage, and supporting pupils to act autonomously (Skiera, 2003). However, Montessori School does not meet the claim for innovativeness presented in this contribution because of its focus on *Cosmic Theory* and *Cosmic Education*. The former describes in a messianic way the child as the epitome of a prospectively improving world and the latter aims at global responsibility and harmonisation of the world which seems to be reasonable, but is a heavy load for the pupils (ibid.). In addition, Montessori School contains obedience as an important factor to control pupils' deviant behaviour. According to constructivist learning theories (Reich, 2005; Reimann & Mandl, 2006) and the model of Innovativeness (Weis et al., 2017b), we view obedience as restricting innovativeness because creativity from this perspective is fostered by unconventional habits (e.g. Ritter et al., 2012; see also Weis et al., 2017a) and therefore inhibited by obedience (see also Gryl, 2013). As one of the most known progressive education concepts, *Waldorf Education* (e.g. Steiner, 2010 [1907]) also seems to foster innovativeness at first sight, since the role of the teacher is to support pupils in their almost independent acquisition of *fitness for life* (Skiera, 2003). However, a closer look at this teaching and learning concept reveals several problems: Firstly, the underlying theoretical concept consists of the outdated and untrue proven theory of the four humours (different body fluids which influence a person's character) (ibid.), which therefore cannot support education for innovativeness. Secondly, human beings are seen as a mirror of the cosmos, whereby attention to spiritual matters supposedly allows access to higher worlds (ibid.). Such an esoteric focus is not compatible with education for innovativeness. Thirdly—, and most importantly, with respect to the model of Innovativeness,—Waldorf Education does not focus on constructivist teaching and learning settings (ibid.).

In contrast, the *Dalton Plan* (e.g. Popp, 1995), the *Jena Plan* (e.g. Petersen, 1937), the *Modern School Movement (Freinet)* (e.g. Boehncke & Hennig, 1980), and the *Alternative School* (e.g. Borchert, 2003; Bundesverband der Freien Alternativschulen, 1992) may provide valuable concepts for education for innovativeness. All of these progressive education concepts have in common that they focus on the pupil's autonomy and responsibility which is in accordance with education for innovativeness. Learning takes place in a constructivist manner where the teacher is the organiser and facilitator supporting the pupils' learning processes. These take

place especially in art studios which support autonomous learning and creativity by open learning environments. Table 2 illustrates and compares the key features of these Progressive education concepts, based on Skiera (2003).

Table 2: Key features of progressive education concepts which might be valuable for education for innovativeness (own research, based on Skiera, 2003, p. 286-287, 309-310, 328-329, 352-353).

	<b>Dalton Plan</b>	<b>Jena Plan</b>	<b>Modern School Movement (Freinet)</b>	<b>Alternative School</b>
<b>Child Anthropology</b>	autonomous unit of society	Needs: among others creative participation in the world, (self-) responsibility	determines its own development	autonomy
<b>Educational principles</b>	freedom, responsibility, cooperation	interdisciplinary learning, emancipatory education	autonomous learning	participation, democracy, systemic thinking, responsibility
<b>Teacher</b>	encouraging, appreciating	organises pupil's learning processes	consultant/tutor, no teacher-centred teaching	not hierarchical, supportive, consulting, organising
<b>Methodological-didactical aspects</b>	among others subject-corner (ateliers), laboratory, conferences, individualised learning	interdisciplinary, project focused education	among others ateliers, atelier library, free presentations, individual working plan	self-responsibility, project-/teamwork, learning reports instead of grades, classroom as atelier

### ***Pupils' Competitions***

We identified pupils' competitions as potentially valuable instruments to support education for innovativeness as they provide new learning cultures through an activity-oriented setting and project work (Winter, 2015). For the analysis, pupils' competitions were examined that fulfil the criteria of the Kultusministerkonferenz (KMK), which is that competitions need to support the development of pupils' individual talents; foster innovative teaching and learning approaches, communication between participants, and school development. In addition, participation needs to take place voluntary; information, judging, implementation, and sponsorship need to be transparent; and not only the results, but also the process of taking part in a pupils' competition needs to be valued (KMK, 2009).

Three of the KMK's (2009) contest categories provide fruitful teaching and learning scenarios: (1) *Linguistic-literary-artistic competitions*, (2) *mathematical-scientific competitions*, and (3) *social-scientific competitions* (ibid.). From the first category, several competitions might foster innovativeness:

- "International Film Festival Hannover 'up and coming'" (Bundesweites Schüler- und Videozentrum e.V., 2017, tbta);
- "Theatre Meeting of the Youth" (Berliner Festspiele, n/d a, tbta);
- "Meeting of Young Authors" (Berliner Festspiele, n/d b, tbta);
- "Meeting of the Young Music Scene" (Berliner Festspiele, n/d c, tbta);
- "Federal Competition Youth Makes Music" (Deutscher Musikrat, 2017, tbta);

- “Federal Competition Youth Composes” (Jeunesses Musicales Deutschland, e.V., n/d, tbta);
- “Children go to the Mt. Olympus” (Kulturstiftung der Länder, 2015, tbta);
- “Youth Jazzes” (Deutscher Musikrat, 2016, tbta) (see also KMK, 2009).

Possibly valuable competitions in category (2) are:

- “Federal Competition Mathematics” (Bildung & Begabung, 2017, tbta); and
- “Federal Competition Informatics” (BWINF, n/d, tbta) (see also KMK, 2009).

The named competitions in category (1) demand inventive, unconventionally provocative individual movies, pieces, or texts, in which children/teenagers bring their own topics up for discussion in a creative form. In addition, the choice of genre, topic, and in the case of “Meeting of the Young Music Scene” (Berliner Festspiele, n/d, c, tbta) the choice of language is also open, which provides open learning spaces. In the later stages of the named competitions in the second category, a problem needs to be discussed with a mathematician or information scientist, which may foster innovativeness, especially towards the component implementivity. However, these competitions might foster innovativeness more than they evoke it, since there seems to be no support in innovation processes itself, but innovative results seem to be particularly honoured.

In contrast, the social-scientific competitions in the category (3) outlined by KMK (2009) might evoke innovativeness, as the following selected competitions illustrate: To participate in the “School Competition for Civic Education” (bpb, n/d b, tbta), pupils need to organise a project on their own where they implement children’s rights; solve problems emerging from ideals of beauty; develop possibilities of a cashless society; or create a children’s news programme (ibid.). “The European Competition” (Europäische Bewegung Deutschland e.V., n/d, tbta) asks for an application to the European Cultural Capital (ibid.), and “Youth Incorporates” (Steinbeis Innovationszentrum Unternehmensentwicklung, n/d, tbta) allows participating teenagers to develop and implement a business idea via simulation (ibid.). By taking part in the “School Competition for Development Policy of the Federal President” (Engagement Global, 2015/16, tbta) as well as in the “Competition Promotion Programme Democratic Agency” (Beutel, 2014, tbta), pupils can liberally chose and develop a project on development policy (Engagement Global, 2015/16), or on everyday life in school and social work, which enables the development of their agency towards responsibility (Beutel, 2014). Further competitions which possibly evoke innovativeness, especially those potentially leading to implementing solutions, is “Youth Debates” (Hertie-Stiftung, n/d, tbta) where pupils are challenged to develop/improve their argumentation skills; and the “School Magazine Competition” (Jugendpresse Deutschland e.V., n/d, tbta) which honours pupils’ self-created newspapers (ibid.). Thus, the presented competitions may evoke innovativeness and are thus similar to simulations, which Weis et al. (2017b; accepted) and Weis (forthcoming) consider as a valuable instrument for education for innovativeness.

## Conclusion and Outlook:

### Towards Teaching and Learning Approaches for Education for Innovativeness

To foster education for innovativeness in *Sachunterricht*, it is important to analyse existing teaching and learning approaches as Weis (2016; see also Weis et al., 2017a) did. The initial research showed that *Sachunterricht*-related material hardly evokes innovativeness (ibid.). In search for material that evokes or fosters innovativeness for the use in *Sachunterricht*, it is important to broaden the research field, and to analyse interdisciplinary approaches which can be used for this subject. This paper provided a first and explorative step towards a documentary research approach on interdisciplinary teaching and learning approaches that evoke or foster innovativeness, and approaches which evoke or foster at least one of the components of innovativeness. In doing so, the first results identify three main categories—education policy, progressive education, and pupils' competitions—and thereby specific teaching and learning approaches associated with these categories.

The next step will be to take a closer look at the identified approaches by leaning on grounded theory methodology (Glaser & Strauss, 1967; Strauss & Corbin, 1998). The approaches will then be used as an inspiration for the development of own teaching and learning approaches that evoke or foster innovativeness with a focus on simulations (Weis et al., 2017b; accepted; Weis, forthcoming). Moreover, we aim to expand our research on promising teaching and learning approaches in other German federal states in addition to North Rhine-Westphalia, in other countries and in other teaching and learning contexts in addition to schools (namely university; college; vocational school; and adult education centres) (Scharf, forthcoming). Following that, our assumptions will be tested and evaluated using mixed-methods (i.e. interviews, participant observation, and videography) (ibid.; Weis, forthcoming).

We also aim to further specify the model of Innovativeness (e.g. Weis, forthcoming; Scharf, forthcoming). Therefore, we will focus on the terms *creativity* (e.g. Scharf et al., accepted) and *innovation* (e.g. Gryl et al., forthcoming), and are planning to distinguish innovativeness from problem-solving ability, life skills, creative thinking, critical thinking, and discovery-learning. Moreover, we are focussing on the importance of language and debating abilities (e.g. Council of Europe, 2001), as well as collaborative abilities and innovation networks (e.g. Scharf et al., forthcoming).

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## ***Education of Teachers of Inclusive Pre-Schools in the Czech Republic***

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### **Abstract**

The requirements for teachers' expertise are changing according to the tendencies in education related to the implementation of inclusive education. This fact also concerns the field of pre-school education. The article introduces the current concept of pre-graduate preparation of pre-school teachers. It also presents the findings of the research in which we investigated the field of further education of teachers who already teach at schools. Furthermore, we present the positive features discovered and the investigated area issues. The research of inclusive education within the conditions of primary school and pre-primary school has been conducted since 2014 at the Faculty of Education, Palacký University Olomouc, Czech Republic. The research has been guaranteed by the Centre for Science and Research.

Keywords: inclusion, teacher, pre-primary school, research, education

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## Introduction

The strategy for educational policy in the Czech Republic generally aims at improving the results and motivation of children, pupils and students at all levels of the school system, from pre-school to tertiary education. It is based on the idea that education is to facilitate the development of every individual's potential to the maximum extent possible. This idea must be promoted through an educational system that can generally create a safe and stimulating environment and motivate children, pupils, students and other participants in the education process to learn throughout their lives. Furthermore, such a system should create opportunities to educate children from an early age, and via early intervention promote the participation of children in pre-school education, in particular the children from disadvantaged backgrounds and ethnical minorities. Other priorities include good availability and permeability of all school levels for all social groups and supporting individual integration of children, pupils and students with special educational needs. In order to achieve these priorities, it is necessary to ensure functioning advisory networks and thus reduce the number of dropouts and the risks resulting from school failure. The important priorities also include promoting the assessment methods which aim at monitoring individual progress of each pupil and student. (*Strategie vzdělávací politiky České republiky do roku 2020*)

According to the document *Strategie vzdělávací politiky České republiky do roku 2020* (*Strategy for Education Policy of the Czech Republic 2020*), inclusive education is one of the important priorities and it mainly involves ensuring the essential economic, social and educational conditions.

Based on an analysis of the current education system in the Czech Republic, three strategic priorities have been established:

- Reducing inequality in education;
- Supporting high-quality teaching and teachers as a prerequisite for such teaching;
- Responsible and efficient management of the education system.

## The current priorities of education policy in pre-school education

The priorities above are closely associated with pre-school education, which forms an integral part of the education system. Various analyses conducted in the Czech Republic (hereinafter referred to as the "CR") and OECD comparative analyses show the need to improve pre-school education, which is an important period in everyone's life. The current rate of children's participation in the CR pre-school education in the last year before entering primary school is over 88 % (in 2006 it amounted to 96 %). Despite the decrease, it is possible to say that the participation rate with regard to pre-school education is still satisfactory. Despite this high percentage, a new law has been passed, with effect from September 2017, to introduce compulsory pre-school education for the year immediately preceding the beginning of compulsory school attendance.

Since 2007 the CR pre-school education has been following the state curriculum which determines the basic framework for the school curriculum creation, depending on particular conditions of each school. Teachers prepare school and class curricula on the basis of the individualization principle, i.e. with respect for the child's needs and interests, with the aim to support the development of child's potential to the maximum extent possible.

Within the context of improving the pre-school education quality in the CR, the following measures have been adopted:

- Early recognition of child's difficulties through diagnostics in pre-school period, ensuring their professional solution and thus eliminating the postponement of primary school entry (the above step is a response to the lingering high rates of the postponement of primary school entry, approx. 18 %);
- Building up systematically the network of nursery schools and increasing their capacity and thus creating favourable conditions under which every child whose parents apply for that can be enrolled in a pre-school education institution (currently the pre-school institutions prefer children who have one year left to start compulsory school attendance);
- Building up collaboration between families and schools;
- Increasing systematically the participation of children from groups and locations threatened by social exclusion in pre-school education;
- Starting a discussion on the content of educating pre-school teachers and the possibility to require their higher qualification (we mention only some of the measures concerning the investigated area).

As our studies show, the most frequent problems found in teachers' work include the field of pedagogical diagnostics and project-based learning with the individualization principles. The above problem areas concern both common children and children with special educational needs.

### **Inclusive education within the conditions of a standard nursery school**

Pre-school education institutions in the CR are normally attended by children aged between three and six (i.e. before starting compulsory pre-school attendance). In the CR this education stage is provided by nursery schools (including the nursery schools for pupils with special educational needs), primary school preparatory classes and the preparatory stage of special primary school. The education content is implemented in accordance with the pre-school curriculum, which also applies to the children with special educational needs. The curriculum establishes the competences the children are supposed to acquire within the scope of their possibilities by the end of pre-school education. As far as the children with special educational needs are concerned, the teacher together with their parents and school advisory services (and other experts if necessary) prepare individual education plan which should facilitate the children's development taking into account their education possibilities. Another person who participates in educating the children with special educational needs is teacher's assistant, who is also part of the school teaching team.

As can be seen from the brief description above, the pre-school teachers should possess quite a wide range of professional competences. In pre-school teacher's work, in connection with inclusive education, it is important to monitor three groups of competences defined by the European Commission in 2005 in the *Common European Principles for Teacher Competences and Qualifications*. In order to develop every learner's potential to the maximum extent possible and establish the foundations of an inclusive community, the teacher should be able to work with information, knowledge and technologies, cooperate effectively with participants of the education process and be able to work with a community at a local, regional, national, European and global level. (Komise evropského společenství In Bartoňová, M., Vítková, M. et al. 2013, pp. 78-79). The standardization of inclusive teacher's competences was studied within the project *Teacher Education for Inclusion* by the European Agency for Development in Special Needs Education (2012). Four core values that represent the framework of essential competences were determined:

- *Valuing pupil diversity – the areas of competences apply to the inclusive education concept and the manner teacher perceives pupil diversity.*
- *Supporting all learners – the areas of competences apply to strengthening the academic, practical, social and emotional learning in all learners and effective teaching methods in heterogeneous classes.*
- *Collaboration – the areas of competences apply to working with parents and families and education specialists.*
- *Personal professional development – the areas of competences apply to the teacher as a reflecting worker and the field of pre-graduate education as a basis for lifelong professional development and learning.*

To ensure successful inclusive education, it is necessary to research into the area, with the aim to review the current situation, identify the factors that are involved in inclusive education, etc. In the CR, great attention to the research concerning inclusion is particularly paid by teaching researchers from academic backgrounds who focus on special education e.g. Vítková, M. (2008), Bartoňová, M. (2013), Ludíková, L.(2012), Souralová, E.(2017), Lechta, V. (2010).

The research study presented in the article deals with one of the significant factors, which is the competence of teachers for inclusive education in a standard nursery school. As researchers, we view the investigated area from the viewpoint of educators of the professional group concerned.

In the article we only present the selected areas of our research due to the limited extent of the text submitted. The first stage of our research was carried out at primary schools. It was an international research project (including the CR, Slovakia and Slovenia) and it is available in: Šmelová, E., Souralová, E. a Petrová, A. et al. (2017) *Social aspects of elementary school inclusion in the context of international research*.

### **The self-reflection of nursery school teacher's competence within the research context**

The Faculty of Education at Palacký University Olomouc (hereinafter referred to as the "FE PU") has a long tradition in professional education of nursery and primary school teachers. The Department of Primary and Pre-primary Education is responsible

for education programmes for the given professional group, which have to meet the requirements and needs of teaching practice and be within the context of science development. As already indicated in the *Introduction*, inclusive education requires the educators to equip teachers with specific competences, which cannot be done without the perfect knowledge of educational practices in schools. We believe that special attention must be paid not only to pre-graduate education, but also to further professional education of teachers, for which our department prepares and offers education courses. These courses are taught within the Centre for Lifelong Learning at the FE PU.

### **Research questions and research objectives**

Based on the above facts we face a fundamental research question: ***Is a nursery school teacher prepared professionally for inclusive education? What educational needs does a nursery school teacher have in an inclusive nursery school?***

### **Partial research questions**

*Is the current school, from the viewpoint of teachers in Czech nursery schools in the selected region, ready to implement inclusion in the schools?*

*Do the teachers perceive any barriers during the process of implementing inclusion in the schools?*

*Do primary school teachers possess the knowledge and experience needed for inclusive education and do they feel competent enough to cope with this new form of education?*

**Research objective:** To find out through a questionnaire investigation and interviews how the nursery school teachers view their own competence for inclusive education and how they view the conditions in the given field.

### **Research team:**

- Researchers of the Department of Primary and Pre-primary Education at the FE PU in Olomouc;
- Lecturers of the Institute of Special Education Studies at the FE PU in Olomouc.

**The research sample** consisted of teachers in standard nursery schools in the Olomouc region. The Olomouc region was chosen deliberately as it is a region where the schools cooperate with the Faculty of Education and where are good advisory services. Thus we did not expect many problems.

### **Number of respondents:**

The research sample was divided into two groups, depending on the length of professional experience, i.e. up to 15 years and over 15 years of teaching experience. For the purpose of our research project, we focused on the teachers with teaching experience under 5 years, who made up 41.6 % of all respondents. The table below shows the basic division. N=77.

Table 1: Respondents and their breakdown (in %) by length of professional experience

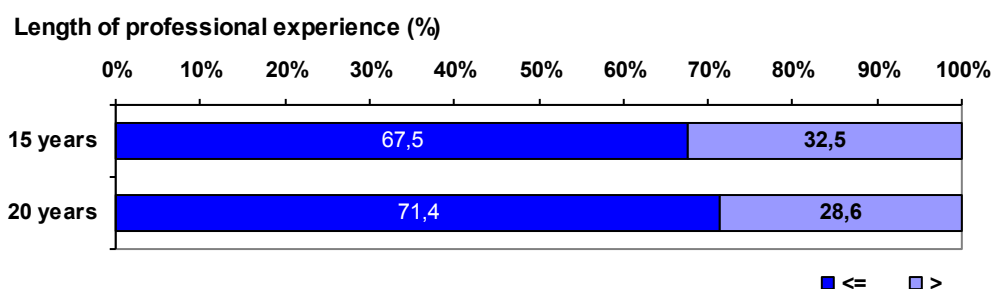
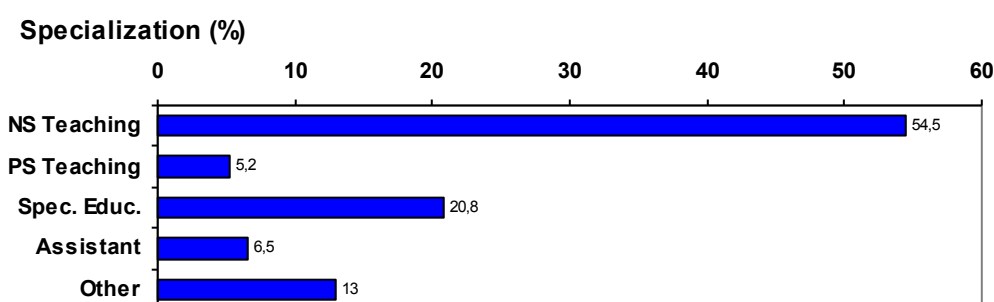


Table 2: Teacher specialization



Another variable we monitored was the subject of study the respondents had completed (see Table 2). The research sample included teachers who had studied a subject focusing on pre-school education (54.5 %), qualified primary school teachers (5.2 %), special education teachers (20.8 %), assistants (6.5 %) and other specialization (13 %).

The research sample scope was sufficient for this research phase in which the aim was to uncover the essential factors that could impede inclusive education in pre-school institutions.

### Research method and data evaluation method

For the research purposes the main research method applied was a questionnaire, which we had prepared and verified its validity and reliability. In order to supplement and specify some data, an unstructured interview with the respondents was also used.

### Research tool characteristics

The questionnaire structured by ourselves was designed for nursery school teachers and included 23 items.

1. Input identification data – information for the respondents.
2. Population (demographic) items – sex, the length of teaching experience and subject of study completed.
3. The questionnaire items focused on the following:

*Teacher's self-reflection, their experience, further education of teachers, benefits of inclusive education, conditions for inclusive education and on the assessment of advisory services.*

4. Final recommendations for teaching practice and improving its quality.

The questionnaire was approved by the Ethics Committee of the FE PU and its administration was in compliance with the anonymity principles and personal data protection in order to ensure the essential authenticity of answers.

### Statistical procedure

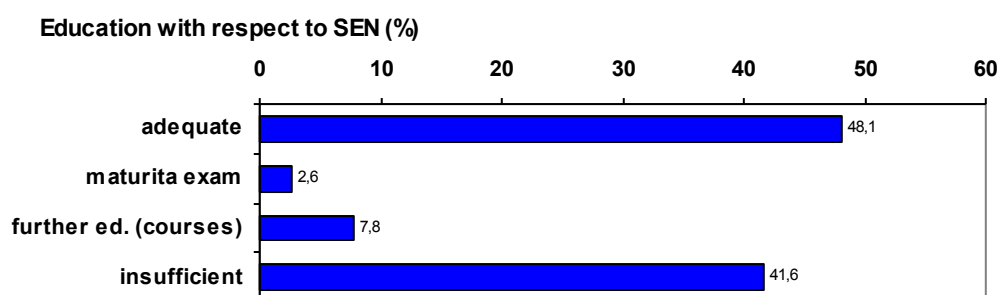
The statistical processing of research data was partly carried out by the Computer Centre of Palacký University Olomouc.

The statistical computations were performed by means of the PSPSS systems in 12.0 for Windows and STATISTICA: StatSoft CR s. r. o., STATISTICA Cz (a software system for data analysis). The data description was carried out using the basic statistical characteristics of central tendency and variability (the arithmetic average, median, mode, minimum, maximum and the standard variance). The demographic data included the calculation of the absolute and relative frequency. The Mann-Whitney U test was also applied.

### Research investigation

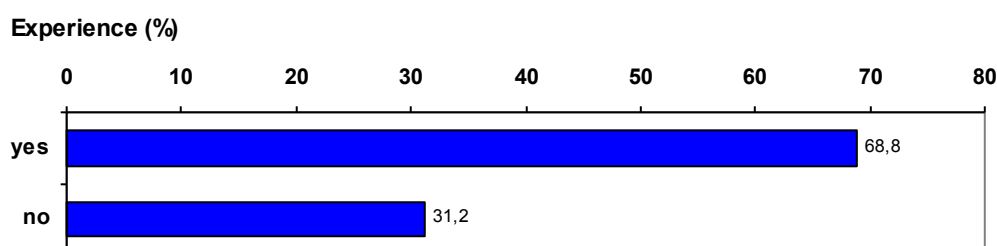
As far as qualification and age are concerned, the research sample is very diverse. Therefore it was necessary to set the unifying criteria for data evaluation (e.g. the length of professional experience and appropriate education).

Table 3: Respondents' education with respect to inclusive education (%)



The professional preparation for inclusive education was declared by 48.1 % (special education teachers, nursery school teachers – graduates of Special Education for Pre-primary School, and assistants). Only 7.8 % of all respondents said they had taken a course. Insufficient qualification was declared by 41.6 %. Based on these data, the professional preparation of pre-school teachers for inclusive education can be considered insufficient. We wanted to find out whether the teachers viewed their lack of professional preparation on the basis of their own experience.

Table 4: Experience with inclusive education (%)

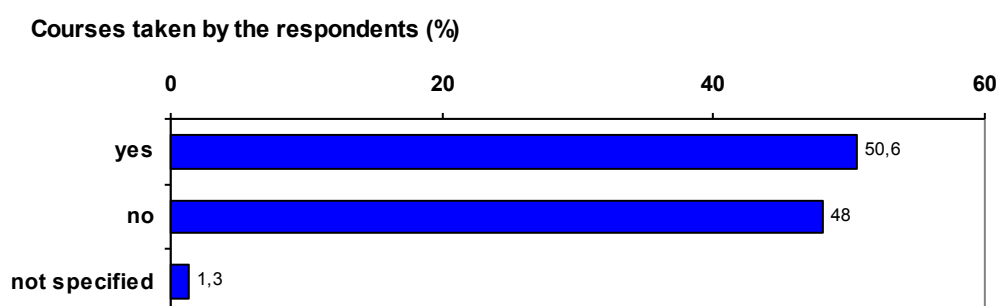


68 % of respondents declared they had direct experience teaching the children with special educational needs. 31.2 % of respondents said they had worked or were still working in a school with inclusive education, but they themselves did not work with the children with special educational needs.

In their work the teachers meet children with various handicaps. Most frequently, the respondents worked with mentally disabled children (37.7 %), next were children with speech and language impairments (22.1 %) and with ADHD (20.8 %). The respondents had the least experience with children suffering from hearing impairments (7.8 %).

Teachers can encounter a wide range of handicaps and their combinations. Thus it is quite evident that although the teachers with standard education know how to work with and develop pre-school age children, they cannot handle all of the issues associated with special education. Here the role of special education teachers and experts from special education centres comes to the fore. They are the professional mentors who continuously provide teachers with expert advice and cooperate with all participants in the inclusion process.

Table 5: Courses with the focus on inclusive education taken by the respondents



In view of the insufficient professional preparation and experience declared by some of the teachers, it is quite surprising that only 50.6 % of respondents took courses with the focus on inclusive education.

The question is: *Why do not a higher number of teachers participate in courses which are part of the teachers' further education? There can be various answers.* Here we applied unstructured interviews which uncovered possible causes: for instance, nursery school teachers mentioned the problem with substituting. Furthermore, the

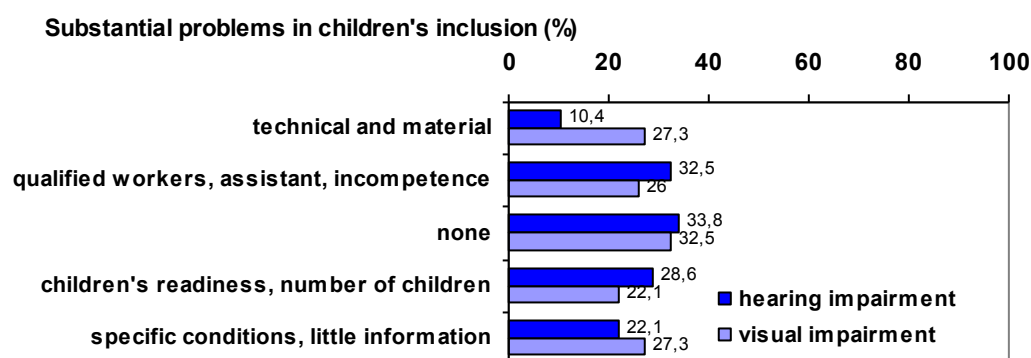
courses are often too general, with a little focus on nursery school teacher's work. Moreover, some courses are too expensive for the schools to afford them. Part of the teachers said they were "*sated with education*", and the problem of limited spare time was mentioned too.

At present a large number of primary schools and fewer nursery schools cooperate with faculties of education within the inclusion projects. Thus the education of this professional group becomes more systematic, it is free of charge and often carried out in the schools. In addition, the teachers cooperate not only with academic experts but also with field specialists with practical experience.

In our research we intended to find out where the teachers felt the greatest barriers to inclusive education.

The substantial problems declared by our respondents are shown in Table 6.

Table 6: The problems in the field of inclusion from the respondents' point of view



In this item we mainly focused on the inclusive education of children with hearing and visual impairments. These are the disabilities the teachers have the least experience with and at the same time it is the field in which they feel most uncertain and are most afraid of.

In the context with the previous item, it is quite interesting to see that the teachers do not have enough information, which corresponds with the teachers' insufficient participation in further education. The graph also indicates teachers' uncertainty, resulting from lack of professional knowledge and skills, which implies the question of *how to work with those handicapped children and how to develop them?*

Therefore it is possible to say that more than half of the teachers find inclusive education demanding and that they are uncertain in their work because they do not possess sufficient professional knowledge and skills for this type of education. In addition, they lack more effective collaboration with advisory services. Table 6 shows the difficulties the teachers are afraid of.



Table 7: Difficulties involved in inclusive education (%)

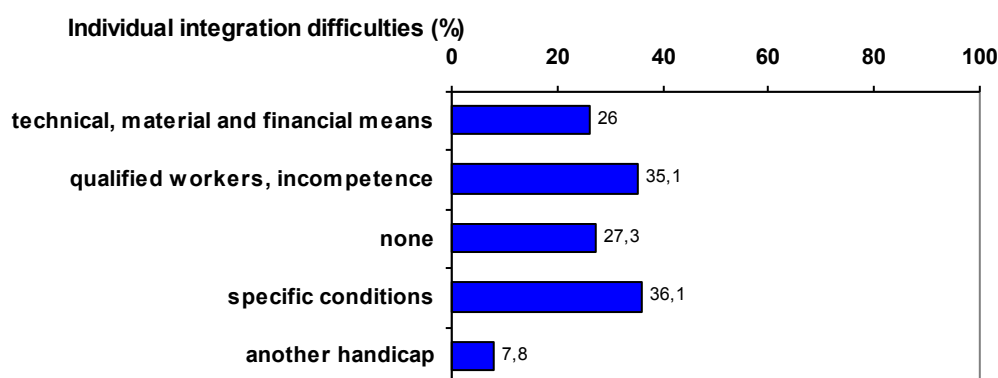
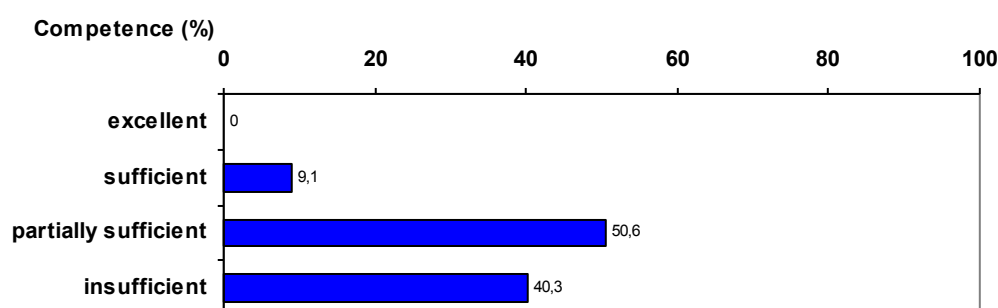


Table 8: Teacher competence for inclusive education



As was mentioned above, Tables 7 and 8 indicate apparent doubts and uncertainty in the competence required (35.1 %). It is also quite surprising that some of the teachers believe the children in question do not need specific conditions (36.1 %). This fact probably results from an incorrect interpretation of the term “inclusion”. Furthermore, the teachers think the current professional preparation for the inclusion process is only partially sufficient (50.6 %) or insufficient (40.3 %).

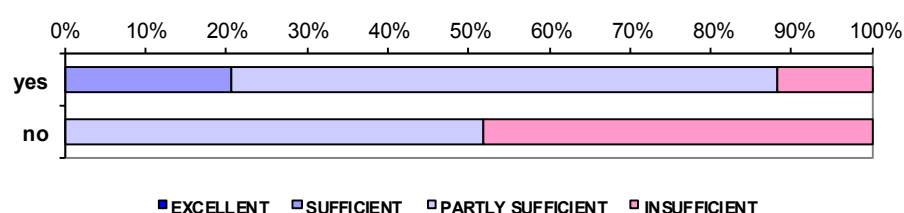
Our research included the issue of the number of nursery schools with a special education teacher who ensures the teaching team professional management in the inclusion process. We found out that although 57 % of the schools involved had a special education teacher, only 9.1 % of the teachers assessed positively their competence for inclusive education.

The context of items *Special education teacher in the school* and *Teacher competence for inclusive education* showed a statistically significant difference. Since the special education teacher cooperates with other teachers and manages professionally the inclusion process, we expected some progress in the teachers’ professional development. However, the research study did not confirm our assumption.

Table 9: Overview of statistical significances

Variable	Length of exper.				Experienc e	Courses	Teacher
	15	20	a : b	a : f	yes : no	yes : no	yes : no
<b>Competence</b>	0.677	0.741	0.701	0.992	0.286	0.528	<b>0.033</b>
<b>Hearing</b>	0.301	0.232	0.496	0.411	0.987	0.780	0.871
<b>Eyesight</b>	0.372	0.227	0.258	0.104	0.069	0.718	0.091

Table 10: Special education teacher in the school – competence assessment



Our research confirms the necessity to improve the professional preparation of pre-school teachers for the inclusion process, with the focus on skills interconnecting theory and practice, particularly the specialist disciplines with teaching practice the students perform during their studies. The research showed the absence of systematic further education in the field of inclusion. The teachers themselves consider insufficient qualification to be the greatest barrier to the inclusion process in which they lack the essential professional competences. It is necessary to make further education courses more attractive (selecting appropriate education methods and forms) and also cooperate more closely in issues dealt with by the Faculty of Education. The educational means that seem to be more and more effective include workshops supplemented by video records, microteaching, analyses, etc.

## Conclusion

The issue of professional competence in connection with teacher's personality can be considered from the general point of view, i.e. the competence for teaching profession itself, or from the specific point of view, which means the competence for teaching a given age group. As is well known from practice, even experienced teachers find themselves in situations in which they are uncertain about what to do and how to react, thus they might assess their abilities and skills as insufficient for handling such a situation. *What are the possible ways of intervention?* Bandura (1997) says that change in perceiving our own competence can occur only if a convincing feedback destroys our existing mistaken ideas of our capabilities. However, the older and more experienced the teacher is, the more stable is their perception of their own competence and consequently, the more difficult is to change this perception. Our results confirm this idea as older teachers with professional experience over 20 years tended to be

more critical. To sum up, teachers do not need any kind of preaching, but effective communication with all participants in education.

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***Does the Economic Crisis Affect Greek Adolescents' Academic Performance?  
An EST Approach***

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**Abstract**

The Great Recession, as the global economic crisis of 2008 has come to be known, has been the object of research regarding its impact on several parameters of individuals, including academic achievement. Ecological systems theory (EST) as a theoretical framework can potentially offer a deeper insight on the impact of established and well researched distal and proximal factors on students' academic achievement, such as Socio-Economic Status (SES). A person-process-context-time (PPCT) ecological systems model was applied: a longitudinal analysis using cross-sectional data from the Program for International Student Assessment (PISA). The results indicate that student performance is not only significantly affected by family Socioeconomic standards, but also that the economic crisis is a key distal influence factor; as such, it is a significant risk factor for student and teacher performance. It therefore should be taken into consideration when designing educational programs.

Keywords: Academic achievement, ecological systems theory, economic crisis,

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## Introduction

The biggest economic and financial crisis of the 21<sup>st</sup> century to date, also referred to as the Great Recession (Oberge, 2011; Goldstein, Kreyenfeld, Jasilioniene & Karaman Orsal, 2013; Dal Bianco, Bruno & Signorelli, 2014; Schneider, Waldfogel & Brooks-Gunn, 2015) was sparked in 2007 in the USA (Schneider et al., 2015) and resulted in a dramatic drop of national Gross Domestic Product (GDP), high unemployment levels and big reductions in countries' populations' income per capita around the world (Berberoglu, 2012; Dal Bianco et al., 2014). The impact of the financial crisis on virtually every aspect of everyday life and experience is deep and lasting, as it has directly determined national labour market policies which in turn have greatly affected unemployment rates and poverty in all sectors and specifically in the education sector (Dal Bianco et al., 2014). The current study's purpose is to investigate the Great Recession's impact on the students' home Socio-Economic Status ("home SES") that influence students' academic performance (Geritsidou & Paizi, 2017).

It has been suggested (Scarpetta et al., 2010) that youth are especially impacted (economically and occupationally) by financial crises of this magnitude, and even more so in the case of the Great Recession, to the point of characterizing some cohorts in some countries as "lost generations" (Scarpetta et al., 2010), with the aftermath of the negative effect lasting at least five years after the official end of the crisis even if such crisis was very brief (Choudhry, Marelli & Signorelli, 2012). One of the reasons suggested for the even greater impact on youth unemployment is that the transition from the status of student to the status of employee is made harder by the conditions of the shock under which the labour and financial market is operating due to the crisis (Scarpetta, Sonnet & Manfredi, 2010; O' Higgins, 2012). Due to the crisis, efforts for fiscal adjustments and reducing national deficits have incurred drastic reductions in the percentage of country GDP allotted to education (Ruxton, 2012; Fernandez-Rivas & Gonzalez-Torres, 2013). The lack of funding, both at a state and family budget levels has put great strain on the educational systems of countries hit by the Great Recession. At the state level, while research supports that times of economic crises have a positive effect on school enrollment and substitution effects (i.e. using credit economy to provide for the access to education services) that protect schooling access of students in families with financial strain, this relationship hinges on whether there is an increase in governmental spending on education and a relatively functional credit economy (Ferreira & Schady, 2009; Cruces, Gluzmann & Calva, 2012). This is not the case in the Great Recession not only in Greece but in several OECD and Eurozone countries, where education has suffered severe budget cuts (including wages) and the credit economy has also deteriorated (Ruxton, 2012; Fernandez-Rivas & Gonzalez-Torres, 2013; OECD EDIF, 2013). This often leads families to invest less in the education of their offspring as they become older and enter adolescence (Espey et al., 2010).

At the level of the family, economic issues can and do affect how long and how well a family's children will be schooled. Children and adolescents might be pulled away from school in order to help increase the family income or may simply struggle with mental issues that prevent them from fully benefitting from the learning environment at schools (Ferreira & Shady, 2009; Espey, Harper & Jones, 2010). At the same time, there is further deterioration of that learning environment through class disruption and

other externalizing problem behaviors such as bullying (Ferreira & Schady, 2009; Espey et al., 2010; Fernandez-Rivas & Gonzalez-Torres, 2013; Anagnostopoulos et al., 2014, Rajmil et al., 2015).

Teachers are mainly responsible for children's education within the school environment. However, their role has also been compromised due to the crisis. The economic crisis impact forces teachers to work in more challenging ways than before while they are paid less in an adverse economic environment. As a result, job satisfaction and the determination of teachers to remain employed within the educational system of the country are severely challenged and consequently the risk of burnout for teacher rises (Gkorezis, Gkorezis et al., 2016; Dudovitz, Nelson, Coker, Bieli, Li, Wu & Chung, 2016).

In addition to that, a link between teacher performance and their pay sufficiency has been reported as being important for students' academic performance and teachers' motivation to increase their teaching quality and responsiveness, in that they are more likely to innovate and cater to their students' needs in custom-made activities (Lavy, 2009). The pay of teachers has been lowered and this may have had a detrimental effect on the quality of the services rendered, as they primarily become emotionally strained and stressed from the emerging consequent financial problems they personally face as individuals and as family members themselves (Anagnostopoulos & Soumaki, 2013; Kolves & De Leo, 2014).

Research has shown that job satisfaction is directly related to income and economic stability as well as unemployment rates in times of economic crises (Gkorezis et al., 2016). Therefore one could suggest that having the salaries of teachers cut, and their numbers greatly reduced by layoffs or merges that require them to meet greater responsibilities than before, produces a "toxic" set of conditions that is highly likely to cause burnout and higher rates of job dissatisfaction among teachers. These conditions are also highly likely to affect the quality of their work by orienting them to secure their job rather than orienting them to advance and promote their quality of teaching or develop their skills and capacities for the benefit of their students. As such, the quality of teachers' work is at risk of deteriorating (Jackson & Lunenberg, 2010; Markovits, Boer & van Dick, 2014; Mertens & Beblo, 2016). Research suggests that this situation pushes teachers and highly qualified workers in all sectors to migrate to countries with a better work environment that will allow them to grow occupationally without the strain of the financial crisis to the extent that it is felt in countries such as Greece (Markovits et al. 2014; Gkorezis et al., 2016). The perceptions of teachers and their motivation for better performance in the classroom is quite an important element for the overall school quality, and as such the quality of the education system (Dudovitz et al., 2016). Teachers who are experienced, qualified and responsive to parents and pupils make for better academic and mental health outcomes (Ronfeldt, Loeb & Wyckoff, 2013; Dudovitz et al., 2016). It is evident, therefore, that the risks of an increasingly undermined quality of the education system of countries hit by the Great Recession as a result of the budget cuts and lack of resources previously enjoyed are higher, and as such both teacher responsiveness and academic achievement can be expected to suffer (Banerjee, 2011; Bell & Blanchflower, 2011; Gkorezis et al., 2016; Mertens & Beblo, 2016).



The educational system in Greece has been greatly influenced by the economic crisis. After the several consecutive budget cuts and austerity measures imposed is severely unfavorable for students, teachers and parents. Government spending on education has been reduced as much as 20%, teacher salaries have been nominally reduced to 2008 or even 2001 levels while the effect of inflation and direct and indirect tax increases has also further limited the purchasing power of what remains of the teachers' income; additionally, schools have been merged or shut to cut costs, funding for equipment and special programs for support for special needs have become virtually inaccessible (Ruxton, 2012; Anagnostopoulos & Soumaki, 2012; EDIF, 2013, EACEA 2013; Ziontaki, 2016). New teachers are being recruited very sparingly, with new teacher openings in public schools having been reduced by 88% while a further cutback of 10% in governmental funding after 2013 imposed on education is likely to exacerbate the situation (Ziontaki, 2016). At the same time, class sizes in schools have increased and have become more and more heterogeneous, undermining teachers' ability to teach as well as their responsiveness to students and increasing the risk of burnout (Bru, 2009; Gkorezis et al., 2014).

Basic needs such as having students fed are not consistently met anymore as household capacity for proper nourishment and maintenance of their children is deteriorating, on one hand, and funds for standard costs such as classroom heating and building maintenance are progressively withdrawn from schools, on the other (EACEA, 2013; Rajmil et al., 2014; Ziontaki, 2016). At the same time, as already mentioned, services that are not typically the schools' responsibility are being demanded due to the inability of the state to have them met in their proper institutions, such as provision of food, financial and psychological support (Kentikelenis et al., 2011; Anagnostopoulos & Soumaki, 2014, Economou et al., 2014; Zavras et al., 2016; Ziontaki, 2016). There have been indications that social class differences are becoming more pronounced within the school environment among students. At the same time, teachers are increasingly perceiving that the school environment fails to provide equal opportunities in times of such acute economic crisis as the Great Recession (Tzanakis, 2011; Ziontaki, 2016).

**Students' socio-economic status (SES) can significantly affect students' academic performance. Specifically, Students** with low SES are at a higher risk of low academic performance than students with high SES, an effect that persists regardless of the students' intelligence levels (Bradley & Corwyn, 2002; Schoon & Parsons, 2002; Sacker, Schoon & Bartley, 2002; Rothon, 2005; von Stumm, 2016). Not only is the students' own (and family) SES important as a predictor for how they will perform in school, with higher student/family SES predicting higher probability of high academic achievement (Crawford & Goodman, 2010; Bellibas, 2016), but also the SES of their peers, with higher peer SES associated with higher probability of academic achievement. In the case of their peers, students seem to be thusly affected on more aspects influencing their academic achievement, such as externalizing behaviors and motivation (Valdez, Lambert & Ialongo, 2011; Bould, Crespi & Schmaus, 2012; Nicholson, Strazdins, Brown & Bittman, 2012; McLeod, Uemura & Rohman, 2012; Feng & Li, 2016). Apart from the objectively measured SES, perceived SES of the student also plays a significant role on performance. How the student perceives and categorizes his/her own self as regards his/her own SES might play a role as important as his/her actual SES in the student's sense of well-being and academic performance (Leung & Xu, 2013).

## The Ecological Systems Theory

The Ecological Systems Theory (EST) is a model of human development within the context of a person's living environment originally proposed by Urie Bronfenbrenner (1979) (Bronfenbrenner, 2005). According to EST, human beings develop in constant interaction with their social environment, as that is organized according to different levels of influence exerted on the individual (Grant & Ray, 2016). The innermost level of influence is the *microsystem*. It comprises all social elements in direct sustained interaction with the individual (e.g. such as parents, friends, teachers etc). Intimately linked with the microsystem is the *mesosystem*, representing all the individual's relationships at work among the members functioning in different microsystems, and assorted risk or resilience factors that might be associated with them (Neal & Neal, 2013). Encasing and influencing all microsystems in mesosystems is the *exosystem*, comprised of social institutions and organizations not in direct contact with the individual but which influence him/her regardless (e.g. state and government regulations and legislations, etc). Interacting with all these systems and influencing them is the *macrosystem*, comprised of the individual's society's culture, social norms and general beliefs and values. Such elements as the social ramifications of race, ethnicity, religion and assorted beliefs and attitudes are parts of the macrosystem (Duerden & Witt, 2010; Rosa & Tudge, 2013; Grant & Ray, 2016). Finally, the *chronosystem* is comprised by the historical time and the historical conditions in which the individual lives and is raised. The experiences and historically-specific stimuli the individual grows up with will influence profoundly how that individual interprets and sees the world (Grant & Ray, 2016).

The regular interactions of an individual with his/her environment over extended periods of time are called *proximal processes* (e.g. attending school; routines of a child; acquiring skills; making plans) (Bronfenbrenner, 2005). These proximal processes are vital for human development, especially for children and adolescents (Brendtro, 2006; Duerden & Witt, 2010; Burns et al., 2015).

Affecting the proximal processes are the *distal processes*. They are elements that influence the experience of the individual's proximal processes either due to the individual's genetic factors or factors stemming from the individual's exosystem or macrosystem (e.g. SES, culture, rules and regulations, prerequisites and laws in education) (Tudge, Gray & Hogan, 1996; Bronfenbrenner, 2005; Benner, Graham & Mistry, 2008).

Finally, the element of time (the chronosystem), the historical period in which the individual develops and both proximal and distal processes are taking place, is the final facet in EST that can demonstrate that development has taken place. The research design that allows for such simultaneous examination of all the elements of influence including the historical period in which the person develops is called the *process-person-context-time* (PPCT) research design model (Tudge et al., 1996; Bronfenbrenner, 2005).

The current study sought to investigate the moderating impact the Great Recession has had on the association between students' home SES and their academic performance in Greece. The datasets of the Program for International Student Assessment (PISA) for years 2009, 2012 and 2015 were used. PISA is an

international survey that takes place every three years, assessing 15-year-old students from several countries around the globe on their academic competence. The survey provided an estimation of each country's educational system in terms of quality, efficiency and competence building (see About Pisa). The survey is conducted by the Organization for Economic Cooperation and Development (OECD). Greece has participated in all the surveys that have been conducted, the most recent one being in 2015. The surveys are always conducted under strict technical requirements as far as sampling, materials and data collection protocols are concerned in order to ensure samples in each country are representative of its student population and properly weighted and stratified. To operationalize the PPCT model in this study, structural equation modelling (SEM) methodology was applied within the ecological system theoretical framework. It is hypothesized that the Great Recession (the chronosystemic influence) will significantly affect the direct effect of students' home SES on students' academic performance. It is also hypothesized that time will have a significant differential impact on the direct effects of student's home SES on teacher responsiveness and in-class disruption.

## **Method**

### **Participants**

Across all three cohorts the dataset sample was reduced by excluding all participants except those that identified themselves as Greek, reported both parents being Greek and the spoken language at home as Greek. Similarly, respondents attending technical and evening schools were excluded as the focus of this study was on students attending regular five-day-a week daytime mainstream secondary schools.

As a result, the 2009 sample was reduced to 3403 students, the 2012 sample to 3334 students and the 2015 sample to 3710 15-year-old students. Across all three samples, girls were approximately 50-53% of the sample size and boys 50-47% with a standard deviation of about .49.

### **Materials and Analysis**

To be able to plausibly compare the responses from the three different years, those items and parts of the materials in the PISA datasets were selected that were either identical in their phrasing and manner of measurement or standardized. Structural equation modeling (SEM) was selected as the methodology of statistical analysis (Arbuckle, 2013, Byrne, 2010).

SEM is a two-stage procedure of statistical analysis of covariance for multivariate data, in a structural model that includes manifest and latent variables. SEM is particularly well suited for using data analysis to make inferences while maintaining a confirmatory approach as it is based on covariance rather than correlation analysis. Covariance structure analysis is a statistical approach that generally yields more information than correlational analyses as it can map out how two variables covary rather than simply their correlation (Byrne, 2010; de Carvalho & Chima, 2014).

For the current study, the same structural equation model was used to test the hypothesis of mediation of the effect of student home SES on student performance,

teacher responsiveness and in class disruption, simultaneously for the years 2009, 2012 and 2015. In order to measure the effect of time on the model, i.e. the financial crisis in Greece, the following analysis was applied: the full structural model was estimated for all three years separately for goodness-of-fit as stand-alone SEM. Afterwards, all three models were tested simultaneously to derive a multigroup solution and permit the ad hoc testing of selected structural paths for significant differences across groups. Significant differences across groups found, by means of the Chi-square difference test, indicate the presence of a significant effect. Any statistically significant difference detected in the three SEM for years 2009, 2012 and 2015 are plausibly a function of the moderator which in our case is time (i.e. the effect of the crisis that had its official onset at 2009 and is still ongoing), according to the principles of the EST (Bronfenbrenner, 2005).

## Results

The effect of time (the economic crisis in Greece) as a moderator of the structural estimates between years 2009, 2012 and 2015. The effect of the moderator is estimated by the chi-square difference test ( $\Delta\chi^2$ ). The chi-square difference test is considered a precise test (Arbuckle, 2013) and therefore it is a reliable basis for the assessment of moderator effects (Barron & Kenny, 1986; Muller, Judd and Yzerbyt, 2005).

The chi-square difference tests for years 2009, 2012, 2015 were performed on the following structural paths: SES  $\rightarrow$  PER (the effect of student home SES on performance), SES  $\rightarrow$  TEA (the effect of student home SES on teacher responsiveness), SES  $\rightarrow$  DIS (the effect of student home SES on in class disruption). The chi-square difference test was:  $\Delta\chi^2=(1604.911-1558.730)=46.181(2)$ ,  $p\leq.001$ . We reject the null hypothesis of no difference between the SES  $\rightarrow$  PER path across the three years (omnibus test).

For the same structural path, for years 2012 and 2015, the chi-square difference test was:  $\Delta\chi^2=(1576.185-1558.730)=17.455(1)$ ,  $p\leq.001$ . We similarly reject the null hypothesis of no difference in the SES  $\rightarrow$  PER path between years 2012 and 2015.

For the SES  $\rightarrow$  TEA path, the chi-square difference test was:  $\Delta\chi^2=(1595.543-1558.730)=36.813(2)$ ,  $p\leq.001$  across the three years (omnibus test). We reject the null hypothesis of no difference in the SES  $\rightarrow$  TEA path across the three years.

For the same structural path, for years 2012 and 2015, the test was:  $\Delta\chi^2=(1562.092-1558.730)=3.36(1)$ ,  $p=.066$ . We fail to reject the null hypothesis of no difference in the SES  $\rightarrow$  TEA path between years 2012 and 2015.

For the SES  $\rightarrow$  DIS path, the test was:  $\Delta\chi^2=(1573.405-1558.730)=14.675(2)$ ,  $p\leq.001$  across all three years (omnibus test). We reject the null hypothesis of no difference in the SES  $\rightarrow$  DIS path across the three years.

For the same structural path, for years 2012 and 2015, the test was:  $\Delta\chi^2=(1567.378-1558.730)=8.648(1)$ ,  $p\leq.001$ . We similarly reject the null hypothesis of no difference in the SES  $\rightarrow$  DIS path between years 2012 and 2015.

## Discussion

Results demonstrate that there is a significant effect of the Great Recession on the school-based proximal processes of 15-year old Greek students, as well as on the distal process of students' home SES; thus confirming the findings of current research on the effect of the economic crisis (Bittman & Bradbury, 2012; Banerjee, 2011; Bould et al., 2012; Anagnostopoulos & Soumaki, 2013; Brydsten et al., 2016).

Across the three years examined in the study, students' home SES was consistently found to exert a direct effect on students' academic performance. This suggests that the students' access to resources as well as his/her perception of his/her own SES plays a significant role on how he/she will perform academically within every year, in line with previous research findings (e.g. Schoon & Parsons, 2002; Sacker et al., 2002; Rothon, 2005; von Stumm, 2016).

What is noticeable is that from year 2009 to year 2012, this effect becomes much stronger. The year 2009 was still the beginning of the Great Recession for Greece. However, year 2012 was well within the negative impact of the crisis, with all the impacts described in the introduction deeply felt (Kentikelenis et al., 2011; Anagnostopoulos et al., 2013). It can be suggested, therefore, that access to resources and goods becomes immediately more important a factor in order to maintain performance levels since family home SES exerts a stronger influence on the likelihood of better academic performance of the student as the crisis progresses (Goodman et al., 2011; Valdez et al., 2011; Enriquez et al., 2012; Bould et al., 2012; Nicholson et al., 2012).

Year 2015 still was a year deep in the social turmoil of the recession, with increasing cost of living and increasingly limited access to the resources available to the average Greek (Kokkevi et al., 2014; Ziontaki & Vissariou, 2014; Ziontaki, 2016). However, it was also a year of intense political turbulence. For a big part of 2015, except for the dire circumstances of the impact of the Great Recession, there was also considerable hope in Greek society that the austerity policies would be terminated post-elections and instead social support would be reflected on new policies that would increase accessibility to goods and services for the average citizen in Greece (Wood, Szamosi, Psychogios, Sarvanidis & Fotopoulou, 2015; Catsambas, 2016). That hope never materialized, as indicated by later surveys and reports (Catsambas, 2016; Zavras et al., 2016). It is interesting therefore that during 2015, the effect of student home SES on students' performance remains much higher than that of 2009, but it seems to have lessened somewhat, compared to that of 2012. This statistically significant fluctuation could be better explained in future research if comparison of the next PISA assessment cycle's data is performed in 2018. It could be suggested, however, that the perceived levels of SES the students have during 2015, could be due to a possible hope that life would begin to revert to pre-crisis standards,

The effect of the Great Recession is quite stark in the progression of the effect of students' home SES on teacher responsiveness. While in 2009, when the full brunt of the crisis had not yet fully hit, there was a small positive effect of SES on teacher responsiveness, implying that the student's family was able to ensure better teacher quality for their children, this effect becomes non-significant and changes direction (becomes negative) in 2012, while in 2015 the effect remains negative and becomes

much stronger. This seems to indicate that students' home SES becomes unable to positively affect teachers' responsiveness three years into the crisis and in fact affects it negatively six years into the crisis. The results seem to confirm earlier research (eg. Jackson & Lunenberg, 2010; Markovits et al., 2014; Mertens & Beblo, 2016).

Considering that teachers were severely hit by the budget cuts, pension and wage cuts (EDIF, 2013; Ziontaki, 2016), it can be suggested that teachers' responsiveness suffers as a result of their low job satisfaction as well as the stress and strain of having to do more with a lower income. The drastic changes in the class parameters, some of which include larger student numbers and higher levels of heterogeneity among students also is likely to play a role, thus accounting for the negative effect of students' home SES on teacher responsiveness in 2015 (Bru, 2009; Anagnostopoulos & Soumaki, 2012; Ziontaki & Vissariou, 2014; Ziontaki, 2016).

Another interesting observation is that, unlike the case of students' home SES on students' performance, the political turbulence and temporary change in hope and outlook of the Greek society about the anticipated end of austerity during 2015 does not seem to have reversed the direction of teacher responsiveness in 2015.

For the teachers, this suggests that vague expectations of improvement in the teachers' standard of living, as well as that of the average citizen, do not constitute a strong resilience factor able to protect against the actual impact of the crisis on their actual circumstances and their responsiveness at school. This interpretation finds support in research (Tzanakis, 2011; Lee, 2012; Markovits et al., 2014) that has shown that such expectations cease to have any positive or protective impact on general life outlook and associated job performances when the economic threat faced is too severe, as is the case in Greece (Kentikelenis et al., 2011; Matsaganis & Seo, 2014; Ziontaki, 2016; Gkoretzis et al., 2016).

For year 2009, the effect of student home SES on in-class disruption was small, negative and non-significant. In year 2012 it not only changes direction, becoming positive, but also becomes of considerable magnitude and significant, only to revert to a small, non-significant yet still positive effect in 2015. **There can be several suggestions to explain such an effect.** Primarily, research has shown that class disruption can be a function of the school's lack of consistent administrative and pedagogical policies as well as large class sizes (Valdez et al., 2011; Lavy et al., 2012; McKee et al., 2014).

Before the crisis onset, Greek public schools did not suffer from great reshuffling or disruptive changes (Ziontaki, 2016), just like their private counterparts, while unlike their private counterparts, right after the onset of the crisis, state schools started going through merges and close-downs as well as having differences in the class parameters and a shortage of teachers that also become progressively more pronounced. It could therefore be suggested that by year 2012, student home SES differences in relation to the school quality became more relevant as the crisis' impact started to become felt: students for whom their family could ensure access to a school with more resources and more consistent day-to-day conditions, could enjoy a better class environment than students who had to endure a constant situation of flux and a downward spiral for their school, ranging from access to amenities to staff quality (Boulton, 2008; Bru, 2009; Lee, 2012; McKee et al., 2005; Weiss, 2017).

However, this situation seems to change for year 2015. It appears that student home SES can only very moderately protect students from a disrupted class environment. This could be due to the teachers' worsening mental health, job satisfaction and financial situation (Ruxton, 2012; EACEA, 2013; Ziontaki, 2016), in conjunction with the effect of changes of student home SES parameters over time, including perceived SES changes across social classes and associated changes in SES composition (mother's and father's occupational status, wealth and cultural capital measures).

This can be a reason for class disruption, since the teachers cannot engage their students academically or motivate them as efficiently as they could before, regardless of their students' home SES and associated cultural capital, and as such discipline becomes problematic (Tzanakis, 2011; Valdez et al., 2011; Wubbels & Brekelmans, 2005; Lee, 2012). Thus, the traditional role of the teacher as an agent of class reproduction (Bourdieu and Passeron, 1977) cannot possibly be sustained under these conditions (Tzanakis, 2011).

## **Conclusion**

This study is one of the few, if not the only one to date, to examine the impact of the Great Recession on students' academic performance using an EST approach, and in particular by applying the PPCT research design. It was shown that the Great Recession significantly affects students' performance through SES, teachers' responsiveness and class disruption. It becomes evident that the economic crisis has much deeper and lasting an impact on education than it was thought. This is the reason why the consequences of the economic crisis must be taken into consideration in educational planning and rigorous intervention is necessary to provide students with resilience against it.

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## ***The Effect of Stimulating Children's Brains Using Digital Games on Their Information Retention***

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### **Abstract**

Children of the “Digital Age” are very attached to smart devices. It is not easy for parents and educators to resist this “smart” wave; therefore, the challenge is to make use of it. The researchers believe that the children are in their optimum time of mental activity when they play games. While playing, they race, jump, and make many critical decisions; their minds become stimulated and ready to receive knowledge. At this optimum time, if they study or review their school lessons, they will show improved information retention because they reviewed their lessons when they were in their optimized and receptive mental condition. In this study, the researchers investigated the effect of digital games on student information retention. The research question was: Would stimulating children's brains using digital games enhance their information retention?

An experimental design was used. Ninety five children ages 7 to 14 were divided into six groups. All groups went through three scenarios where they were asked to memorize information. In the first scenario, children were stimulated using digital games while they were not in the other two scenarios. After each scenario, the children sat for a 5-minute test composed of 10 questions. At the end, scores of the three scenarios were compared. Results of the scenario that incorporated playing digital game were the highest among the three different scenarios. This was the only scenario where children played digital games. This showed that children's attention, working memory, and information retention improved while they were playing digital games.

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## 1. Introduction

Today, we are living in a rapidly changing world of technology. It is claimed that our children are defined by the technology devices they use. They are the Z generation; technology is their native tongue. They are not only highly dependent on technology, but also are compelled to stay connected (Turner, 2015). Their digital devices, especially their smart phones, have become extensions of their bodies and portals to their entire world. They take them to their classes, to their beds, and even to bathrooms!

Rideout, Foehr, and Roberts (2010) reported that the American child played, on average, at least one hour of digital games on his/her game console (such as, Nintendo Wii, Sony PlayStation, or Microsoft Xbox), or handheld device (such as, Nintendo DS, smart phones, or tablets). That was seven years ago! Nowadays, our children's world is highly saturated with technology; "they think and process information fundamentally and differently than their predecessors" (Prensky, 2001, p. 1)

## 2. Effect of Digital Games on Cognition

When it comes to digital materials, research has taken various directions: how children process these materials; what cognitive skills they affect; how they aide the formation of mental models; and how cognitive skills can be improved in relation to academic learning (Pedró, 2008). He also added that digital media use - whether in formal or informal settings - can potentially enhance various cognitive skills including: memory, attention, thinking, and executive functions, such as strategy use and planning. Moreover, Bejjanki et al. (2014) stated that playing digital games improves children's attention, perception, and cognition in a substantive manner.

Researchers have been studying how different digital materials (including digital games) affect children's cognitive abilities and how these abilities could be better trained in the context of academic learning (Pedró, 2008). Bavelier, Green, Han, Renshaw, Merzenich, and Gentile (2011) reported that their participants' cognitive functions significantly improved when they played digital games. The acknowledged gains were in mental processing speed, memory retention, attention, and cognitive control. They also stated that behavioral changes were directly affected by brain changes which meant performance improvement was highly expected from these children. Digital games not only influence children's cognition positively, but they also cause "corrective" neurological changes in their brains. They added that their use could result in generalized benefits one of which was academic success (Bavelier, et al., 2011). However, at the same time, they reported that children's playing digital games on a daily basis was inversely associated with their academic achievement; the time they spent on digital games was extracted from their homework time thereby diminishing performance (Bavelier, et al., 2011).

## 3. The Research Experiment

In 2014, the researchers began working on an app that can be used to make students study in a new innovative way (Hammoud, Shatila, & Adada, 2014). This app allows the child to keep playing for a few minutes. Then, all other apps are paused and a popup screen presents an academic question to be answered by the child. S/he is not able to close the popup screen before getting the right answer. Just then, the app closes allowing the student to go back to

his/her game. Having had good results, the researchers decided to further investigate the effect of creating an intervention in children's game play.

In this study, the researchers are investigating the effect of digital games on student information retention. The research question was:

Would stimulating children's brains using digital games enhance their information retention? The researchers believed that when children's brains are stimulated through playing digital or video games they would be more prepared to process information than when their brains are not stimulated by video or digital games.

### **3.1 Methodology**

#### **3.1.1 Research Design**

For this research, an experimental design was used. Six groups of children of various ages went through three scenarios. In the first scenario, children were stimulated using digital games while they were not in the other two scenarios. After each scenario, the children sat for a 5-minute test composed of 10 questions. At the end, scores of the three scenarios were compared.

#### **3.1.2 Sample**

The sample for this research was composed of 95 children ages 7 to 14. Seventy males and twenty five females participated in this study. Children were chosen from a local scout colony that hosts children from various areas, ages, and socioeconomic status. The participants were divided into two categories according to age. The first category had 47 children of ages 7 to 10 while the second category had 48 children ages 11 to 14. The 47 children of the first category were divided into three groups with 16 children in the first two groups (Group 1 & Group 2) and 15 children in the last group (Group 3). The 48 children of the second category were divided into three groups of 16.

#### **Inclusion Criteria**

Children who participated in the study know how to play games on mobile phones and are aged between 6 and 15 years inclusive.

#### **Exclusion Criteria**

Children who do not know how to play games / use mobile phones and those who are aged below 6 or above 15 were excluded.

#### **3.1.3 Instruments**

For the experiment, there were two categories of tests. The first category was prepared for children ages 7 to 10 and the other was prepared for children ages 11 to 14. Each category had three different tests of equal difficulty and each test included 10 multiple-choice questions. The tests were numbered from 1 to 6. Tests 1, 2, and 3 were in the first category while tests 4, 5, and 6 were in the second category. To ensure validity of the results, the researchers distributed the test versions over the scenarios. Each scenario had a different test

version for the different groups. This way, all three tests of each category were solved in each scenario (but each test for a different group). For example, Test 1 was solved by Group 1 in Scenario A, by Group 2 in Scenario B, and Group 3 in Scenario C and so on. Table 1 summarizes the distribution of the various test on the different groups according to scenarios

**Table 1. Test Distribution**

	Scenario A	Scenario B	Scenario C
<b>Group 1</b>	Test 1	Test 3	Test 2
<b>Group 2</b>	Test 2	Test 1	Test 3
<b>Group 3</b>	Test 3	Test 2	Test 1
<b>Group 4</b>	Test 4	Test 6	Test 5
<b>Group 5</b>	Test 5	Test 4	Test 6
<b>Group 6</b>	Test 6	Test 5	Test 4

The tests were distributed to children as hard copies and children had to circle the right answer. The maximum grade a child could get on each test was 10 and all questions had an equal weight of 1/10. All questions were general questions about different animals and children had to solve the questions after studying the information in one of the three different scenarios.

## 3.2 Procedures

### 3.2.1 Implementation

The experiment was conducted on Tuesday 22<sup>nd</sup> of November 2017, a holiday in Lebanon, at 1 P.M. Children arrived at the experiment site and were directly sorted according to age into the six groups mentioned earlier. Each group of children was accompanied by two supervisors. Each group went through three different scenarios. After each scenario, children sat for one of the 10-question tests. Tests were then scored on a scale of 0 to 10 and tabulated on an excel sheet. Grades related to the different scenario were then compared.

### 3.2.2 Scenarios

The researchers believe that when children are playing, their brains would be stimulated to a high extent. Thus, they would process information faster and more efficiently. This in turn would improve information retention. In order to do so, three scenarios were used to check the effect of digital games on student retention.

In the first scenario (Scenario A), children were given smart phones to play and a set of papers containing 10 pieces of general information on animals. The children were allowed to play for 3 minutes then they were stopped in order to study the first piece of information in the sheet. This process continued until they finished all the sheet. Following the playing and studying process, the children sat for a 5-minute test to check their retention of the

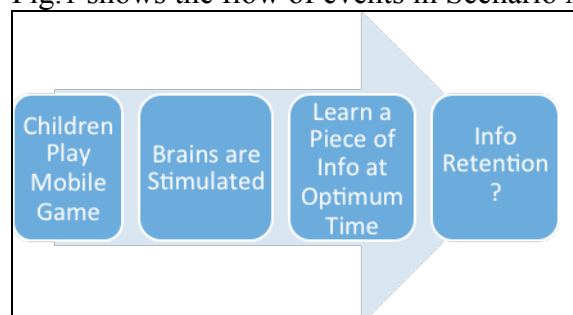
information they had studied whilst playing. The children played for 30 minutes, but they were stopped every 3 minutes for 1 minute to study. The overall time for this scenario was 45 minutes (30 minutes of play, 10 minutes of study, and 5 minutes for assessment). This scenario was designed to measure retention when children study after stimulating their brains with digital games.

In the second scenario (Scenario B), children replicated what they did in the first scenario but playing with smart phones was replaced with resting and chatting. Children rested and chatted for 3 minutes and then spent 1 minute studying. They did this for 10 pieces of information. Then, they sat for a 5-minute test to check their retention of the information they studied. The researchers wanted to check if taking breaks between study periods had the same effect as stimulating children's brains with digital games.

The third scenario (Scenario C) was different. Children were given 10 minutes to continuously study 10 pieces of information. Immediately after that, they sat for a 5-minute test to check their retention of the information they studied. This scenario symbolized the normal way students study. It was designed to measure student retention through "traditional studying".

The order of scenarios differed for each group. Groups 1 and 4 went through Scenario A then Scenario B then Scenario C. Groups 2 and 5 went through Scenario B then Scenario C then Scenario A. Finally, Groups 3 and 6 went through Scenario C then Scenario A then Scenario B.

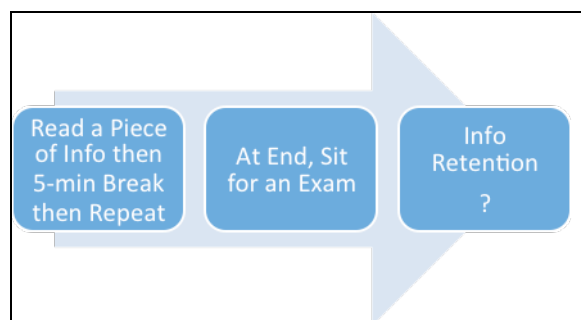
Fig.1 shows the flow of events in Scenario A.



**Fig.1 – Proposed Innovative Way**

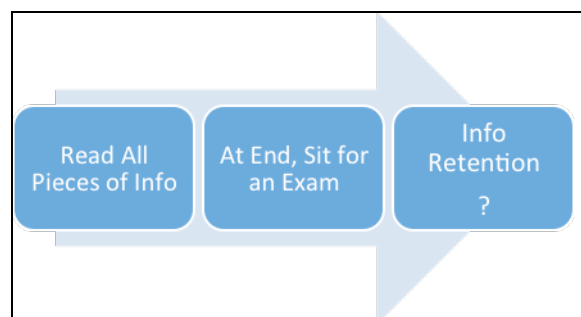
As illustrated in Fig.1, the children used smart phones to play a game. After 3 minutes of playing, every child was requested to read a piece of information. Once done reading, the child resumed playing. Every 3 minutes, the child read a new piece of information.

Fig.2 depicts Scenario B that included giving the children a break after each piece of information.



**Fig.2 – Break after Reading a Piece of Info**

Fig.3 represents Scenario C (traditional method). The children read one piece of information after the other without taking breaks. At the end, they sat for an exam to check how much they learned.



**Fig.3 – Traditional Way**

### 3.2.3 Statistical Tests

The researchers used SPSS to analyze the data they got from the experiments. Grades were tabulated and then labeled according to scenarios. Grades for Scenario A were labeled as 1, grades for Scenario B were labeled as 2, and grades for Scenario C were labeled as 3. Then, the researchers used an ANOVA to compare the grades children got on each scenario. The ANOVA showed that a difference existed between the grades on each scenario so it was followed by a post hoc test.

### 3.3 Results

The ANOVA showed that there was a significant difference between two of the three scenarios. The ANOVA was followed by a post hoc test to check which scenarios were statistically different. The tests showed that Scenario A had the best grades followed by Scenario B and then Scenario C. Table 2 shows the detailed statistics.

**Table 2. Descriptives**

Points over 10

Scenario	N	Mean	Std. Dev.	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
A	93	6.10	2.313	.240	5.62	6.57	1	10
B	93	5.47	2.362	.245	4.99	5.96	1	10
C	93	5.18	2.413	.250	4.69	5.68	0	10
<b>Total</b>	<b>279</b>	<b>5.58</b>	<b>2.385</b>	<b>.143</b>	<b>5.30</b>	<b>5.87</b>	<b>0</b>	<b>10</b>

As shown in Tables 3 and 4, children of Scenario A had an average of 6.10, children of Scenario B had an average of 5.47 and children of Scenario C had an average of 5.18. There was a statistically significant difference between grades of Scenario A and grades of Scenario C with  $p=0.09$ . Grades of Scenario A and grades of Scenario B were very close to being statistically different with  $p=0.073$ . Grades of Scenario B and C were not statistically different.

**Table 3. ANOVA**

Points over 10

	Sum of Squares	df	Mean Square	F	Sig.
<b>Between Groups</b>	40.566	2	20.283	3.632	.028
<b>Within Groups</b>	1541.204	276	5.584		
<b>Total</b>	<b>1581.771</b>	<b>278</b>			

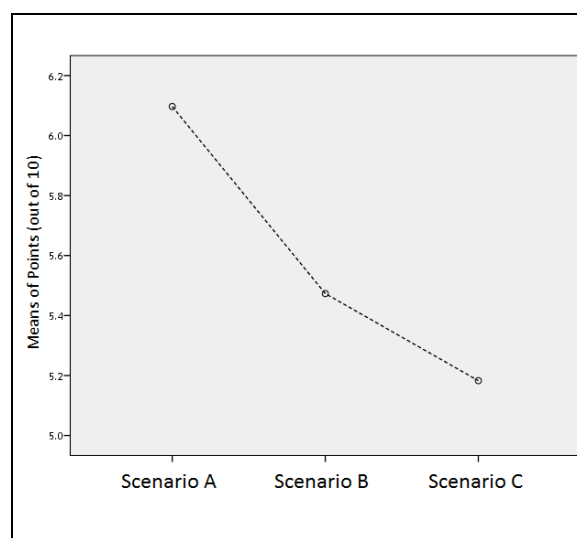
As per the Post Hoc Test, it is revealed in Table 4, where the first two columns represent the scenarios. As shown in the two shaded cells, the mean difference is significant at the 0.05 level.

**Table 4. Multiple Comparisons**

Dependent Variable: Points over 10 LSD

(I) Num Type	(J) Num Type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
A	B	.624	.347	.073	-.06	1.31
	C	.914	.347	.009	.23	1.60
B	A	-.624	.347	.073	-1.31	.06
	C	.290	.347	.403	-.39	.97
C	A	-.914	.347	.009	-1.60	-.23
	B	-.290	.347	.403	-.97	.39

Fig.4 shows the Means of the children's grades in the three scenarios.



**Fig.4 – Means of Children's Points**

#### 4. Discussion

When children play digital games, it is hypothesized that a variety of their cognitive skills are improved in ways that can help them benefit academically and in different fields (Greenfield, 2009; Newcombe, 2010; & Papastergiou, 2009). Bavelier, Green, Pouget, and Schrater (2012) stated, “What video games teach is the capacity to quickly learn to perform new tasks – a capability that has been dubbed ‘learning to learn’ ” (p. 392). Moreover, according to Green and Bavelier (2012), playing digital games has an effect on children's behavior as well as their metacognitive skills; a child with improved attentional abilities “will learn to perform new tasks at a faster rate than an individual without such capabilities — in other words, they will have ‘learned to learn’.” (Green & Bavelier, 2012, p.R204). Moreover, Bavelier, Green, Pouget, and Schrater (2012) studied how digital games affected brain plasticity and learning; they found out that the participants' metacognitive capacities improved when they played digital games - their learning to learn bettered. Other researchers argued, however, that although repeated exposure to such digital tasks might improve children information processing as it relates to games, it is not evident that such improvements will transfer to other nongaming contexts, such as education (Owen et al., 2010; Shipstead, Redick, & Engle, 2012).

In this research, the researchers were studying the effect of digital games on children's information retention. They wanted to see if children's brains function differently after being stimulated through the use of digital games. Results of Scenario A were the highest among the three different scenarios. This was the only scenario where children played digital games. This showed that children's attention, working memory, and information retention improved while they were playing digital games. This is supported by several studies. When Clark, Tanner-Smith, and Killingsworth, (2016) compared children's use of digital games to other instruction conditions without the use of digital games, they found a moderate to strong positive effect on children's cognitive competencies when they played digital games. Furthermore, when Green and Bavelier (2012) studied the role of participants' improved attentional control to explain the observed differences found in their behavior when they played digital games, they affirmed, “While some viewpoints may assume that enhanced

attention is the proximal ‘cause’ of the superior performance — in other words, an end in and of itself — we have recently considered the possibility that enhanced attention is instead a means to an end, with that end being better probabilistic inference.” (Green & Bavelier, 2012, p.R204). Abbott (2013) also claimed that when participants played digital games, some of their cognitive skills- such as attention and working memory- that were not directly targeted by the game itself enhanced. Moreover, according to Green and Bavelier (2012), digital games could potentially improve children’s memory, speed up processing, enhance executive functions, and boost fluid intelligence. Furthermore, Campbell-Dollaghan (2015) also reported that digital gamers’ frontal cortexes and hippo campuses, which are associated with memory formation and learning, were more active than those of non-gamers, and their posterior cingulate cortexes, which are associated with episodic memory and spatial learning, exhibited more activity. In addition, Powers, Brooks, Aldrich, Palladino, and Alfieri (2013) stated that in quasi-experimental studies as well as in true experiments, the use of digital games had a positive effect on participants’ information processing. Other research showed that digital game play improved children’s ability to choose appropriate information over time (Green & Bavelier, 2012).

## **5. Future Work**

The researchers believe that this is only a small perceptible part of a much larger research work. Teaching children with stimulated minds should not only result in better information, but also in better analysis, comprehension, and overall mental conditions. Future research work should focus on how good stimulated children can be in terms of analysis, information processing, problem solving, and mathematical logic.

## **6. Acknowledgements**

The researchers thank the parents of the participants who received, filled, and signed a consent form to confirm their agreement on their children’s deliberate voluntary participation in the study. Study conditions were explained to them.



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***Learning Needs in the Modern Edutainment System (On the Base of Partworks)***

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**Abstract**

The close proximity between mass media and education has increased during the last few decades, and entertainment education ('edutainment') has been one of the results. We have a long-standing instance of informal educational patterns within media with regards to the modern terms of peripheral commercial mass media that appeared in the second half of the twentieth century and that still holds a niche market. It exists in the form of collectable serial magazines (partworks), that impart a degree of practical skills or knowledge in some specific field. Ostensibly an encyclopaedia in a narrow field of human activity or knowledge, partworks demonstrate a wide range of interests: practical skills (e.g. cake decorating), natural sciences (e.g. geographical encyclopaedias), humanitarian sciences (e.g. history), technology (e.g. 3D printer), popular culture (e.g. Star Wars Millennium Falcon). In the article, partworks are seen as creative goods and tools for building up a special learning environment for their customers on the principles of edutainment and infotainment.

Keywords: informal learning, mass media, edutainment, infotainment, partwork magazines.

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## Introduction

In the modern world, the sphere of education experience a massive influence from the side of the mass media, and this influence is increasing during the recent years. From one side, it leads to the development of the professional educational media, specially designed for providing learning functions for both children and adults. From the other side, this proximity between the mass media and education promote anxiety about the quality of the media products for educational use. The accessibility of the mass media and their abundance of nearly any kind of information in all fields of human knowledge make it a very popular source for informal learning, which is often based on the information given for educational purposes in an entertaining way. In this relation, two phenomena are in the focus of this study – *infotainment* and *edutainment* – portmanteau words combined of *information/education* and *entertainment*.

This paper is an attempt to analyze the principles of entertainment education on the example of partworks (collectable magazines), which are marginal elements of the modern media system, but rather significant and popular as media-based sources of informal learning. Partworks publishing is a big global business and similar magazines appear in many countries. Partworks were not under detailed analyses of educators while they could illustrate the close ties between education and the media. This study hopes to bring some questions about educational perspectives of partworks and shows the directions of learning interests, which are covered by these sources of information. To investigate these questions, I try to outline partworks as a part of the creative industries and as an informal learning source in the edutainment system using document study methodology, thematic and content analyses.

### *Infotainment and Edutainment as new approaches for information and knowledge*

The *infotainment* term was firstly used to describe the new principle of arranging television and radio programmes (e.g. news, talk shows), according to which they should contain the elements of both information and entertainment programmes. The understanding of infotainment has developed and now includes not only television and radio, but also print media (newspapers, magazines) and digital media (Molek-Kozakowska, 2017). In the investigation of the print-based media, the text and its elements have become the focus of the researchers. To stress the most significant aspect for our study, *infotainment* describes mostly the form in which information is given, rather than the content. Infotainment is the base to determine a new hybrid media genre with its mix of formats for television and radio programs, newspapers and print magazines, e.g. so called ‘soft’ news given in the entertaining form (Otto, Glogger, & Boukes, 2017). Thus, the principle of creating the media product as an informative and entertaining blend has come to the press from the television and nowadays connections between information and entertainment become the base for further development of media information design.

The *edutainment* term, coined by Walt Disney in 1948, is used for *educational entertainment* or *entertainment education*, but really does not have one clear meaning. Edutainment, as it referred to Disney films, aims ‘to educate as well as entertain: to actively convey factual information about the real world, while using it as a backdrop for comedy or drama that, in turn, leavened the educational elements of the productions’ (Van Riper & Bowdoin, 2011, p. 2), as a result the content becomes

“information-rich, but lively and engaging’ (ibid., p. 4). Buckingham (2007, p. 123) describes edutainment as ‘a hybrid mix of education and entertainment that relies heavily on visual material, on narrative or game-like formats, and on more informal, less didactic styles of address’. The *edutainment* term can also be referred to ‘informal education’ from the audience’s point of view because since 1960s the process of informatization creates the diffusion of the mass media and education among the audience (Littlejohn & Foss, 2009). Although edutainment seems to be an answer to the question about the balance between education and mass media in a new digital world, there is the massive amount of critical issues directed on the convergence between education and entertainment which is personified in the influence of Walt Disney and his company on the contemporary culture and modern society. For instance, the term ‘disneyfication’ unifies academic criticism of global entertainment business among which Disney Company is one of the biggest representatives (Willis, 1995). Harris (2005, p. 50) writes about the activity of the modern leisure and entertainment business as ‘converting cultural capital to economic capital’. The analyses of consumerism and commercialism of ‘big business’ in cultural life of the modern society leads to critical examination of the values embedding in most ‘cultural’ products. For instance, the representation of countries in Disney products are influenced by many stereotypes: e.g. China is always presented as ‘pre-revolutionary’ (ibid., p. 52). Being used as a source of information in the global edutainment media environment, such kinds of mass media products can influence their consumers’ perceptions of the world and caused problems in their understanding of the human culture and history. In general, media shape our worldview by ‘a patterning of actions and production which limits the forms in which the social world gets presented’ (Couldry, 2012, p. 106).

Research on *edutainment* phenomenon can answer the questions about the difference between educational media and entertainment media, and ways to measure the balance between education and entertainment in order to be able to define median phenomena, which cannot be undoubtedly classified. For example, educational media can be defined as ‘curriculum-driven products developed around a deliberate plan to teach’ (Kirkorian & Anderson, 2008, p. 188). Consequently, *Sesame Street* programme is an educational product, because it has ‘educational advisors’, works from a ‘formal curriculum’ and is based on some educational theory, and though *Tom and Jerry* may teach some information, it is ‘purely entertainment’ programme (ibid., p. 189). Admitting educators’ understanding of educational media, I should notice that the main problems with definitions begin when *Tom and Jerry* is used to teach children mathematics (e.g. “Tom and Jerry Addition Game”).

### **Partworks as creative goods**

Partworks as media products are a part of the sphere, which has multiple names – media industries, entertainment industries, information industries, leisure industries, cultural industries, creative industries (the overview is in Hesmondhalgh, 2015; also Roberts, 2004; Gopalan, 2009; Flew, 2012). The latter term, coined in 1990s in Australia, now is the most accepted one. Creative industries include film industry, journals and newspaper publishing, television, etc. – all of them lie ‘at the crossroads between the arts, business and technology’ (Gopalan, 2009, p. 6) and reveal considerable influence of popular culture. Nowadays, researchers critically describe popular culture on its way to transforming to ‘consumer culture’, which is a

‘degradation of culture’ (Adorno, 2001, p. 17). The unification of culture and commerce make this process faster and the existence of the culture began to be driven via the processed of commodification, standardization and reification (ibid., p. 21). Creative industries can be also seen as a part of world innovation system as a tool to disseminate new knowledge and technologies (Potts & Cunningham, 2008; Keane & Zhang, 2009). Hesmondhalgh (2015, p. 4) defines one of the key characteristics of cultural industries – their ability to influence on ‘our understanding and knowledge of the world’, and most usually cultural industries ‘make and circulate texts’. The negative element is that commercial enterprises pursue mostly their profit, and thus commercial interests dominates in many spheres of entertainment, cultural and social life. Creative industries are ‘big business’ in the modern world and as they want to make profit, the educational goals can go as only secondary ones (if they ever present). Partworks are a good example of the creative industry product. While they accumulate almost all negative features of this industry, the commercial use of learning still contributes to knowledge dissemination and influence the consumption of specific products, e.g. *Ultimate Real Robots* series (Eaglemoss International) has influenced consumers’ interest for robots (Wyatt, Browne, Gasson, & Warwick, 2008).

The result of unification of culture and commerce is the production of cultural (or creative) goods. These products usually convey ideas in their content, present symbolic interpretations, inform, entertain, and contribute to creation of collective identity of a person and a society (Gopalan, 2009; Dayton-Johnson, 2000). Caves (2000) makes the distinction between simple creative goods (e.g. writing a novel) and complex creative goods (e.g. making a motion picture). The *complex creative goods* term means ‘the end product of a production chain which involved not just many different teams of people, but also multiple projects that converge’ (Davies and Sigthorsson, 2013, p. 135, as adopted from Mayer, Banks, & Caldwell, 2009). Hesmondhalgh (2015) names the print media among the core cultural industries, which are considered to be synonymic to complex creative goods (Flew, 2012, p. 90), as well as film production, broadcasting, digital games, etc. Nevertheless, while applying the analyses of the creative goods made by Caves (2000) and the typology of creative content (e.g. provided by film, printing media, etc.), creative originals (e.g. provided by visual arts), creative experience (e.g. provided by museums and tourism), creative service (e.g. provided by advertising and architecture), Flew (2012) considers publishing and print media an example of simple creative goods. Below I argue that the partwork industry as a part of print media belongs to the type of complex creative goods, rather than simple creative goods, because many partworks are the result of the convergence of the previous creative products.

In the world media system, the partwork industry presents a long-standing instance of educational patterns which appeared in the second half of the 20<sup>th</sup> century and still has a growing niche market. Partworks are ‘totally unique business model’ (Stam & Scott, 2014, p. 173), as they are collectable serial magazines published weekly or fortnightly, issue by issue creating a completed product (e.g. models, encyclopedias, cookery courses), running for a finite time period (50-80 weeks). Usually partworks contain a collectable element, such as details of the future model of the car, bones of the dinosaur’s skeleton, dolls, toys, silicone moulds for sweets, etc. Thus, partworks offer their consumers an opportunity to complete a collection on a given theme. This type of magazines demonstrates a wide range of interests targeting both adults and

children – from model ships, cars, and trains to knitting and cake decorating, from dinosaurs to dolls. They cover natural sciences, arts, music, literature, history, and various hobbies – accommodating almost all spheres of human activity.

The creation of a partwork is usually a complex process of applying people's interests for popular topics. This process reflects the convergence paradigm in modern culture which means, according to Jenkins (2006, p. 2) 'the flow of content across multiple media platforms, the cooperation between multiple media industries, and the migratory behavior of media audience who will go almost anywhere in search of the kinds of entertainment experiences they want'. The content of partworks is usually based on existing contents of popular films, popular scientific books, and other trends in modern popular culture. Most of the facts are given in partworks in the light of popular culture and driven by the stereotypes connected with an inevitable simplification on the basis of an average customer (Dracheva & Ilyina, 2014): e.g. *Harry Potter Chess Set Collection* (DeAgostini) is the result of the popularity of *Harry Potter* books by J. K. Rowling and *Harry Potter* film series (Warner Bros.); the same can be said about *The Lord of the Rings Chess Collection* (EagleMoss). Thus, convergence becomes the key to understand the process of storytelling in partworks.

While partworks' production and distribution are consistent to existing models in magazine publishing, their consumption is a more interesting object to investigate from educational perspective. The increasing role of the consumption practice in the production and distribution of partworks is associated with the development of convergence and participatory culture. Jenkins (2006, p. 4) notices that consumption 'has become a collective process' which in the case of partworks means the growing contribution from partworks buyers to the process of consumption. Hilton (2012, p. 505) describes the active consumers' movements in general: 'consumers do not just shop, they organize'. Today, while working with the audience, newspaper and magazine publishing companies have a trend to create a digital environment for their readers to give them a platform to exchange opinions. In audience-media relation research, the problem to estimate and define 'active audience' leads to emerging different approaches to its study. According to uses and gratifications theory, the media audience behavior is directed by people's needs and clear goals (e.g. seeking for information) (see the overview in McQuail, 2011). In the study of media use and goals, McQuail, Blumler, and Brown (1972, pp. 155–156) states four types of interaction between the audience and the media: diversion (as escape from the constraints of the routine and problems, as emotional release), personal relationships (as companionship and social utility), personal identity (as personal reference, reality exploration and value reinforcement, and surveillance (sharing information and opinions, wider access to information). Nowadays, an active audience perspective has become the basis of much media audience research (Sundet, Ytreberg, 2009; Kwak, 2012) and contributes to the understanding of modern 'participatory culture' (see Jenkins, 2006, 2014) in which audience acts like citizens rather than consumers (see these approaches in Gillespie, 2005). For instance, Bolin (2012) points out emotional engagement, socializing and experimenting among main motives for participants of 'active audience'. In order to give customers diversion, surveillance, and opportunity for forming personal identity and making social contacts, the modern partwork industry reveals a tendency to predict audience behavior by reinforcing the process of creating active audience and building up a special digital environment for consumers where they could contribute to the process of learning consumption and have a space



for social engaging and interaction. Partworks are distributed as magazines but consumed as convergent media products, which are connected to different media platforms (print magazines, Internet sites and forums) and aimed at making their customers an ‘active audience’.

### **Learning as a consumed object in partworks**

In the competition between publishers for new audiences, the idea of the functional characteristic of a new product (or improving an existing product) becomes the important factor for its success, e.g. ‘a coffee table book’ is an oversized, hard-covered book filled with illustrations and small blocks of text and used for entertaining guests (Shcherbina, 2016). A partwork is also a publishing product with obviously declared functions, and very often, the main function of partworks *is declared* to be learning. Therefore, whether partworks can be used as educational tools is controversial. Whilst they can be observed as means or sources of informal education, self-study, and lifelong learning, the quality of the information is often doubtful. Besides, although partworks does not present a conceptual educational model to be considered ‘pure’ educational media, they still have the ability to disseminate knowledge according to McLuhan’s (2001, p. 63) perception of media: ‘all media are active metaphors in their power to translate experience into new forms’. Nevertheless, McLuhan warns about ‘the Narcissus illusions of the entertainment world’ (ibid., p. 67), which could influence people’s understanding of the information given via the media. In this part of the paper, I try to reveal the partworks’ approach to learning as a consumed object and to show its edutainment and infotainment features, as well as the learning needs which are constructed by the partwork industry. In general, I would like to answer the question how they sell learning.

#### *Learning needs in partworks*

Modern collectable magazines cover nearly all spheres of people’s interests where it is possible to gain numerous consumers as a potential audience for the partwork industry. Nevertheless, the main and traditional spheres of the partwork industry are practical interests and skills (mostly homecrafts), educational interests (natural and humanitarian sciences), technology (making model and working items), popular culture (commonly based on popular film series). This classification is not full, because partworks can cover almost all well spread hobbies of people and emerging new spheres of people’s interests.

A large number of partworks cover practical skills, for example, in knitting, cake decorating, making sweets. Usually this type of partwork aims at home crafts, for people who are engaged in such hobbies as knitting (e.g. *Simple Stylish Knitting*, DeAgostini UK, 2015), *The Art of Knitting*, Hachette Partworks, 2016), crochet (e.g. *The Art of Crochet*, Hachette Partworks, 2015–2016), quilting (e.g. *The Art of Quilting*, Hachette Partworks, 2015), cooking (e.g. *Something Sweet*, DeAgostini UK, 2014), *Cake decorating: Learn how to create beautiful cakes*, DeAgostini UK, 2013). The pursuing of practical skills as hobbies is understood as human leisure existence made for pleasure rather than for result. For instance, there is no more necessity to produce needlework to have some items of clothing, but it has become leisure time activity. Maines (2009) writes that needlework does not have any practical aim after the industrial revolution, but nowadays it is ‘consciously archaizing’ in a

technological sense and presents a ‘leisure activity like sex, gourmet cooking, and amateur photography, and like them its technology has adjusted to a market that privileges the enjoyment of the process over the goal of efficient production’ (ibid., p. 2).

Scientific interests in partworks divide into two big branches – natural and humanitarian sciences. Partworks aimed for interest in the natural sciences often target children audience – from dinosaurs to bugs, from stone sample collections to geographical encyclopaedias. Among them, I have chosen some children’s partworks to compare the advertising and educational paradigms for the grown-up auditory and the under-aged auditory: e.g. *My 3D Globe: Build your model and discover the planet* (Hachette Partworks, 2015), *Dinosaurs and Friends: Read, Learn, Play* (DeAgostini UK, 2015). Humanitarian partworks (literature, history, music, art, etc.) target both children and adult audiences: while the first ones have more educational perspective and could be used as a learner’s guide (e.g. *Wally's History of the World*, GE Fabbri, 1998), the second ones are mostly ‘collections’ (e.g. *Discovering Opera*, Fabbri, 1993; *Great Artists*, Marshall Cavendish, 1993, *Great Writers*, Marshall Cavendish, 1986–1988).

The classification of learning needs in partworks would not be complete without popular culture dimensions. Frequently, partworks impart a degree of practical skills or knowledge in some specific field under the strong influence of popular culture. For example, among partworks, which are very popular nowadays, there is *Star Wars Millennium Falcon* series (DeAgostini, 2016–2017). Partworks of this type are commonly based on popular film series: e.g. *The Official Star Wars Fact File*, (DeAgostini UK, 2014), which is a representative of the core characteristics of this type of collectable magazines. Very often, partworks of other types are given in the light of popular culture driven by the great interest in the heroes and the story of the previous successful films and books: e.g. *Harry Potter Chess* (DeAgostini), *Star Wars Helmets Collection* (DeAgostini), *Pirates of the Caribbean: Build The Black Pearl, the legendary pirate ship* (Hachette Partworks).

A large part of the partwork industry is dedicated to technology. These collectable magazines can accumulate interest for the history of technical knowledge and suggest models of old cars, planes, trains and other items as building models or collections of items: e.g. *Spitfire* (DeAgostini), *Build your own Ford Mustang 1967 Shelby GT-500* (DeAgostini UK, 2016), *Mallard: Build the world’s fastest steam locomotive* (Hachette Partworks, 2014). The partwork industry fast responds to innovations in technology and suggests making buildable robots and other items: e.g. DeAgostini’s partworks *3D Printer*, *Robi Robot* or *Sky Rider Drone*.

### *Edutainment in partworks*

Edutainment approach in adults’ partworks is built mostly similar to how it is given in the children’s ones, where edutainment elements present more obviously and straightforwardly. The examples below describe the results of the analyses of *Dinosaurs and Friends* (DeAgostini UK, 2015), *DINOSAURS!* (Orbis publishing, DeAgostini group, 1992), and *Wally's World* (Fabbri Publishing, 1997), which target children in comparison with some adults’ partworks.

The idea of conjunction of learning and entertainment (play) is shown in the advertising issues on the background of four activities – reading (as getting information), learning (as getting knowledge / acquiring skills), collecting (as making a collection of objects directly or indirectly related to the theme of the partwork), and playing (as doing the two first activities in the entertaining mode and without big efforts): ‘Explore the amazing age of the dinosaurs! Millions and millions of years ago, in the AGE OF THE DINOSAURS, gigantic beasts like the brontosaurus and T-Rex walked the Earth... READ ALL about their lives - LEARN what they liked to eat, how they fought off their enemies and cared for their little ones. COLLECT enchanting MODELS inspired by the beautifully illustrated books and go on amazing adventures! PLAY in a world of prehistoric animals, people and places’ (*Dinosaurs and Friends* series guide, 2015). Personal addressing to potential customers, defined as children and their parents, also helps to create the atmosphere of ‘easy and amusing learning’: ‘Hello! Let’s find out about the triceratops!’, ‘Our customer care guarantee begins with our products: quality, innovative companion guides that provide education, enjoyment and inspiration’ (*Dinosaurs and Friends. Issue 1. Triceratops*, 2015).

In the partworks of previous years, educational aims were declared more explicitly: e.g. ‘*DINOSAURS!* is a brand new educational series...’, ‘Packed with facts’, ‘Issue by issue, the series builds into an invaluable reference work. But it’s more than just an encyclopedia. The activities and models bring to life the spine-tingling appeal of these giants of pre-history so children learn as they play’ (*DINOSAURS!*, 1992). This series introduction targets parents rather than children: e.g. ‘*DINOSAURS!* is ideal both for school projects and for learning at home... Designed for learning, the clearly laid out pages combine essential information with surprising new facts to answer all your children’s dinosaur questions’ (ibid.). The educational character of this partwork is emphasized with the use of the expert’s opinion on some interesting facts: e.g. the part under the heading ‘Dr. David Norman of Cambridge University answers your dinosaur questions’ (ibid.). In today partworks, ‘experts’ are preserved in adults’ series rather than children’s ones: e.g. ‘Look out for these great tips from our knitting experts’, ‘pick up handy hints, get expert advice and discover the wonderful world of knitting’ (*Simple Stylish Knitting* series guide, DeAgostini UK, 2015).

In adults’ partworks, produced by many publishing companies, the edutainment model is built on the same grounds. For example, the stage of getting information means that in *Something Sweet* (DeAgostini UK, 2014), consumers will have an encyclopedia of basic confectionery techniques, will make a collection of moulds and tools which come with every issue, and will learn necessary skills. The simplicity of the suggested activity is accentuated: e.g. ‘The construction of the *Black Pearl* is designed for adults, but children can be involved in the assembly under the responsibility and careful supervision of an adult’, ‘Each issue includes detailed photographs and simple instructions, which brings making this impressive model within the reach of all ages and abilities’ (*Pirates of the Caribbean* model guide, 2013). The educational value of adults’ partwork stress results and skills rather than pure getting knowledge: e.g. the subheading ‘Learn how to create delicious confectionery’ (*Something Sweet*, 2014). The skills are presented in partworks as ‘easy-to-gain’ and fast in getting results: e.g. ‘Every issue of *Something Sweet* comes with creative tools and easy-to-follow, step-by-step guides to help you make delicious sweet treats and confectionery’ (ibid.), as well as these skills are shown as a possible

basis for improving social interactions of consumers: e.g. ‘... you’ll impress both friends and family with your irresistible creations’ (ibid.). In the partworks for adults, material learning objects in the form of kitchen tools, details for models, needles and yarns for knitting replace toys given as freebies in the magazines for children. The idea of play is not so explicit, as in children’s partworks, it is leisure and hobby activities that present an element of play.

Thus, it is possible to postulate that the *creating an edutainment learning object* is one of the learning models in partworks. McGreal (2004) summarizes the definitions of learning object as anything related to learning, anything digital related to learning, anything for learning, and creating specific learning environment. This latter understanding of learning object is used in this paper. McGreal (2004) defines learning objects as ‘any reusable digital resource that is encapsulated in a lesson or assemblage of lessons grouped in units, modules, courses, and even programmes’. I argue the necessary digital character of learning objects, and I show on the example of partworks that learning environment, which they try to build up, is consist of both digital and non-digital elements, although in the modern circumstances we can observe the growing use of digital learning objects. In the advertisement of the series the producers emphasize the quality and professional characteristics of the learning objects: ‘Collect incredible prehistoric creatures! A beautiful, hardback book collection illustrating the world of the dinosaurs!’ (*Dinosaurs and Friends* series guide, 2015), ‘From professional-standard moulds to decorative tools like cutters, piping nozzles, stencils and embossers, we’ll show you how to use them alongside your magazines to create impressive sweet treats’ (*Something Sweet*, 2014).

### *Infotainment in partworks*

What learning objects are present in partworks? Usually partworks as collectable magazines contain two kinds of learning objects: texts and artefacts. In *Dinosaurs and Friends* series (2015) information is given in engaging and amusing format, which is possible to compare to the media infotainment principle. Textual edutainment learning objects also include dictionaries, articles, fictional stories, amusing facts, tables and charts, etc. The articles in each issue about dinosaurs are categorized under such topics as *Who am I? What am I like? Where do I live? What do I eat? My family*, etc. (*Dinosaurs and Friends. Issue 1. Triceratops*, 2015) with additional fictional stories – e.g. *You’re great, daddy!* (ibid.). The chart of eras, periods and epochs contains short explanations – ‘The history of our planet is divided into geological eras...’ (*Dinosaurs and Friends* series guide, 2015). In the first issue of this series, material objects (artefacts) are two toys – *Dino*, the triceratops and *Ben*, the baby T-Rex.

This infotainment principle already worked in the 1990s when Wally’s partworks were rather popular. For example, *Wally’s World. Issue 11. Find out all about the British Isles* (Fabbri Publishing, 1997) contains a dictionary (which is a constant part of many partworks): e.g. ‘Beheaded - when someone’s head is chopped off we say that he or she was beheaded’, ‘Keep - a castle’s main building’; and a number of entertaining facts given in the ‘Wally’s favourite facts’ part: e.g. ‘Queen Elizabeth the First, who ruled England 400 years ago, was bald by the time she was 50 years old. She owned more than 70 wigs. One was bright green!’;

‘Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogogoch in Wales has the longest place name in Britain’ (*Wally’s World. Issue 11*, 1997).

### *Creating the digital environment for consuming learning via partworks*

A consuming subject of partworks is usually a person having interest in some particular sphere of human knowledge or skills. The main aim of partwork publishers at the first stages of distribution of collectable magazine is to involve as much people as possible in buying partworks to create their own ‘collection’ or to study something new, because final issues of the series will be bought by people who already have got initial issues. In order to make an audience more involved and engaged in partwork activity and to give them motivation to go on their ‘collection’ of partworks, companies try to create a special digital environment for their consumers: e.g. *Simple Stylish Knitting* series suggests its customers ‘online technique library’ and invites them to ‘master every technique with our online video tutorials’ (the *Simple Stylish Knitting* series guide, DeAgostini UK, 2015). This series has Facebook, Twitter, Pinterest, and Instagram pages, covering the most popular sites for social engaging, as well as the collection’s site ([simplestylishmakes.com](http://simplestylishmakes.com)) containing ‘video tutorials, expert advice, design ideas, inspiring blogs’ (ibid.). This Internet activity of the partwork producers can be seen as an instrument to create own ‘active audience’: e.g. ‘Join in our online community & get inspiration for living a creative life’ (ibid.).

### **Conclusion**

Nowadays, when creative industries pay attention to the idea of learning and produce the media-based sources of informal education, it is necessary to research them not only from the perspectives of media or cultural studies, but also from the educational point of view. In partworks as creative goods, learning needs of people has become the framework for building up commercial learning environment with declared educational goals. The learning environment of partworks combines edutainment principles for the content of the learning objects and infotainment in the format of the educational information. Of course, thematic and content analyses of partworks is limited because it presents only producers’ understanding of learning as a consumed object, and ways of commercialization of learning. Thus, although the case of partworks helps us to realize certain learning needs of the media audience, it is important to undertake additional research and to show learning process through partworks from the customers’ point of view.

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## Resources

“Tom and Jerry Addition Game”:  
<http://www.mymathgames.com/addition/tom&jerry/>

**Contact email:** yulia.dracheva@mail.ru





***The Packaging Design Factors to Reduce Alcohol Campaign for Youth People:  
A Case Study of Packaging Design's Classroom***

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**Abstract**

Packaging design is a one of the media tools used in communication between the products and the consumers. This research aims to find elements of alcohol packaging design which might be attractive to youths. Reducing these elements will help the campaign to raise awareness of the dangers and reduce alcohol consumption in young people. Firstly, this research attempts to understand the influence of packaging on alcohol purchasing behavior. Secondly, it aims to understand the characteristics of the package to which may influence purchasing behavior. Thirdly, it aims to make young people more aware of how packaging affects their choice to purchase alcoholic products. Finally, the research aims to determine if packaging design is targeting young people based on psychological perceptions of youth. The research comprises two major phases. In the first phase, the research attempts to investigate features influencing the visual perception of youth people vis-à-vis the perceived of factors on alcohol packaging. Features to be tested include color, texture, graphic type, fonts, price and warning on packaging of alcohol by Semantic differential scale through a survey questionnaires. The target sample was youth 100 people in the Mahasarakham University, which included fourteen students in Packaging Design course. The second phase of study attempts to test the validity of outcome from the first phase, fourteen packaging design models were created by the students studying in Packaging Design course, containing shared features derived from the first phase, to be tested with the target group again. Their task was to combine the elements that best support the campaign to reduce alcohol consumption in youths. All designs were rated by the students and the results suggest that design elements most likely to help the campaign were matte texture, embossed surface, realistic picture, with warm tone colors, showed price and warning on the packaging. It is concluded that using these design elements will best support the campaign to reduce youth alcohol consumption.

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## **1. Background of research**

The recognized problem of alcohol consumption in Thailand is a major concern. This raises social, family and health issues. Observations from newspapers and television media show that alcohol related problems are ever present, whether it was an accident on the road, a brawl or doctors reporting health statistics (Nidtha Runkasam. Nation TV: 2017).

Packaging design is a one of the key media tools used in communication between the products and the consumers (Olga Ampuero and Natalia Vila. November 2, 2006). Each type of packaging is designed to appeal to consumers' buying decisions with factors such as color, shape, illustration and advertising. Alcohol is no exception to the use of product appeal by using packaging. Customer brand or packaging selection, may indicate the wealth or social status of the consumer. The Liquor Control Act introduced in 2008 placed a ban on alcohol advertising or the name or trademark of alcohol, which may use false claims or provide false motives, whether indirect or direct. The products are usually sold without illustrations or warnings for the negative consequences of drinking alcohol irresponsibly. Which is especially important to young people who will shape Thailand's future.

Graphic design researchers in Thailand can see the importance of the campaign to reduce alcohol use through packaging design (Areekul Pungsuwan. 2010). To be part of the campaign and realize the penalties of irresponsible alcohol use was followed by a decrease in youth drinking. Therefore, students who studied the packaging design also received information on the negative side of alcohol. Research is needed to determine the factors in packaging design can be used to reduce alcoholism especially concerning young students. Additionally how packaging influences the selection of its target audience.

## **2. Objective of research**

- 2.1 To study the influence of packaging on alcohol purchasing behavior.
- 2.2 To study the characteristics of the package to test purchasing behavior.
- 2.3 To study the awareness of the youth on how packaging affects their choice to purchase alcoholic products.
- 2.4 To determine if packaging design is based on psychological perceptions of youth.

## **3. Scope of research**

This is a research study to determine how University students in Thailand view or are influenced by packaging designs for alcohol products. The study will use data collected from 100 students of the Mahasarakham University, Thailand a total of 52 women and 48 men with an average age over 20 years (aged 18-23 years) in their third year of their undergraduate degree. Students selected for this study are studying a course in graphic design with emphasis on the use and effects on packaging design. The students in this sample have studied design and packaging for a campaign to reduce alcohol use in youth.

#### 4. Benefits are expected to receive.

This research aims to understand key elements in design packaging for alcoholic products in a campaign to reduce alcoholism use in youth. The packaging is the communication media between the products and the consumers. Therefore, packaging design needs to reflect the harms of alcohol and should be used as a form of informative media to remind the youth of the risks and consequences of irresponsible drinking.

#### 5. The literature review

The literature review focused the broad issues common to packaging design in order to draw out concepts that might be important in the context of attracting people to alcohol products. In particular the review aims to understand key concepts and the design features of packaging appearance and theories of visual perception studies will be linked to the campaign to reduce binge drinking in young people and studies linking theory with the research.

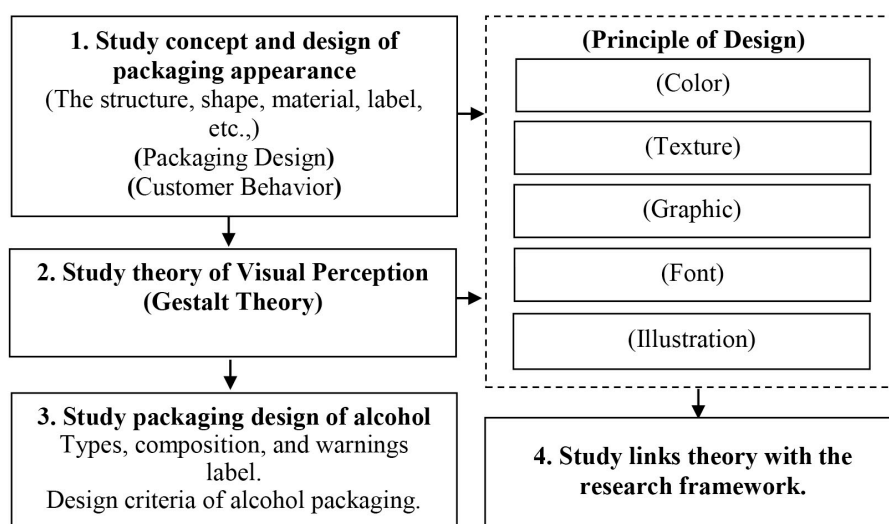


Figure 1. Summary of issues relating to packaging design.

#### 6. Conceptual Framework

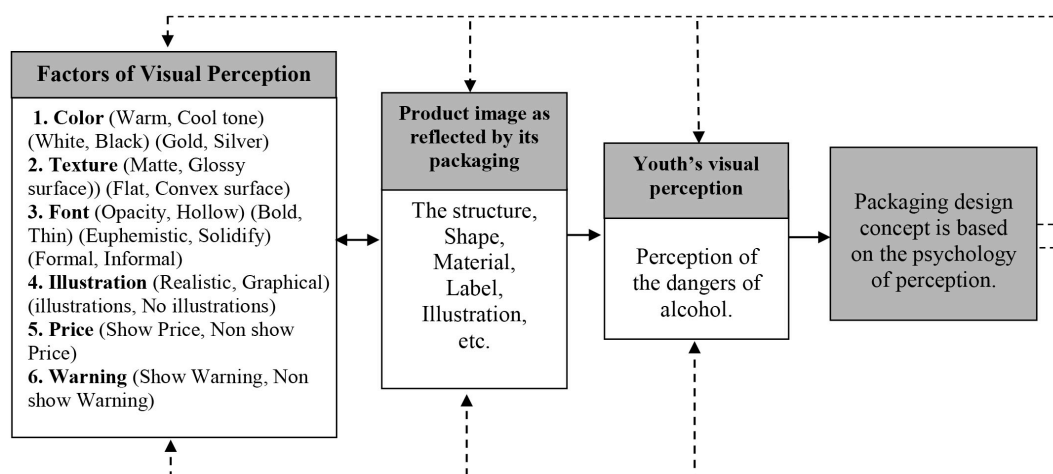


Figure 2. Conceptual framework for this study.

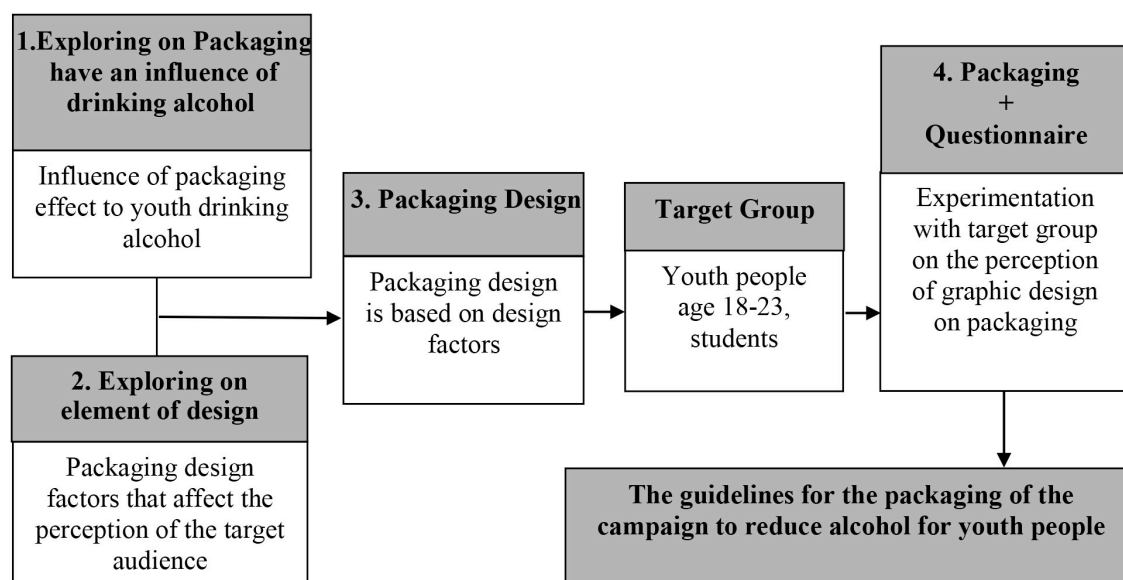
## 7. The variables studied

This study aims to investigate the relationship between variables. The independent variable was the packaging style. The dependent variable is the perception of youth on alcohol packaging and the linked guidelines of packaging design for the alcoholic campaign to reduce alcoholism in the youth.

## 8. Format Study

The basic theory of the study has two concepts; The Theory of Gestalt on the issue of Visual Perception (Linda Groat and David Wang, 2008) and the perception of design elements and the concept that packaging design can be used in the alcoholic campaign to reduce alcoholism in the youth.

## 9. Research Procedure



**Figure 3. The research methodology for this study**

## 9. Area, population, sample size and sample selection.

The researchers randomly selected samples by using a simple random sampling method of asking a group of young students (100 individuals) at Mahasarakham University a total of 52 women and 48 men with an average age over 20 years (aged 18-23 years), who are likely to have access to alcohol easily.


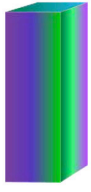

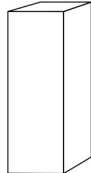
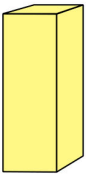
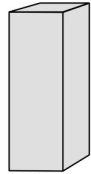
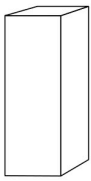
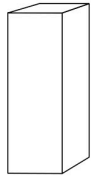
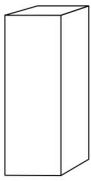
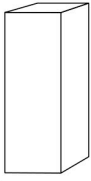


## 10. The research tools

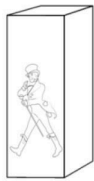

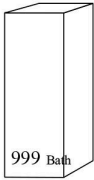



The tools used in the research consisted of packaging and the perceived message given by the graphic design of the packaging, including one set.

Tools of this research by started to study all types of packaging styles, the difference in packaging design components. In terms of shapes, materials, sizes, colors, letters, and illustrations by Delphi processed, and grouping the types of alcohol in a packaging format.

The questionnaire asked the target group of the packaging style. Perceived characteristics of the target on the packaging. It includes questions about the perception of graphic design point, font, color and illustrations. (Please refer to the Table 1).

**Table 1. The packaging design factors used in the questionnaire survey.**

No.	Factors	Factors
1.	The perception in “Color” 	
	A. Warm tone	B. Cool tone
2.		
	A. Black Color	B. White Color
3.		
	A. Gold Color	B. Silver Color
4.	The perception in “Texture” 	
	A. Matte surface	B. Glossy surface
5.		
	A. Flat surface	B. Convex surface
6.	The perception in “Illustration” 	
	A. Realistic	B. Graphical

7.		
	A. Illustrated	B. No illustrations
8.	The perception in “Font” <b>Brand</b>	Brand
	A. Opacity Character	B. Hollow Character
9.	<b>Brand</b>	Brand
	A. Bold Character	B. Thin Character
10.	<i>Brand</i>	<b>Brand</b>
	A. Not Hard letter	B. Hard letter
11.	<b>Brand</b>	<i>Brand</i>
	A. Formal Character	B. Informal Character
12.	Brand	<b>Brand</b>
	A. Modern Character	B. Old Character
13.	The perception in “Specify Price” 	
	A. Specify price	B. Don't specify price
14.	The perception in “Specify Warning” 	
	A. Specify Warning	B. Don't specify Warning

\* Note the silver and gold perception issues in the silver and gold test questions in the test. And the perception of the surfaces in the data collection surfaces is that the respondents can actually touch.

## 11. Data collection

### Phase 1: The perception of youth on packaging design factors for the campaign to reduce binge drinking.

**Table 2. The scale used in the questionnaire to capture of the views of the participants towards each type form of packaging design.**

qualification	Left Picture A					0	Right Picture B				
	5	4	3	2	1		1	2	3	4	5
1. The colors can used to campaign to reduce drinking alcohol.	Extremely	Very much	Medium	Little	Least	Equal	Least	Little	Medium	Very much	Extremely
2. The fonts can used to campaign to reduce drinking alcohol.											
3. The texts can used to campaign to reduce drinking alcohol.											
4. The illusions can used to campaign to reduce drinking alcohol.											

Using Semantic Differential scale measurements to be concluded on the basis of guidelines to design packaging that can reduce alcohol use in youth campaign.

The data was collected using a simple random sampling method, it collected data from 100 students studying at Mahasarakham University. The data was collected through the use of questionnaires showing illustrations of packaging. The questionnaire asked for recognition on the packaging and the perception of graphic design. Packaging issues included:

- The colors that could be used to campaign to reduce alcoholism.
- Font that could be used to campaign to reduce alcoholism.
- Texts could be used to campaign to reduce alcoholism.
- Illustrations could be used in the campaign to reduce alcoholism.

### Phase 2: The perception of youth toward packaging model to reduce alcohol consumption among youth.

This section discusses the effect of packaging design factors for reducing alcohol consumption in youth. The design of 3D packaging is based on the perception of the sample. 14 Package Design formats design by 14 students of Packaging Design's classroom of Creative Arts Faculty of Architecture, Urban Design and Creative Arts, Mahasarakham University. Then, the model was rechecked to bring the conclusion to the design criteria of the packaging model that influenced the campaign to reduce drinking in youth again.



**Table 3. The 14 Package Design formats design by 14 students of in the Packaging Design classroom**

1. 	2. 	3. 	4. 
5. 	6. 	7. 	8. 
9. 	10. 	11. 	12. 
13. 	14. 		

## 12. Results

### Phase 1: The perception of youth on packaging design factors for the campaign to reduce binge drinking.

The results of this research found that the most preferred package design was a warning on the packaging first, showed price (Völckner Franziska. 2008), realistic picture, with warm tone colours, emboss surface, matte surface, Formal Character, Modern Character, Not Hard letter, have Illustrated and Gold Color respectively. Additional indicators on perceived factor (Black and White Color, Bold and font character Type, Opacity Boldness and Age), did not affect the perception of the packaging design of youth in the campaign to reduce binge drinking.(See Table 4).

**Table 4. Summary of the views of youth participants on the on packaging design factors most likely to support the campaign to reduce drinking alcohol.**

	Factors	● opinion level											Factors
		5	4	3	2	1	0	1	2	3	4	5	
		1	2	3	4	5	6	7	8	9	10	11	
1.	<b>"Color"</b> A. Warm tone				●								B. Cool tone
							$\bar{X} = 4.82, SD=3.32$						
2.	A. Black Color						●						B. White Color
								$\bar{X} = 6.45, SD=3.20$					
3.	A. Gold Color					●							B. Silver Color
							$\bar{X} =$						
4.	<b>"Texture"</b> A. Matte					●							B. Glossy
							$\bar{X} = 5.90, SD=2.94$						
5.	A. Flat							●					B. Convex
								$\bar{X} = 7.07, SD=3.16$					
6.	<b>"Illustration"</b> A. Realistic				●								B. Graphical
							$\bar{X} =$						
7.	A. Illustrated					●							B. No illustrations
							$\bar{X} = 5.51, SD=2.96$						
8.	<b>"Font"</b> A. Opacity Character						●						B. Hollow Character
								$\bar{X} = 6.06, SD=3.04$					
9.	A. Bold Character						●						B. Thin Character
							$\bar{X} =$						
10.	A. Not Hard letter					●							B. Hard letter
							$\bar{X} =$						
11.	A. Formal Character					●							B. Informal Character
							$\bar{X} =$						

1 2.	A. Modern Character					●	$\bar{X} =$										B. Old Character
1 3.	<b>“Specify Price”</b> A. Specify price					●	$\bar{X} =$										B. Don’t specify price
1 4.	<b>“Specify Warning”</b> A. Specify Warning					●	$\bar{X} =$										B. Don’t specify Warning

### **Phase 2: The perception of youth toward packaging model to reduce alcohol consumption among youth.**

Conclusions the study design packaging that affect recognition (Visual Perception) youth campaign to reduce drinking. The questionnaire collected the sample of 100 students from Mahasarakham University found that 100 people a form of packaging 5 first. Choose the packaging 3, packaging 7, packaging 6, packaging 1, packaging 4, packaging 10, packaging 9, packaging 13, packaging 8, packaging 11, packaging 14, packaging 12, packaging 2 respectively.

### **Acknowledgements**

This study was made possible by the excellent designs produced by the students of Faculty of Architecture Urban Design and Creative Arts of Mahasarakham University and the help of [research assistant]. And I would like to thank the Office of the Center for Alcohol Studies work on The Thai Health Promotion Foundation for supporting by grant fund Scholarships for this research.

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***Re-Thinking the Student Teaching Curriculum: Using Field-Based Instruction to Help Candidates Notice, Acknowledge, And Address Bias in the Classroom***

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Nicholas Bell, University of Delaware, United States

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Official Conference Proceedings

**Abstract**

A quasi-experimental mixed-methods study was conducted to evaluate the effectiveness of an equity intervention on student-teachers' understandings of equity literacy. Three pre/post instruments were used to gauge the difference in equity beliefs, skills, and knowledge outcomes for control (N=83) and treatment (N=35) groups. Treatment participants were exposed to a compilation of curricular modifications including professional workshops, panel events, and online modules. Quantitative findings show a statistically significant treatment effect and greater growth outcomes for treatment participants. Qualitative analyses show that treatment participants used more specific equity language and displayed greater noticing skills of nuanced bias in classroom settings. Implications for practice are provided.

Keywords: Student teaching, Equity, Quasi-experimental

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## Objectives or Purposes

The Student Teaching Equity Project (STEP) was conceptualized after field instructors and clinical educators reported that student-teachers are inadequately prepared to identify, discuss, and address issues involving equity and social justice (Authors, 2017). We conducted a quasi-experimental mixed-methods study (N=118) to investigate the impact of an equity-focused student teaching curriculum. Our three aims were to (1) determine the relationship between equity-centered curricular innovations and candidates' knowledge, beliefs, and skills, (2) examine the impact of an equity-focused intervention, and (3) explore how to harness the power of mixed-methods by refining instruments, developing coding schemes, and building statistical models.

## Perspectives or Theoretical Framework

### *Equity and Social Justice Teacher Preparation*

Similar to Milner and Howard's conclusions (2013), we note that our teacher preparation program is over reliant on subject matter knowledge and pedagogical content methods coursework, which causes a narrowing of the preparation curriculum and limits the focus on equity center social justice frameworks. Though the field is clear that justice-based education can help teachers disrupt inequities and position children as change agents, the majority of teacher preparation programs have not taken up this charge (Larrivee, 2008; Celio, et al., 2011). Many have noted that the teaching force is less diverse than the population it serves (Milner, 2008; Milner & Delale-O'Connor, 2016), yet this fact has also not compelled our program to innovate the curriculum. We agree with social justice scholars, that teacher educators are responsible for helping candidates build equity literacy skills, learn to implement culturally relevant and responsive pedagogies, and design critical multicultural curriculum (Dover, 2013; Sleeter, 2008; Gorski, 2008; Stevenson, 2016; Gay & Howard, 2000; Ladson-Billings, 1999). However, to accomplish these goals, student-teachers must first learn to examine and question their beliefs and notice how these beliefs impact decision-making and classroom interactions (Rychly & Graves, 2012).

The current study is framed by the desire to shift student-teachers' beliefs, improve their equity skills, and develop their equity knowledge base (Cochran-Smith, 2008; Coleman & Stevenson, 2014; Michael & Bartoli, 2014; Gorski, 2014). One way to address this desire is to create opportunities for student-teachers to confront and challenge their preconceived or strongly held beliefs by introducing ideas which purposefully create cognitive dissonance, an oft used strategy in social justice workshops (Gorski, 2009). Additionally, since race plays such a large role in interactions between students and teachers, we follow the suggestions of McGee, Alvarez, and Milner (2016) to center issues of race, among other equity issues, within our revised student teaching curriculum to help student-teachers acknowledge and redress the potential negative impact of racial bias and discrimination.

## Methods, techniques, or modes of inquiry

### *Context and Sample*

The four-year Elementary Teacher Education Program (ETE) is housed within the College of Education and Human Development at a large mid-Atlantic university on the East Coast of the United States. In their last year of the program, candidates complete two semesters of student teaching, earning certification in two areas: (1) elementary and (2) middle school content area or special education. Placements are made in both racially homogenous and diverse schools serving urban and suburban populations. A convenience sample of (N=118) was culled (See Table 1.0 – Settings).

**Table 1.0: Placement Settings by Group**

	Urban Schools	Suburban Schools
Treatment (N=35)	11	24
Control (N=83)	30	53

### *Equity Intervention*

The equity intervention was developed to build student-teachers' equity knowledge, skills, and beliefs. Since student-teachers were not systematically exposed to these issues during their pre-student teaching course work, we decided to focus our curriculum intervention on a requisite first step; *noticing* and becoming better prepared to acknowledge, and address bias and discrimination in the classroom. The intervention included a full-day professional development, online modules, expert community-based panel event, reflective activities, inquiry group participation, and post-lesson observation debriefing sessions. The curricular content from the intervention provided opportunities to promote positive identity development, explore one's own bias, complete readings and case study activities to build a knowledge base about how bias and discrimination is experienced in schools, and help student teachers make sense of teaching experiences and learn how to practically apply an equity-skillset in the field.

### *Quantitative Methods*

Prior to conducting the research study, we completed an *a priori* power analysis to determine the minimum detectable effect size (MDE), given our sample size and desired power of .95 (Faul, et. al, 2007). The analysis revealed the need for a small effect to detect a significant difference between the control and treatment group on a Multivariate Analysis of Variance, MANOVA, and Multivariate Analysis of Covariance, MANCOVA, (Cohen, 1988). Both approaches use a "linear combination of measured dependent variables to maximize group differences" (Tabachnick & Fidell, 2013, p 245). For the MANOVA, three survey instruments were used for the dependent variables and group membership (control or treatment) was used for the independent variable. For the MANCOVA, the dependent variables and independent variable remained the same, with the only difference being that we controlled for pretest differences. Following the



collection of pre-semester scores, baseline equivalency between the control and treatment group was evaluated. No significant differences were found between the treatment and control groups.

### ***Qualitative Methods***

In addition to collecting pre/post qualitative data from surveys completed by both groups, qualitative data were collected and analyzed from the treatment groups' discussion board postings and assignments taken from the online module component of the equity intervention for a subgroup of students who were placed in urban schools (N=11). Open coding methods were used to create coding schemes and findings from individual students were compared across the subgroup to create major themes and bolster the credibility of claims. Codes were developed and applied to the entire dataset by a researcher blind to participant assignment. Additionally, coding reliability was confirmed through an inter-coder reliability check. Data sources and instruments are summarized in Table 2.0.

**Table 2.0 - Instruments and Data Sources**

	<b>Learning to Teach for Social Justice Beliefs</b>	<b>Equity Scenario Responses</b>	<b>Oath</b>	<b>Equity Literacy Discussion</b>	<b>Implicit Bias Test Reflections</b>	<b>Racist Terms Case Study Response</b>
Description	Self-report beliefs	Rate and analyze teacher responses to classroom scenarios	Teachers Oath (i.e. Hippocratic Oath)	Response to readings and videos	Respond to reflective prompts after taking and IBT on race	Case study analysis of "Racist Terms of Endearment"
Construct	Beliefs	Knowledge, Skills	Beliefs	Knowledge	Beliefs	Skills
Administration	Pre/Post	Pre/Post	Pre/Post	Week 1-2	Week 3-4	Week 5-6
Treatment (N=35)	X	X	X	N=11 urban	N=11 urban	N=11 urban
Control (N=83)	X	X	X			
Quantitative	X	X	X			
Scale/Range	1-5/12-60	1-7/12-84	Frequency: 0-10			
Qualitative	X	X	X	X	X	X
Literature or Source	Enterline, et al., 2008	Authors, 2016	Author, 2012	Gorski & Swalwell, 2015; Gorski, 2014; Abbott, 2014	Project Implicit ©2011	Gorski, 2014

The survey instruments were administered at different interval time points, prior to the start of the semester and after. We acknowledge the intricacies and challenges of measuring equity and social justice outcomes in teaching (Cochran-Smith et al., 2012). We believe the instruments used in this study each provide unique insight regarding

candidates' equity knowledge, skills, and beliefs; instruments are labeled for the type of research method(s) and equity construct(s). Below we share the coding scheme developed to analyze the narrative responses from one pre/post instrument, Teacher's Oath (see Table 3.0).

**Table 3.0 Coding Scheme Example – Oath Data**

	LITERATURE	CODES	DEFINITIONS	DATA EXAMPLES (direct quotes)
INSTRUCTION	(Ladson-Billings, 1995; 2014; Gay, 2002; 2010, Paris, 2015; Villegas & Lucas, 2002; Gorski & Swalwell, 2015; Gorski, 2014; Nieto, 2015; Wlodkowski & Ginsberg, 2013)	Student Centered	Instructional decision, plan, or lesson focused on putting students in position to influence the lesson or materials	I will consider all students' strengths and weaknesses and develop lessons with these in mind.  I will provide students a wide variety of assessments so they all have an equal opportunity to demonstrate their knowledge.
		Differentiation	Addressing learning differences by varying instructional approaches	I will find ways to ensure that all students are included in ways that allow them to continuously grow and learn.  I will differentiate design my instruction to meet the needs of individual learners by using scaffolding and, small groups, and varying instructional environments/techniques (e.g. small group, collaborative learning, etc)
		Relevance Sustaining	Aligning instruction and/or materials to students' lived experiences and/or home culture	I will avoid busy-work in favor of work with real meaning to the students and their families.  I vow to be culturally responsive and I vow to be responsive to the individual needs of my learners
		Multiculturalism	Using instructional approaches and/or using curriculum materials that represents and encourages understanding of a wide-array of cultures	<i>No coded samples of multiculturalism in the data set</i>
		High Expectations Rigor	High expectations, all learners can learn, teaching to mastery, challenge and rigor	I will set standards high in order that students will be challenged and engage my students in productive struggles on a daily basis  I will always expect the best from all of my students, and push them to succeed. I will give my students greater challenge and encourage them to try new things.
LIFE LONG LEARNING	(Larrivee, 2008; Sirota 2013; Coleman & Stevenson, 2014; Friedrich & McKinney, 2010)	Reflection/Open Mindedness	Receptive, open, willingness to continue learning	I pledge to be open to constructive criticism.  I will be responsible for the education of my students, teaching with an open mind and room for adjustment.
		Fallibility	Mistake making as learning	Learn from my own mistakes and triumphs.  I will not be ashamed to admit to students when I have made a mistake, to ask for help, or to tell my students that I am sorry when I have messed up.
		Collaboration	Work with others, collaborate, cooperate	I will respect the ideas of my fellow educators and collaborate with them to form a strong, professional learning community.
		Exploring Personal Bias	Commitment to not be bias and explore issues of discrimination and other injustices	Throughout my time in the field of education I will work to combat social injustices and inequities both inside and outside of the classroom.  I will identify and work to eliminate my biases and preconceived notions about students.
		Seeking Help/Self Education	Seek out research-based strategies, ask for help, continue to engage in learning	I will not be afraid to ask questions when I need help.  I will read journals and research to stay up to date  I will continue to learn more as I experience more years of being a teacher. I will forever be a student.

CARE	(Noddings, 1984; McDermott, 1977; Ladson-Billings, 1995; 2014; Villegas, 1998; Villegas & Lucas, 2002; Gay 2010; Tomlinson, 2015; Tomlinson & Javrus, 2012; Warren, 2000)	Class Environment	Warm, safe, and welcoming environment (including classroom management)	I will build a safe and welcoming classroom environment. I will put the safety and learning of my students before anything else.
		Social Emotional Learning	Wellbeing, specific reference to children's emotional wellbeing and learning	I must remember to help my students' socio-emotional well-being grow as well.
		Rapport/Respect	Respect, rapport, treatment, equity, humanistic approaches	I will respect students of all age, race and background. Every child is a cognizant being, capable of joy, laughter, sadness, fear, and above all learning. I swear to treat all students with respect no matter their race, gender, sexual orientation, and background. People don't learn from people they don't like.
		Family Partnerships	Collaborating and or reaching out to parents	I will go above and beyond in reaching out to families to keep them in the loop of their student's success. I will work with families to make sure I better understand my students and their specific needs/interests so I can meet them.
		Home Life Lived Experiences Cultural	I get that all kids come from different backgrounds and it impacts how they act, loving kids beyond race/religion/SES	I will remember that students come from all over and each student is unique. I will be sensitive and understanding to all students' circumstances and backgrounds. I will take into consideration their backgrounds and how they may affect every day learning, in order to make sure they have the most comfortable and suitable environment, both in and out of the classroom. I will value their cultures and ethnicities.
AGENCY BUILDING	(Gorski & Swalwell, 2015; Gorski, 2014; Bartolome, 1994; Cook-Sather, 2002; Johnston-Parsons et al, 2007; Stevenson, 2015)	Students as community members	Helping students see themselves as community members	I will embrace where they come from and make sure they are proud of it. I will use what I have learned in my years of schooling to teach these young ones how to be good citizens. Foster a sense of community not only within my classroom, but amidst the twisted and confusing world that students return to after school every single day.
		Students have worth/value/voice	Value student opinion and promote student voice	I will respect my student's opinions, thoughts, and ideas with the highest regard for their courage to share them. Encourage my pupils to research and evaluate pro and con arguments when the topic is subjective, rather than parroting the consensus of a supposed majority of opinion.
		Students can make a difference	Understand they can make changes in the classroom or community, students have power	My students will feel loved, know how important they are, and know they have a purpose in life. Students will be encouraged to find answers, and solve problems.
		Student's self-efficacy	Promoting students' self-belief that they can have a positive impact on themselves and others	I will remember this to ensure that I never make another young scholar feel inadequate or that they will not achieve. I will prevent any student from leaving my room at the end of the year without feeling like they have improved or succeeded at something. I will strive to always utilize a strength-based approach with my students. Every student in my classroom will know they are capable to achieve at the highest level.
		Building student's identity Uniqueness	Communicating the importance of identity and non-conformity	I will challenge my students to be the best versions of themselves. I will work to make sure that the classroom is a safe place to be him/herself

## Results

### *Quantitative Findings*

Using descriptive statistics, Table 4.0 displays control and treatment mean scores on the three outcome measures at two different time points. The last column of the table provides the difference scores tabulated by subtracting post-semester mean scores from pre-semester mean scores. The treatment group showed a greater increase in scores on all three measures.

**Table 4.0: Descriptive Statistics**

<b>Instrument</b>	<b>Group</b>	<b>N</b>	<b>Pre-Semester Mean</b>	<b>Post-Semester Mean</b>	<b>Difference (Post - Pre)</b>
<b>LTSJ-B</b>	Control	85	44.9	44.3	-0.6
	Treatment	34	43.8	46.48	2.68
<b>SR</b>	Control	87	50.57	53.21	2.64
	Treatment	34	51.71	55.94	4.23
<b>TO</b>	Control	77	3.91	3.95	0.04
	Treatment	31	4.66	4.81	0.15

**MANOVA.** The MANOVA revealed a significant effect with a *p-value of less than .003* and a *medium effect size*,  $F(3, 104)=5.02$ ,  $d=.48$  (Cohen, 1988). The treatment effect is the difference between the group means. The treatment, or group membership, accounted for 12.6% of the variance on the linear combination of dependent variables,  $\eta^2_p = .126$ . In other words, 12.6% of the outcomes can be attributed to the equity intervention.

**MANCOVA.** After controlling for pre-test differences, the MANCOVA found a significant effect, with a *p-value of less than .001* and a *medium effect size*  $F(3, 99)=8.46$ ,  $d=.62$  (Cohen, 1988). The treatment effect is the difference between the adjusted group means. The treatment, or group membership, accounted for 20.4% of the variance on the linear combination of dependent variables,  $\eta^2_p = .204$ . In other words, 20.4% of the outcomes can be attributed to the equity intervention.

For both the MANOVA and MANCOVA, the multivariate effect showed the scores from the combined three measures were significantly affected by group membership; results suggesting the equity intervention had a significant impact on the treatment group. All assumptions were met for the MANOVA AND MANCOVA (Tabachnick & Fidell, 2013).

### ***Qualitative Findings***

**Module Data.** Equity interventions created space for student-teachers to think and talk about equity related issues that occurred in the field. The full day professional workshop, prior to the start of student-teaching, provided opportunities to gain knowledge about positive identity development, explore biased views based on demographic data and fiscal resources afforded to particular schooling populations, identify existing inequities in schools, and develop multicultural identity activities that could be used with students. Treatment participants reported they appreciated the space to use words such as race, Black, White Privilege, and so on, noting that these opportunities were either non-existent or not-systematic throughout their first three years in the program. Though candidates were open to exploring equity, deficit views persisted. These ideas were repeated through the reflective discussion posts and responses in the biweekly online modules (see Table 5.0 for a summary).



**Table 5.0 – Summary of Data from Online Modules (N=11) – Urban Subgroup  
Module Topics**

	<b>Equity Literacy</b> How do the concepts of equity literacy and opportunity gaps come to life in your classroom or school?	<b>Implicit Bias</b> Reflect on experiences after taking Racial Bias Test and viewing videos of classroom teachers discussing race and ethnicity	<b>Racial Slur Case Study</b> Case study analysis and follow discussion re: “Racist Terms of Endearment”
<b>Shifting Beliefs</b>	-Families don’t care (deficit) -Families don’t exist (deficit)	-Disappointment in self for biased views -Need to change self-perceptions	-Derogatory language should be punished (divorced from context) -Low income students do not have role models (deficit)
<b>Developing Knowledge</b>	-Lack of resources (food and supplies) -Better understanding of poverty and reduced lunch programs	- Model minority myth is harmful - Society conditions negative views of people of color	-Derogatory language makes students feel unsafe -Racialized events are teaching opportunities
<b>Developing Skills</b>	-Noticing bias in assessments -Noticing irrelevant curriculum -Noticing others’ biased views of children -Noticing students’ low self-efficacy	-Noticing that racial membership does not preclude you from bias against your own race -Noticing that conscious will alone does not eliminate bias	-Noticing impact of bias on children -Redressing inequitable situations by instituting curricular changes and multicultural programming

***Oath and Scenario Pre/Post Data.*** The qualitative analysis of all participants’ pre/post Oath responses (see Table 3.0 for the coding scheme) showed that treatment participants articulated more equity-focused beliefs and referenced more equity-focused practices compared to the control. In Table 6.0, cells aligned with Agency/Social Justice and Instruction are shaded to highlight that more than 30% of written segments coded in these categories were attributed to the treatment group (+9% and +5% respectively). If the treatment group and control group performed similarly, the percentages would mirror the split of the total sample (30%/70%).

**Table 6.0 Summary of the Oath findings**

	<b>Instruction</b>	<b>Life Long Learning</b>	<b>Respect Rapport</b>	<b>Agency Social Justice</b>
Totals	71	155	200	52
Treatment N= 30% of sample	25 (35%)	46 (30%)	54 (27%)	20 (39%)
Control N= 70% of sample	46 (65%)	109 (70%)	146 (73%)	32 (61%)

In addition to looking for frequency of codes within the oaths, we identified twelve exemplar oaths (again, blind to assignment). Six of the exemplars were attributed to candidates in the treatment group, whilst six were associated with the control. This means treatment group participants were twice as likely to be tagged with an exemplar than a student in the control group. Similarly, analysis of scenario response data showed that treatment participants increased their use of equity-specific language and were better able to notice and address inequitable scenarios (see Table 7.0 for an example).

**Table 7.0 Scenario Example Response Pre/Post**

Explain your rating...	What adjustments are needed, if any...
<b>Student A – Pre</b> I think that she was trying to encourage the students, but I don't think the wording was great.	<b>Student B – Pre</b> She should focus on a more positive theme for the book such as perseverance in pursuing a dream.
<b>Student A – Post</b> I don't like what she said. It creates a picture that it is ok to be put down, especially if you are <b>African American</b> .	<b>Student B – Post</b> I think she should address the idea of <b>oppression</b> and how the views of <b>African Americans</b> in sports has changed over time and taken the time to highlight their important contributions to sports and branched out to other areas as well.

### ***Discussion and Implications for Practice***

The qualitative and quantitative findings suggest an equity-centered curriculum can impact pre-service teachers' preparedness to address equity issues in the field. Overall, candidates in the treatment group improved their understanding and noticing of bias and discrimination in schools and have begun to develop the knowledge, skills, and beliefs necessary to enable them to disrupt and address biases.

We plan to refine our instruments and methods, revise the equity intervention, and conduct a randomized experiment for the Fall 2017 semester; the treatment group will include 50% of student-teachers in the ETE program. We have also started a faculty and staff equity inquiry group comprised of members across five teacher preparation programs, so that we can collectively think through ways to center issues of equity across the entire preparation curriculum. We hope that our findings contribute to the ongoing conversation about how to improve the ways in which faculty and instructional staff address issues of diversity, equity, and inclusion in our curricular choices.

### **Significance**

The significance of this work aligns with the three aforementioned aims. (1) We were able to determine the relationship between equity-centered curricular innovations and candidates' knowledge, beliefs, and skills by showing the relationship between the learning opportunities afforded to student-teachers and the subsequent shifts and developments across equity-related knowledge, beliefs, and skills. (2) We were able to examine the impact of an equity-focused intervention by using sound quantitative methods, complimented by the use of descriptive statistics and qualitative coding

schemes. Finally, (3) we demonstrated how a mixed-method approach can result in findings that support the refinement of instruments, developing coding schemes, and building statistical models to harness the true power of mixed methodological approaches.

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***Te Wānanga o Raukawa: Transforming the Colonial State of New Zealand  
Through Education***

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**Abstract**

Within the settler state of New Zealand, education has been a force for social transformation, both positive and negative. Throughout the first 150 years of contact between the indigenous Māori and the British colonists, education was one of the strategies employed to assimilate Māori; they were transformed from members of sovereign nations (iwi) into British subjects. Not only did the state education system operate to eradicate Māori language and culture; it also relegated Māori people to the margins of the colonial economy, limiting their access to academic qualifications and grooming them to become manual labourers.

This social experiment resulted in both physical and cultural impoverishment for Māori. By the mid-1900s, statistics revealed their extreme social, political and economic vulnerability. There were also unmistakable signs—dwindling numbers able to speak the language, for example—of a rapidly growing sense of cultural disconnection.

In 1975, a coalition of three iwi (known as the ART confederation) launched a counter-assimilatory strategy which focused on revitalisation of Māori language, reconnection with cultural institutions and restoration of traditional values to the heart of Māori thinking and practice. Central to this activity has been the establishment of Te Wānanga o Raukawa. This tertiary education institution has redefined the notion of educational achievement for Māori. It seeks to transform Māori futures and, in so doing, to transform the colonial state of New Zealand. Once again education is being utilised as a tool for social change; but this time, Māori are wielding it and the goal is *decolonisation*.

Keywords: Māori education, colonisation, decolonisation, assimilation, cultural recovery

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## Introduction

Within the settler state of New Zealand, education has been a force for social transformation, both positive and negative. Throughout the first 150 years of contact between the indigenous Māori and the British colonists, education was one of the strategies employed to assimilate Māori; their language and culture were all but eradicated as they were transformed from members of sovereign nations (iwi) into British subjects.

By 1975, an alliance of three iwi (also known as the ART confederation) realised that they were fast approaching the point of irreversible cultural collapse. They launched Whakatupuranga Rua Mano: Generation 2000, a counter-assimilatory strategy which focused on revitalisation of Māori language, reconnection with cultural institutions and restoration of traditional values to the heart of Māori thinking and practice. Central to this activity has been the establishment of Te Wānanga o Raukawa, a tertiary education institution that seeks to transform Māori futures and, in so doing, to transform the colonial state of New Zealand.

This paper describes the painful history that brought the ART confederation to the brink of cultural annihilation, and tracks the progress that has been made towards recovery in the four decades since Whakatupuranga Rua Mano: Generation 2000 was first instigated.

Ngāti Raukawa is one of the Māori iwi (nations) of Aotearoa/New Zealand. Our territory is located in the southwestern part of an island that we call Te Ika-a-Māui (the fish hauled up by Māui), but which is perhaps better known internationally by the rather less imaginative name “The North Island”. We were rendered virtually landless by 1900, but our traditional territory remains crucial to our identity as Ngāti Raukawa. Our boundaries are marked by geographical features: rivers, streams, mountains and sea. We have close ties with two neighbouring iwi, Te Āti Awa and Ngāti Toa Rangatira; collectively, the three iwi now refer to ourselves as the ART confederation. The iwi of Ngāti Raukawa is divided into over 20 smaller political groupings, known as hapū. Traditionally, our people lived in hapū-based communities. Each hapū has its own territory and its own communal centre or centres, known as “marae”. The name of my hapū is Ngāti Pareraukawa and our marae is called Ngātokowaru.

Imperial history typically records that Abel Tasman “discovered” and named New Zealand in 1642—a version of events that we refute, given that by that time our ancestors had long-since discovered it, named it and made it their home. According to our colonisers, James Cook re-discovered us in 1769 and after that there was a gradual increase in the numbers of British nationals who arrived on our shores: whalers, sealers, traders, missionaries and, in 1839, a group of land speculators operating under the name of the New Zealand Company.

These developments culminated in an agreement being signed in 1840 between the freshly appointed Governor, William Hobson, and over 500 leaders of various Māori nations. The terms of that agreement have been in contention ever since. This is not surprising, given that Māori leaders signed one document but the Crown has spent over 170 years insisting that they were really agreeing to the terms of a second

document instead—a document that was neither discussed nor signed, a document that said something entirely different.<sup>1</sup>

Controversy over its intended meaning aside, this 1840 agreement is generally regarded as marking the establishment of the settler colony of New Zealand. As in other settler colonies, the indigenous inhabitants of Aotearoa were subsequently swamped by rapid immigration, decimated by introduced diseases and severely affected by the economic deprivation that occurred as a result of the forcible removal of our lands and the devastation of our waterways (Pool, 2015). Ngāti Raukawa, for example, suffered a population decline of over 50 percent between 1850 and 1878 (Mikaere, 2016). By the 1890s the combined Māori population had plummeted, from a pre-contact figure of somewhere between 100,000 and 200,000<sup>2</sup> to approximately 42,000 (Pool, 1991); our extinction was being confidently predicted by colonial politicians who consoled one another with the thought that they would be on hand to smooth the pillow of the dying race.<sup>3</sup>

Their confidence turned out to be misplaced; some of us survived. The strategy of assimilation served to incorporate the survivors into the colonial state. Assimilation sought to “civilise” Māori, remaking us in the image of the coloniser by replacing our language with English, substituting British laws for our own and supplanting our belief systems with Christianity. As in many other settler colonies, the education system played a pivotal role in this exercise because the colonisers rightly understood that the key to any people’s future is their children. Simon and Smith (2001) observe:

New Zealand was not alone in setting out to civilise or assimilate its indigenous population through schooling. Education systems in other societies colonised by European powers shared many of the same characteristics. They all had a mission to assimilate, civilise and settle their native populations, and believed in their own cultural superiority.

Every opportunity was taken to instil feelings of patriotism within Māori pupils. Simon (1998) provides compelling photographic evidence of geography lessons that reinforced the might of the British Empire; of birthdays of the British royal family being formally celebrated; and of significant imperial anniversaries (such as Trafalgar Day) being marked with flag-raising ceremonies. Military drills and singing “God Save the Queen”, as well as the nauseating New Zealand national anthem, became

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<sup>1</sup> Governor Hobson and all but 39 of the approximately 540 Māori signatories signed Te Tiriti o Waitangi, a document written in the Māori language that delegated authority to the Crown to regulate the conduct of British citizens in Aotearoa, while acknowledging the overriding authority of Māori nations. Since 1840 the Crown has argued that, in signing Te Tiriti o Waitangi, Māori were in fact agreeing to the terms of a separate, English-language document, the terms of which stated that Māori were ceding sovereignty to the Crown in return for a promise to protect their property rights. It is worth noting, however, that the Waitangi Tribunal (2014) recently found that the rangatira who signed Te Tiriti o Waitangi in the far north, during February 1840, did not cede sovereignty.

<sup>2</sup> Estimates of the Māori population at 1769 vary wildly, from 100,000 to 500,000 (Durie, 1998). Durie settles on an estimate of 150,000 by 1800; while Pool (2015) suggests that a figure closer to 100,000 is more probable.

<sup>3</sup> This is taken from the oft-quoted statement of Dr Isaac Featherston, Superintendent of Wellington Province: “The Maoris are dying out and nothing can save them. Our plain duty as good compassionate colonists is to smooth their dying pillow. Then history will have nothing to reproach us with” (Buller, 1884).

part of the school routine. Māori were effectively brainwashed into becoming British subjects,<sup>4</sup> their membership of hapū and iwi rendered increasingly irrelevant with each passing generation.

Ironically, many Māori had initially embraced the European notion of education. Ngāti Raukawa gave land and financial support so that schools could be established within our region. It is clear that in so doing, the iwi was seeking to add to its own intellectual tradition, recognising the importance of coming to grips with European knowledge in order to maintain its authority. However, the colonial government's educational policies were motivated by an entirely different set of objectives. They sought not to complement Māori knowledge, but rather to replace it. Far from seeking to enhance Māori authority, the Crown was committed to undermining it (Simon, 1998).<sup>5</sup>

Moreover, the desire of Māori parents to expand the educational horizons of their children was thwarted by the racism of public servants who believed that Māori people should be taught to “recognise the dignity of manual labour” (Hogben, 1906) and who argued that “the natural genius of the Maori in the direction of manual skills” (Bird, 1907) meant that academic subjects would be wasted on us. The point of Māori education, they insisted, was to prepare us for life amongst ourselves, not to encourage us to “mingle with Europeans in trade and commerce” (Bird, 1906).

The long-term consequences of this social experiment were predictable enough. After generations of having been channelled into labouring jobs, many Māori started to believe the racist stereotyping of the coloniser, becoming convinced that they were genetically incapable of tackling academic subjects. In 1960, a “statistical blackout” of Māori at the higher levels of education was reported, with just 0.5 percent of Māori students making it to the final year of secondary school (Hunn, 1960). By the early 1970s, over 75 percent of Māori children were leaving school with no formal qualifications whatsoever (Walker, 2004).

Meanwhile, our language had been targeted for annihilation. By the beginning of the 20<sup>th</sup> century, Māori children were being physically punished for speaking Māori at school. Before long, Māori parents stopped transmitting the language to their children, fearful of the consequences of doing so and convinced in any case that it was of no value—that English was the language of the future (Waitangi Tribunal 1986). The consequences were dramatic. In 1913 90 percent of Māori schoolchildren could speak Māori; by 1953 this figure had fallen to 26 percent; by 1975 it had dropped to fewer than five percent (Waitangi Tribunal, 1986).

The language suffered a similar fate within my iwi. Ngāti Raukawa participants in a significant study reported that in 1900, all of their family members had understood Māori and 75 percent of them had spoken the language fluently. By 1970 a little over

<sup>4</sup> It is perhaps not surprising that by the nineteenth century, when Britain became embroiled in two global conflicts, Māori were among the first to volunteer for military service. My grandfather served in the Pioneer Battalion during World War I; and the only reason my father did not serve in the Māori Battalion during World War II was because the war ended before he was old enough to sign up.

<sup>5</sup> The view that schools might best be seen as “the cheapest garrisons” because of their ability “to maintain peace, inculcate a reverence for the laws, and a ready obedience to constituted authority” (*New Zealand Spectator and Cook's Strait Guardian*, 27 June 1849) was fairly typical for the time.

five percent understood Māori while fewer than five percent spoke it; for over 80 percent of them, English had become the *only* means of communication (Benton, 1997).

By this stage, the very fabric of our existence had been torn apart. The hapū—the crucial social and political unit within the iwi that I spoke about earlier—was barely functional. By way of example, my father and his siblings were all born at our marae, Ngātōkōwaru, where they lived surrounded by relatives. But when he was about four years old, his parents made the difficult decision to move away. There was no longer sufficient land available to support everyone so my grandfather secured employment elsewhere. Others were eventually forced to follow. Marae throughout the iwi of Ngāti Raukawa fell into disrepair. Once the hub of hapū life, they became associated almost exclusively with death—places where people went to mourn and bury their relatives and, it might be said, their culture too. As Selby (1999) has recounted:

During the mid-1970s many of our meeting houses and the surrounding marae and land were in a poor state of repair, had been neglected for a number of years, were being used intermittently throughout the year [and] were regarded by many as dying institutions.

In 1975 the three iwi of the ART confederation took stock of the situation. Our marae were disintegrating, our language was near-death and our relegation to the margins of the colonial economy had left many of our people vulnerable to unemployment, ill-health and a raft of social problems. We were fast approaching what some have called “cultural threshold”: the point where, under the immense pressure of an outside culture, there is cultural collapse beyond which recovery—and survival as a people—becomes impossible (Rāwiri, 2012).

A survival strategy was designed and implemented, with the express goal of preparing the confederation for the 21<sup>st</sup> century.<sup>6</sup> Entitled Whakatupuranga Rua Mano: Generation 2000, the 25-year strategy articulated four key objectives: restoration of marae throughout the confederation; development and retention of our people; revitalisation of the language; and the pursuit of self-determination (Walker, 2011).

Significant progress has since been made towards meeting these goals. All marae within the confederation have been refurbished or rebuilt and, in many cases, extended (Selby, 1999). While very few of our people now live adjacent to marae, many more of us are being drawn back to it for an ever-expanding range of reasons—not simply to bury one another. My own marae is, once more, regularly used for gatherings for the living: birthdays, christenings, weddings, working bees and as a teaching/learning space. In 2013, for example, events held there included gatherings that focused on goal setting and team building; genealogy; marae history; language; media and music; cooking; gardening; carpentry; project management; water reticulation; and textile conservation (Selby and Barnes, 2013).

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<sup>6</sup> The strategy was proposed by Whatarangi Winiata and adopted by the Raukawa Trustees, a group which represented all three iwi of the ART confederation and which was charged with the responsibility of managing Raukawa marae. Raukawa marae was a parent marae, belonging to all three iwi and located at a central point within the combined territories of the three iwi, in the small town of Ōtaki. An early articulation of Whakatupuranga Rua Mano appears in Winiata (1979).

Considerable progress has been made with revitalising the language too. In 1975 the ART confederation had no Māori speakers under the age of 30 (Winiata, 1979). By 1995 there were 600 young people who were reasonably competent speakers; by 2010 that number had risen to approximately 4000 (Walker, 2011).

Whakatupuranga Rua Mano was also a powerful expression of self-determination: it came from the people; it was for the people; and it was implemented by the people. It amply demonstrated the benefits of determining for ourselves our goals and priorities, as opposed to waiting for direction or permission from the Crown.

Often referred to as the modern successor to Whakatupuranga Rua Mano, tertiary education institution Te Wānanga o Raukawa (“the Wānanga”) was established in 1981. Described by Winiata (1979) as Whakatupuranga Rua Mano’s “most important proposal”, the Wānanga was created to promote research and study into the origins, history, literature and contemporary developments of the ART confederation. It ran on voluntary labour until 1993, since when it has received enrolments-based funding from the Crown.<sup>7</sup> It remains a small player in the tertiary sector, reaching approximately 1400 full-time equivalent enrolments in 2016. It offers a range of programmes, from certificates and diplomas to bachelors and masters degrees. Its most senior qualification, Te Kāurutanga, requires the completion of a major thesis and takes the equivalent of three or more years of full-time study. It is awarded by Ngā Purutanga Mauri, a group of elders who are representative of the three founding iwi of the Wānanga and who are charged with the responsibility of ensuring that the Wānanga remains true to its founding principles.

The principles of Whakatupuranga Rua Mano continue to underpin the activities of the Wānanga. Revitalisation of the language is a central feature of its academic programmes, with almost all of its qualifications including a significant component of language studies. Similarly, iwi and hapū studies form a compulsory component of almost all academic programmes. Students are required to undertake research on a range of topics related to their marae, their hapū and their iwi. For some, this has been regarded as a welcome opportunity to enhance their knowledge of themselves. For others, it has been a powerful motivating factor in a decision to rekindle connections that had been weakened, or even lost, during the past few generations.

Wānanga qualifications cover a range of specialist subjects: teaching, administration, Māori knowledge traditions, Māori laws and philosophy, health and well-being, science, traditional and performing arts. As it continues to expand these offerings, and with its emphasis on strengthening language and reconnecting students with their hapū and iwi, the Wānanga is also playing a key role in developing and retaining the people of the confederation. It is providing educational pathways to our people that are specifically designed to enhance their ability to contribute to the collective wellbeing of hapū and iwi.

Establishing the Wānanga has been a powerful expression of self-determination. Undeterred at the Crown’s lack of interest in the 1978 proposal to establish a Centre

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<sup>7</sup> Section 36 of the Education Amendment Act 1990 added “wānanga” as a category of tertiary education institutions that could be established pursuant to section 162 of the Education Act 1989: it was 1993 before Te Wānanga o Raukawa was formally recognised within the terms of the statutory regime.

of Learning, the people carried on regardless. It was twelve years before the Crown grudgingly came to the table, offering limited financial support.<sup>8</sup> Ironically, any sense of freedom that one might expect to come with external funding has been matched by unease at the knowledge that Crown funding brings with it a Crown sense of entitlement to interfere in our work. The tension between our commitment to maintaining autonomy, and the Crown's determination to override that autonomy wherever possible, is ongoing.

I can do no more today than provide the barest overview of the social transformation that has been brought about by Whakatupuranga Rua Mano and by its successor, Te Wānanga o Raukawa. However, a brief snapshot of the community of Ōtaki, where the Wānanga is located, provides some idea of what has been achieved.

Ōtaki is located near the mid-point of the area covered by the ART confederation. In 1975 the town had a population of 4,200 people, 13.2 percent of whom identified as Māori (Selby, 2016). Aside from a small and rapidly diminishing group of elders, no one spoke the language. Most of our people had all but turned their backs on their own culture, focusing instead on making their way in what was commonly referred to as “the Pākehā world”.<sup>9</sup> The largest employer in the town was a poultry farm and processing plant.

Following the establishment of Te Wānanga o Raukawa, parental demand for Māori-immersion educational options, from pre-school through to secondary school and beyond, rocketed. The growth in Māori schools and pre-schools within the town was so rapid that there was a shortage of appropriately trained teachers, a gap that the Wānanga moved to fill by establishing teacher training programmes. Language revival, realised through the implementation of education initiatives, has proven to be the catalyst for the transformation of the community. Selby (2016) notes:

Māori education services to strengthen the Māori mind have driven community change in Ōtaki. Recognising the potential within the community was a statement of self-determination, and was fundamental to rebuilding language and cultural competency, which then provided the infrastructure for other activities.

With a population of 5778 recorded in the 2013 national census, Ōtaki is still small but it is a very different town to what it was in 1975. 33.4 percent of the population identify as Māori. Māori education is by far the biggest employer and contributor to

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<sup>8</sup> I use the term “grudgingly” because the Crown has continued to underfund Te Wānanga in a number of significant respects. For instance, in 1998 Te Wānanga o Raukawa joined forces with the other two wānanga (Te Wānanga o Aotearoa, based in Hamilton and Te Whare Wānanga o Awanuiārangi, based in Whakatāne) to bring the Capital Establishment claim before the Waitangi Tribunal. The gravamen of their complaint was that all other tertiary education providers, throughout Aotearoa, had been provided with capital establishment funding. Despite a favourable Tribunal finding (Waitangi Tribunal, 1999), it was a further nine years before Te Wānanga o Raukawa achieved settlement of its claim against the Crown. The Wānanga is currently preparing a further Waitangi Tribunal claim which sets out a range of respects in which we are being unfairly treated within the Crown's research and tertiary funding regimes.

<sup>9</sup> “Pākehā” is the term used by Māori to describe the British colonisers; it is now widely used within Aotearoa/New Zealand, both by Māori and by later arrivals, to describe the white population.



the local economy. The town boasts multiple immersion education options: six pre-schools, two year 1-13 schools and the Wānanga. Māori families from all over Aotearoa move to Ōtaki for the specific purpose of pursuing these options, parents enrolling in the Wānanga programmes while their children enter the pre-schools and schools.

Approximately half of all Māori in Ōtaki are now able to speak the language—more than twice the figure reported for Māori throughout Aotearoa (Selby, 2016). The language has been re-normalised, with conversations in Māori regularly occurring in public—on the street, in the supermarket, on the sports field. Unlike many other places within Aotearoa, hearing Māori being spoken provokes neither surprise nor antagonism on the part of non-Māori, who have simply grown accustomed to it. The town has become a kind of sanctuary for Māori language and culture.

Current Tumuaki (Chief Executive Officer) of Te Wānanga o Raukawa, Mereana Selby, notes (2016) that language has been the key to the transformation that has taken place in Ōtaki:

Language and thought are indivisibly interwoven. The ability to not only communicate in one's native tongue but to think within that cultural framework is a basic human right. When it is reclaimed it is extraordinarily empowering. Through focusing on competency in the language, we have set the path for our people to once again see the world through Māori eyes.

The ability to see the world through Māori eyes is precisely what decades of assimilatory policy, primarily implemented through state education, was designed to eliminate. The policy was ruthlessly successful, bringing Māori to the point of cultural collapse. For Ngāti Raukawa, as for other Māori nations, reversing the ill-effects of assimilation is a matter of survival. Initiatives such as Te Wānanga o Raukawa show that we have taken a leaf out of the coloniser's book. Once again, education is being utilised to effect radical social change; but this time, we are wielding it and the goal is *decolonisation*.

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***The Influence of Educational Psychology Variables on Student Grades in an Introductory Economics Course***

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**Abstract**

In the two principles of microeconomics classes that I taught during the spring and fall semesters of 2013, 170 students participated in the completion of five questionnaires. The first questionnaire covered determinants of student performance recognized in economic education literature, including GPA, gender, age, and race. The other questionnaires were developed by well known scholars in the field of educational psychology, and they describe the following recognized educational psychology variables: a 29-item Locus of Control Scale, a 12-item Achievement Goal Scale, a 19-item Test Anxiety Scale, and a 16-item Procrastination Scale. The t test results were provided to show student characteristics and psychological profiles of students who outperformed others in terms of grades. The regression results show the influence of economic education and educational psychology variables on student grades. The regression equation with only economic education determinants shows that GPA, gender, and ethnicity are the significant variables on student grades, with GPA having a positive effect, males outperforming females, and whites outperforming non-white students. When psychological variables are added to the initial equation, regression results show a significant improvement as reflected by the increase of the adjusted  $R^2$  from 0.25 to 0.39. Regression results show that GPA, mastery approach, and debilitating test anxiety are the only significant variables on student performance, with both GPA and mastery orientation variables having a positive effect, while debilitating test anxiety has a negative effect on student performance. The implication of these results for educators is discussed in the paper.

Keywords: economic education, educational psychology variables and student grades

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## Introduction

A small but growing number of studies have been published in the field of economic education to examine the impact of educational psychology variables on student learning outcomes in principles, intermediate, and upper level economics courses. The first study which incorporated a psychological perspective to examine student motivation and achievement was by Borg and Stranhan, who examined personality type as an influence on student success in upper level economics courses (2002). This was followed by a study which added metacognitive skill to economic education determinants to predict student performance in a large macroeconomics class, based on the difference between student self-perception of knowledge and revealed knowledge as measured by test performance (Grimes, 2002). Locus of control was introduced to describe the evaluation of teachers and to examine its effect on student achievement (Grimes et al., 2004). Hadsell added achievement goal orientation theory to examine its influence on student achievement in principles and intermediate economics courses (2010). Debilitating and facilitating test anxiety constructs were introduced to test their impact on student performance in principles of microeconomics (Kader, 2016).

This paper will contribute to the existing literature in economic education by testing the influence of four educational psychology variables on student learning outcomes in principles of microeconomics course. The four educational psychology variables tested in this paper are achievement goal orientation (consisting of mastery orientation, mastery avoidance, performance orientation, and performance avoidance); locus of control (divided into external and internal orientation); academic procrastination; and test anxiety (divided into debilitating and facilitating). These are highly recognized and are being tested extensively in the field of educational psychology as well as in other fields such as math, languages, medicine, and aviation, to name a few. The paper also will incorporate widely recognized economic education determinants on student performance, including GPA, gender, age, and ethnicity. The paper will provide the psychological profile as well as the student characteristic profile of students who outperform others in the course.

## Review of the Literature

There are three motivational variables often used to describe self-regulated learning in the field of educational psychology, namely self-efficacy, motivation orientation (intrinsic and extrinsic), and achievement goal. Of the three motivational variables, achievement goal is considered to be the most prominent motivational theory (Anderman and Wolters, 2006). According to this theory, students engage in a given task for different purposes, either to learn or to perform (Elliot and Dweck, 2007). There are four components to the theory: mastery, mastery avoidance, performance, and performance avoidance. The mastery approach goal applies to students who focus on learning and understanding the new information by applying deep learning strategies to learn as much as possible, while the mastery avoidance goal applies to students who strive to avoid misunderstanding the course material (Elliot and Harackiewicz, 1996; Elliot and McGregor, 2001). Students with a performance goal focus on demonstrating their abilities relative to others by creating an aura of competence and doing better than their peers but following a shallow learning approach (Moller and Elliot, 2006; Kaplan and Maehr, 2007). Students with a

performance avoiding goal focus on avoiding demonstrating a lack of competence in the new course material (Moller and Elliot, 2006). Most of the studies found a positive effect on the mastery approach goal and mixed results with the performance approach goal effect. However, both approaches have been shown to have positive effects on learning outcomes if students pursue multiple tasks (Harackiewicz et al., 2002). Several studies showed a negative learning outcome with both the performance avoidance approach and mastery avoidance approach (Elliot and Church, 1997; Putwain and Syms, 2012).

There are numerous definitions of procrastination in the field of educational psychology. In his meta-analytic paper, Steel defined procrastination as the act of “voluntarily delaying or postponing an intended course of action despite expecting to be worse off for the delay” (2007, 66). The negative consequences of delaying an intended course of action could be due to an unwillingness to act on an unpleasant or difficult task (Solomon and Routhblum, 1984) or to the absence of self-regulated performance (Tuckman, 1991). The self-handicapping behavior of procrastinators has led to the wasting of time, with higher stress and poor performance. Because of the negative impact on students’ performance and well being, academic procrastination has been studied extensively in various disciplines and particularly in educational psychology. Procrastination among students at the college and university levels is a common problem, and it is estimated that about 80-85% of students engage in academic procrastination (Ellis and Knaus, 1977), and more than 50% of students procrastinate regularly and in a problematic fashion (Day et al., 2000). Academic procrastination has been found most often with writing term papers, preparing for exams, and doing homework assignments (Solomon and Routhblum, 1984). It is linked to adverse behaviors such as poor study habits, cramming for examinations, test anxiety, late submission of homework assignments and term papers, lower grades, sense of guilt, and depression, to name a few (Lee, 2005; Özer, et al., 2009). Procrastination was viewed initially as a self-defeating personality trait (Ferrari, 1991), but more recently the view has shifted to treating it more as a complex phenomenon that encompasses cognitive as well as behavioral components (Walters, 2003). Recent studies in educational psychology show that motivational and cognitive factors together provide a better explanation of academic procrastination. In this paper, achievement goal orientation is the motivational factor that influences procrastination while the cognitive factors influencing procrastination include locus of control and test anxiety.

Recent research in educational psychology divides procrastination into three types: academic, passive, and active (Chu and Choi, 2005; Steel, 2007; Choi and Moran, 2009). Academic procrastination measures the tendencies of individuals to waste time and intentionally put off a given task that should be done (Tuckman, 1991); active procrastination measures the preference of the individual for facing pressure and intentionally putting off performing a given task; and passive procrastination measures the tendencies of individuals to procrastinate due to laziness and difficulty in making decisions (Chu and Choi, 2005). Apparently, active procrastinators position themselves so that they perform as well as non-procrastinators in given tasks while passive procrastinators underperform in these tasks (Chu and Choi, 2005). Academic procrastination shows mixed results. A meta-analytic review of procrastination and academic performance (Steel, 2007) found a negative relationship between procrastination and student achievement as defined by their GPA, final exam scores,

and assignment grades. On the other hand, Soloman and Rothblum (1984) and Ferrari (1992) found no relationship between procrastination and student course grades. Active procrastination is shown to be positively correlated with student performance, while passive procrastination is negatively correlated (Chu and Choi, 2005).

The locus of control construct maintains that student achievement is influenced by the extent to which individuals attribute their success or failure to events that are either under or beyond their locus of control. This social-cognitive theory, which was developed by Julian Rotter (1966), is basically a social learning theory integrated with personality theory. Since then, the theory has generated a great deal of research in a variety of areas, including educational psychology, and it has become one of the most important constructs in the field of personality theory (Leone and Burns, 2000). The theory is conceptualized on an internal-external dimension. Individuals with an internal locus of control believe that events in their lives result primarily from their own actions, while individuals with an external locus of control believe that events in their lives are the result of someone else's action or are due to luck or fate. Internally oriented students believe in the connection between their behavior and its outcomes, and, as such, they strive to have more control over their academic experience than externally oriented students. Thus, internally oriented and externally oriented students tend to follow different strategies to acquire learning (Grimes et al., 2004). A study shows that an internal locus of control is associated with productive study habits among college freshmen, which provide a significant and positive effect on academic performance, as reflected by their grades (Zhang and RiCharde, 1999). This was supported by other studies which show that internally oriented students tend to perform better academically than externally oriented students, as reflected by their GPA scores (Carden, et al., 2004; Shepherd, et al., 2006, Gifford et al., 2006). Other studies show that locus of control has no significant effect on student grades (Hadsell, 2010; Kader 2016).

Test anxiety is another behavioral variable that is linked to academic achievement and it has been extensively tested in educational psychology as well as in other fields such as math, medicine, and languages, to name a few. Studies show that test anxiety is negatively correlated with academic performance among students at various levels of educational attainment (Hancock, 2001; Cassidy & Johnson, 2002; Chappell, 2005). According to educational psychology, test anxiety is divided into two parts, emotional and worry. The emotional part of test anxiety refers to the physical discomfort associated with the immediate uncertainty of test taking, which includes dizziness, nausea, feelings of panic, and a decreased choice consistency (Hembree, 1988; Balmont et al., 2002; Pollack et al., 2006). The worry part of test anxiety is associated with the consequences of failing the test in terms of comparing performance to peers and the fear of performing badly. It is this part that is significantly associated with lower academic performance according to various studies (Humbree, 1988; Bandloss et al., 1995). The worry type was identified by the Alpert and Haber Achievement Anxiety Test (1960) as debilitating test anxiety and the non-worry type as facilitating test anxiety. Debilitating test anxiety is associated with decreased problem solving capability, and, hence, lower exam scores while facilitating test anxiety is associated with enhanced and proactive problem solving, and, hence, higher exam scores. Of the 20 studies analyzed by Hebmree in his meta-analytic paper, debilitating test anxiety was found to be significantly and negatively associated with aptitude and achievement tests with an average correlation coefficient of -0.29, while facilitating test anxiety

was shown to have a positive and significant effect with an average correlation coefficient of +0.30 (Hembree, 1988, 1974). Regression results show that debilitating test anxiety has a significant and negative effect on student performance as reflected by average class score while facilitating test anxiety was positive but not significant (Kader, 2016).

## Data and Methods

During the academic year 2013, this author taught two classes of principles of microeconomics consisting initially of 182 enrolled students. A survey questionnaire covering determinants recognized in economic education, including GPA, student classification, employment status, gender, age, race, and attendance was given at the end of the semester. Students also were given questionnaires to fill out that were developed by well known scholars in the field of educational psychology. The locus of control variable is described by a questionnaire (Rotter, 1960) which includes 29 items with answers of “a” or “b” for each item to determine whether the individual is internally- or externally-oriented. For example, one question contains these choices “a. The idea that teachers are unfair to students is nonsense” or b. “Most students don’t realize the extent to which their grades are influenced by accidental happenings.” Internally-oriented students answer “a.” while externally-oriented students answer “b.” One point is awarded for certain answers and 0 for others and the higher the score the more externally-oriented students are and the lower the score the more internally-oriented they are.

As will be shown in Table 1, the average score for the locus of control scale in our sample of students is 9.88, indicating that any score above this number represents students who are externally-oriented and conversely any number below that represents students who are internally-oriented. The other three surveys have a scale from 1 to 5 for each item. A 5-point Likert scale is designed to make meaningful comparisons among the three questionnaires from strongly disagree (1) to strongly agree (5). The procrastination variable is described by a 16-item questionnaire (Tuckman, 1991) and is meant to show how individuals waste time and intentionally put off a given task that should be done. For example, “I postpone starting in on things I don’t like to do.” The test anxiety variable is described by a 19-item questionnaire (Alpert and Haber, 1960) with 10 items describing debilitating test anxiety and 9 items describing facilitating test anxiety. An item such as “Nervousness while taking an exam hinders me from doing well” describes debilitating test anxiety, and an item such as “I work most effectively under pressure, as when the exam is very important” describes facilitating test anxiety.

The achievement goal orientation is described by a 12-item questionnaire (Elliot and Murayama, 2008) with 3 each describing mastery approach, mastery avoidance, performance approach, and performance avoidance. The following item describes the mastery approach “It is important for me to understand the content of this course as thoroughly as possible,” while the following item describes mastery avoidance “I worry that I may not learn all that I possibly could in this class.” The following item deals with the performance approach “My goal in this class is to get a better grade than most of the other students,” while the following item shows performance avoidance, “My goal in this class is to avoid performing poorly.” The surveys were voluntary and confidential, but not anonymous. Students were given extra credit



points for their participation, but these points were not included in the test results. Of the 182 students who remained in both classes, 170 students participated in the survey and completed all of the questionnaires, which represents a 93% participation rate. Although the sample was not random, it included a wide spectrum of students in terms of gender, age, and ethnicity. Of those who responded to the survey, 54 percent were males, 46 percent were white, and their average age was 22. The nonwhites included African American, Hispanic, and Asian students. Thus, it seems reasonable to argue that the sample is representative of the student population and that students enrolled in this course are similar to those enrolled in principles of economics nationwide.

### **Empirical Models and Estimated Results**

1. The first objective of this paper is to provide psychological as well as student characteristic profiles of students who outperform and those who underperform in this course based on their median grade score, as is shown in Tables 1 and 2.
2. The second objective of this paper is to test for the impact of economic education determinants on student performance, using OLS multiple regression, as shown in Regression 1, Table 3.
3. The third objective of this paper is to test for the impact of educational psychology variables as well as economic education determinants of student performance, as shown in Regression 2, Table 3.

Table 1 reports the mean, standard deviation, and the minimum-maximum numbers for the variables included in this study, while Table 2 reports the t test results by comparing the mean scales of the variables included in the study based on the high vs. low median scores of student grades. It is standard procedure in educational psychology to use the median value for splitting samples into high and low categories. (See for example Choi, 1998, Carden et al., 2004.) In this paper, the sample is divided equally by a median split of a 70 score and those with a higher median value are treated as outperformers and those with the lower median value are treated as underperformers compared to their peers in class. As Table 2 shows, the average score of the subsample of 85 outperformers is 82.26, while the average score of underperformers is 58.19. The t test results shown in Table 2 indicate that there are only seven variables that are significant in their average mean difference namely: student grades, GPA, age, mastery orientation, mastery avoidance, performance orientation, debilitating test anxiety, and facilitating test anxiety. The t results show that students who outperform others have a significantly higher average grade score, higher GPA, tend to be older students, have a higher mastery orientation scale, have higher mastery avoidance scale, have higher performance orientation scale, have lower debilitating test anxiety scale, and have higher facilitating test anxiety scale. All of the above results are consistent with the priori expectation excepting for mastery avoidance scale which should have being with a lower scale for outperformers. Surprisingly, gender and race variables are insignificant although they are in the right direction. Also, note that externally oriented students have a lower grade average score than internally-oriented students but the difference is not significant although in the right direction. Notice also that the difference in the average procrastination scale of outperforming students is slightly higher than that of underperforming students.

One possible explanation is provided by Chu and Choi (2005, p 245) who argue that although active procrastinators procrastinate to the same degree as passive procrastinators, they are more similar to non-procrastinators than to passive procrastinators in terms of purposive use of time, control of time, self-efficacy belief, coping styles, and outcomes including academic performance. Thus, it is possible that a procrastination scale has been elevated by outperformers due to their active procrastination behavior and it acted positively in terms of their performance. As a result, a higher procrastination scale is associated with higher average score.

To test for the impact on average score of educational psychology variables as well economic education determinants identified in this paper, the following two regression equations were used:

$$1. S = \alpha_1 + \alpha_2 G + \alpha_3 N + \alpha_4 A + \alpha_5 R + \varepsilon$$

$$2. S = \alpha_1 + \alpha_2 G + \alpha_3 N + \alpha_4 A + \alpha_5 R + \alpha_6 AP + \alpha_7 L + \alpha_8 D + \alpha_9 F + \alpha_{10} M + \alpha_{11} MA + \alpha_{12} PR + \alpha_{13} PRA + \varepsilon$$

Where S is the average score and is the dependent variable. This is consistent with other studies which use grade as the dependent variable since it measures student performance. (See, for example, Anderson et al., 1994; Arias and Walker, 2004; and Ballard and Johnson, 2005).

The independent variables are:

G = student self-reported GPA at the time of the survey

N = gender (0 = female, 1 = male)

A = age of students at the time of the survey

R = Race (0 = nonwhite, 1 = white)

AP = Academic procrastination (1 = low level, 5 = high level)

L = Locus of control (1 = low level, 5 = high level)

D = Debilitating test anxiety (1 = low level, 5 = high level)

F = Facilitating test anxiety (1 = low level, 5 = high level)

M = Mastery Approach (1 = low level, 5 = high level)

MA = Mastery Avoidance (1 = low level, 5 = high level)

PR = Performance Approach (1 = low level, 5 = high level)

PRA = performance Avoidance (1 = low level, 5 = high level)

$\alpha$  = the coefficient to be estimated, and

$\varepsilon$  = error term

Table 3 shows the results of the two regression equations. In Regression 1, GPA, gender, and race are significant and the three variables have a positive effect on student achievement. Note that GDP is highly significant, which is consistent with the results obtained in other studies. (See for example Agarwal and Day 1993; Savage, 2009). The regression coefficient for gender indicates that males outperform females in their scores which is in support of the findings elsewhere. (See, for example, Anderson et al., 1994; Ballard and Johnson, 2004.) The regression coefficient value for the ethnicity variable is also significant, indicating that whites outperform nonwhites in their scores, which is supported by some studies. (See for example

Stocky, 2009.) However, the regression results of both gender and ethnicity are significant only at the 0.1 level.

The regression results shown in Equation 2 of Table 3 indicate that the inclusion of educational psychology variables have improved the estimated regression results, as reflected by the increase of the adjusted  $R^2$  from 0.25 to 0.39. The results in Equation 2 show that of the economic education variables, GPA is highly significant and positive while gender, age, and race are insignificant but in their expected influence. Of the educational psychology variables, mastery approach and debilitating test anxiety are both highly significant, while the rest are insignificant in their influence on grades. The highly significant and positive effect of the mastery orientation variable supports the findings elsewhere that deep learning strategy enhances student grades and provides a stronger effect on learning outcomes than the shallow learning strategy of the performance orientation. Notice that the regression coefficient of the performance approach is negative, implying that the two variables, mastery approach and performance approach, do not complement each other in their influence on grades and the results do not support the multiple goal perspective suggested by Harackiewicz et al., (2002). The highly significant and negative impact of debilitating test anxiety on student performance in this study adds further support to the existing literature about the negative influence of test anxiety on student achievement (See Humbree, 1988; Kader 2016). Aside of mastery approach and debilitating test anxiety, other psychological variables are insignificant. Although locus of control and facilitating test anxiety are insignificant, they have the expected sign, with locus of control having a negative effect on learning outcomes, while facilitating test anxiety is positive. On the other hand, other psychological variables, although insignificant, are in the wrong direction. This includes performance approach, mastery avoidance, performance avoidance, as well as procrastination. It should be added here that the positive but insignificant influence of procrastination on student performance could be due to the positive role of active procrastinators, which masks the direction of the influence of the procrastination variable on student grades (See Chu and Choi, 2005).

## Conclusion

This paper adds to the existing literature by incorporating highly recognized and test four educational psychology variables in their influence on student grades in a principles of economics course. Of the educational psychology variables being tested, only mastery approach and debilitating test anxiety are significant. In this study, students who pursue a deep learning strategy through a mastery approach seem to achieve their goal as they attempt to control their cognitive, behavioral, and motivation to achieve their goal and hence realize the best learning outcomes. However, it is possible that under different scenarios such as different instructors and teaching styles, coupled with different types of tests as well different levels of difficulty of the subject taught, student may follow different strategies to achieve their goals. Thus, some may try harder, follow shallow learning strategies, or use multiple pathways to achieve similar goals. Hence, more research is needed in this area. Given that this shows a detrimental influence of debilitating test anxiety on student performance, professors should make the effort in introductory economics courses to identify students who may suffer from test anxiety and assist them in locating the help necessary to improve their performance. Researchers in educational psychology have attempted to address this problem through early assessment intervention. Many

universities have websites with suggestions for reducing test anxiety and information for obtaining assistance (Sloan and Wilson, 2009). Aside from the psychological variables examined in this paper, others such as self-efficacy, motivational orientation, and metacognitive skills could have been added to the estimation procedure. Thus, a great deal of research is needed to explore various situations and aspects that may affect student grades through achievement goal theory and test anxiety.

**TABLE 1**  
**Principles of Microeconomics**  
**Characteristics of Variables from Economics of Education**  
**and Educational Psychology**

Variables	Mean	SD	Min Max
Average Score	69.2	13.83	28 98
GPA	3.18	0.49	1.67 4.00
Gender	0.57	0.50	0 1
Age	22.06	5.27	17 46
Race	0.47	0.5	0 1
Locus	9.88	4.16	1 20
Procrastination	2.17	0.60	1.25 4.06
Mastery Orientation	4.35	0.68	1 5
Mastery Avoidance	3.67	1.01	1 5
Performance Orientation	4.16	0.92	1 5
Performance Avoidance	3.96	1.17	1 5
Debilitating Test Anxiety	3.09	0.75	1.10 4.80
Facilitating Test Anxiety	2.65	0.77	1.11 4.44

\*Significant at 0.1. \*\*Significant at .05 \*\*\*Significant at 0.01.

**TABLE 2**  
**Principles of Microeconomics**  
**Low vs. High Average Score**  
**t Test**

	<b>Avrge. Score</b>	<b>GPA</b>	<b>Gender</b>	<b>Age</b>	<b>Race</b>	<b>Locus</b>	<b>Proc.</b>	<b>Mast.</b>	<b>Mast. Avd.</b>	<b>Perf.</b>	<b>Perf. Avd.</b>	<b>Debilt. Test Anxiet.</b>	<b>Facilit. Test Anxiet.</b>
<b>Mean w/High Average Score</b>	80.26	3.37	0.60	22.98	0.51	9.27	2.72	4.53	3.99	4.30	4.06	2.84	2.82
<b>Mean w/Low Average Score</b>	58.19	2.99	0.54	21.36	0.44	10.35	2.68	4.17	3.59	4.04	3.88	3.36	2.46
<b>SD w/Low Average Score</b>	9.05	0.43	0.50	4.37	0.50	3.97	0.68	0.77	1.06	0.85	1.13	0.63	0.70
<b>SD w/High Average Score</b>	7.53	0.48	0.49	6.19	0.50	4.31	0.53	0.52	0.93	0.98	1.18	0.77	0.78
<b>Observatio ns w/Low Average Score</b>	85	85	85	85	85	85	85	85	85	85	85	85	85
<b>Observatio ns w/High Average Score</b>	85	85	85	85	85	85	85	85	85	85	85	85	85
<b>t Stat</b>	17.43* **	5.17* **	0.87	1.98*	0.95	-1.60	0.40	4.11* **	2.67* **	1.89*	1.08	- 4.93** *	3.23** *
<b>p (T&lt;=t) two-tail</b>	0.00	0.00	0.39	0.05	0.35	0.11	0.69	0.00	0.00	0.06	0.29	0.00	0.00

Note: The upper numbers are estimated regression coefficients and the lower numbers in the parentheses are standard errors \*significant at 0.10 \*\* significant at .05 \*\*\*significant at 0.01.

**TABLE 3**  
**Regression Results Predicting Average Score**  
**Microeconomics Class**

<b>Independent Variables From Economic Education and Educational Psychology Variables</b>	<b>Independent Variables From Economic Education Equation 1</b>	<b>Independent Variables From Economic Education and Educational Psychology Variables Equation 2</b>
<b>Constant</b>	17.22** (7.16)	19.25 (12.17)
<b>GPA</b>	13.91*** (1.88)	11.96*** (1.75)
<b>Gender</b>	3.19* (1.87)	2.51 ( 1.74)
<b>Age</b>	0.20 ( 0.18)	0.18 (0.16)
<b>Race</b>	3.21* ( 1.86)	0.43 (1.81)
<b>Locus of Control</b>		-0.18 (0.22)
<b>Academic Procrastination</b>		1.54 (1.46)
<b>Mastery Orientation</b>		4.01*** (1.39)
<b>Mastery Avoidance</b>		1.35 ( 0.92)
<b>Performance Orientation</b>		-1.39 ( 1.20)
<b>Performance Avoidance</b>		0.88 (0.93)
<b>Debilitating Test Anxiety</b>		-5.63*** (1.46)
<b>Facilitating Test Anxiety</b>		0.43 (1.37)
<b>Number of Observations</b>	170	170
<b>Adjusted R<sup>2</sup></b>	0.25	0.39
<b>Standard Error</b>	11.97	10.76
<b>F</b>	15.10***	10.17***

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***Measuring Classroom Pedagogical Transformations when “Educating for Change”?  
A Lesson from Singapore***

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**Abstract**

By standards of international benchmarking tests, Singapore’s education system has been successful in making shifts needed to meet the emerging demands of the 21st century. Despite this recognition, locally, stubborn narratives of Singaporeans’ educational experiences as being primarily didactic and exam-focused persist, with official and public constructions of the “inadequate-Singaporean” being a prototypical fall-out of such a system. This paper adopts a critical realist perspective to disentangle the narrative. Examining educational structures targeted for change under Singapore’s Thinking Schools Learning Nation (TSLN) and Teach Less Learn More (TLLM) initiatives, the paper provides a less simplistic account of Singapore’s shifting educational landscape. The explanatory critique develops an alternative interpretation of findings reported by a large-scale research project in 2013, which observed that ‘a pedagogy that is intractably didactic’ endures in Singapore classrooms, indicating policy ineffectiveness in generating desired changes. This paper re-examines policy documents, and the focus and concepts of change adopted in the large-scale project. It questions an underlying assumption guiding the project, which alludes that the efficacy of educational reform initiatives should be investigated ‘at the point they matter most, the classroom’. By focusing primarily on classroom pedagogical practices, many out-of-classroom programs introduced and adopted under TSLN and TLLM remained unexamined. Findings from the present study suggest two kinds of changes have taken place - the reorientation of pedagogical practices in post-secondary institutions and extensions of what already exists in the primary and secondary sections.

Keywords: educational change, educational policy, ‘inadequate Singaporean’, Singapore, TSLN, TLLM.

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## Introduction

International benchmarking tests like the Programme for International Student Assessment (OECD, 2016), Trends in International Mathematics and Science Study (Martin, Mullis, Foy & Hooper, 2016; Mullis, Martin, Foy & Hooper, 2016), and Progress in International Reading Literacy Study (Mullis, Martin, Foy & Drucker, 2012), have indicated that the Singapore education system has been successful and consistent in developing students who have shown high levels of competencies in Reading, Mathematics and Science, and who have demonstrated abilities in applying these in day-to-day and professional contexts—abilities which these evaluations propose to measure (e.g. see OECD, 2016, p. 194). Despite these achievements in bringing about educational change, locally, stubborn narratives paint Singaporeans' educational experiences as being primarily didactic and exam-focused. Past reports in locally conducted research, for example, have alluded that the system is one of presumably several, '... educational systems in which the iron laws of high stakes assessment drive classroom pedagogy day in and day out ...' (Hogan, Towndrow & Koh, 2009a, p. 228).

## The Local Narrative

This narrative configures the exam-oriented system as the cause of a persistent didactic pedagogical style contributing, somewhat inevitably, to the development of certain inadequacies noted in Singaporean students, graduates and workers. Kramer-Dahl (2004, p. 219) for instance has shared that Singaporean youths have sometimes been portrayed, by ministers, researchers, and local media, as being 'narrowly achievement-oriented, 'exam-smart muggers', who 'lack an enquiring mind' and are 'deficient in expression and critical thinking skills'. More recent depictions, in 2013, have highlighted the 'inadequacies' of Singapore's Professionals, Managers, Executives and Technicians (PMET). Chan (2013) asked in the front-page headlines of the main local newspaper, 'Pampered, Mediocre, Expensive, Timid? Are these fair descriptions of the new Singaporean worker?' and then reasserted the need for Singaporeans to undertake a mindset change, and for schools to start honing critical thinking skills, team and project work, as well as public speaking skills. Lim (2014, p. 79), a year later, similarly noted that references have been made 'to the inadequacy of Singaporeans—by quantity or quality—for many jobs in the country (both labour and talent) ...'. She observes that employers tend to regard local graduates as "cookie-cutter", "risk-averse", "not at all entrepreneurial", "provincial", "materialistic" and simply "boring" (Lim, 2014, p. 90)'. Collectively the repetitive narrative, which provides a rather simplistic account of Singapore's educational system, has had an impact on how Singaporean youths and workers have been, and continue to be, constructed and have persisted despite the introduction of two policies of change in the late 90s and the decade of 2000 aimed at transitioning Singapore's educational landscape to meet the demands of the 21<sup>st</sup> century knowledge economy.

## The Policies of Change

In 1997 and 2004, Singapore rolled out two important initiatives to introduce programmes to bring about changes to Singapore's educational landscape. The initiatives aimed at supporting schools in preparing students to meet the current demands of globalization, a knowledge-based economy and the 21<sup>st</sup> century. The two

initiatives, Thinking Schools Learning Nation or TSLN (Goh, 1997) and the Teach Less Learn More or TLLM (Lee, 2004), were designed to affect change across the primary, secondary and post-secondary institutions in Singapore.

TSLN (Goh, 1997) tended to invest in infrastructural, and human resource development in terms of teacher training, and focused on 5 areas of development namely; (i) the upgrading of institutional infrastructure to support the introduction of the Information Technology Masterplans (MOE, 1997a) which to date, have gone through 3 phases (1997-2002; 2003-2008; 2009-2014) and which aims to foster the use of ICT in education (Heng, 2013); (ii) a review of the curriculum and assessment systems; (iii) the professionalization of teaching through initial and continual teacher training; (iv) greater investment in supporting pre-school and post-secondary education providers; and (v) the introduction of measures to raise Singapore's profile as an education hub (Teo, 1999).

TLLM, in comparison, tended to focus on three areas in primary and secondary schooling — (i) fostering 21<sup>st</sup> century competencies; (ii) reducing the overemphasis on exams by giving equal importance to non-academic curriculum and accepting different measures of merit; and (iii) by allowing for diversity within the educational landscape, encouraging a range of talents. In policy terms, TLLM aimed to 'positively encourage a diversity of talents – in intellectual fields, in the arts and sports, and in community endeavor' (Shanmugaratnam, 2004, point 13). In enactment the stance taken continued from that which was adopted during TSLN, which worked to sustain the core of a system which was already performing well internationally, while permitting customization to nurture individual students' aptitudes and abilities wherever possible (Teo in Budget-MOE, 1999).

### **Findings Reporting on the Policies' Effectiveness**

Recent educational research findings from a large-scale educational research project, however, which purported to measure the effectiveness of the two policies to some degree, has reported that little change has taken place in classrooms observed (Hogan et al., 2013). The study, Core 2, located measures of policy effectiveness in terms of observable pedagogical changes enacted in the school classroom. It collected data 'to analyse the pedagogical organization of four theoretically specified 'models' of instructional strategy—traditional instruction, direct instruction, teaching for understanding, and co-regulated learning strategies in secondary 3 Mathematics and English' (Hogan et al., 2013, p. 57). Drawing on findings from observations and surveys of a nationally representative sample of over 4000 students and their teachers the study's results, when focused solely on classroom interactions, proceeded to echo and perpetuate the ongoing narrative about the Singapore education system stating,

... we also think that the national high stakes assessment system has resulted in a pedagogy that is intractably didactic rather than dialogical, compromised the epistemic quality and the transparency or 'visibility' ... of learning processes during lessons, restricted the opportunities of students to engage in knowledge building work in class, and constrained the ability of the system to successfully introduce substantial and sustainable pedagogical improvements despite a strong policy commitment to doing so as reflected in the two key policy documents of the past 15 years—Thinking schools,

learning nation (TSLN, 1997) and Teach less, learn more (TLLM, 2004). (Hogan et al., 2013, p. 60)

As summarized earlier, TSLN and TLLM aimed to introduce education programmes to gear Singapore towards educational outcomes that would enable its students and future workforce to have skills that would meet the demands of globalization and the 21<sup>st</sup> century (Hogan et al., 2013). While international benchmarking tests have consistently tended to indicate otherwise, core 2 concluded that the TSLN and TLLM initiatives constituted, ‘Tinkering around the edges ... [and] is unlikely to achieve the outcomes the system desires’ (Hogan et al., 2013, p. 60).

## Research Question

Against the backdrop of a large-scale study which focused on examining English and Mathematics classroom pedagogical interactions to measure the effectiveness of TSLN and TLLM in bringing about change, this study undertakes a re-examination of the TSLN and TLLM initiatives and asks, ‘What educational structural changes were introduced by Singapore’s Thinking Schools Learning Nation (Goh, 1997) and Teach Less Learn More (Lee, 2004; Shanmugaratnam, 2004) initiatives?’ In asking this overarching research question, the paper responds to two sub-questions: (1) ‘How has educational change been occurring in Singapore under the (a) TSLN and (b) TLLM initiatives (did the introduced changes focus at the classroom level), and (2) ‘Why was educational change not reflected in the findings reported by Core 2?’ The paper aims to provide an account of the complexity inherent in Singapore’s educational landscape, in part, resulting from the changes introduced by TSLN and TLLM.

The findings from this study lend some support to arguments put forth by educational change scholars who have likened educational change efforts which aim to instill improvements within the school, let alone the classroom, as ‘trying to improve performance within what is actually the lesser variable of influence on student achievement’ (Hargreaves et al., 2010, p. xix). The Singapore educational change experience has introduced changes, which supplement existing practices but also move students to learning sites beyond the school classroom.

## Methodology

This paper was part of a larger study the design of which has been reported and published elsewhere (De Souza, 2016). The study was informed by a critical realist meta-theoretical framework and this part utilised the document selection method proposed for Realist Evaluations and Reviews (Pawson, Greenhalgh, Harvey & Walshe, 2005). It adopted a purposeful selection of documents from primary and secondary sources to answer the research question posed. The range of documents selected for this study comprised parliamentary debates, speeches and press releases from the Ministry of Education (MOE) Singapore, and other documents/sources which provided details about structural changes made to Singapore’s educational landscape in the primary, secondary and/or post-secondary sections under TSLN and TLLM. The relevant documents have been listed in Table 1.

The analysis of the documents was informed by realist social theory (RST). Singapore’s educational landscape was theoretically decomposed into the conceptual

components proposed by RST, which states that a social context of interest comprises structure, agency and culture (or SAC) and the relations and interactions between them (Archer, 1995). While these components are intimately intertwined, they are treated as analytically distinct to enable the examination of their interactions. Collectively, the components are organised and related in distinct ways, and constitute the social structure of the context.

**Table 1**

List of documents selected

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**Parliamentary Debates**

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Budget, Ministry of Education (MOE) (1997, July 30)

Budget, MOE (1998, March 19)

Budget, MOE (1999, March 17)

Budget, MOE (2001, March 15)

Head K, MOE. (2006, March 7)

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**Ministry of Education, Singapore (MOE) Speeches and Press Releases**

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**Heng, S. K.** (2011, September 22). *MOE Work Plan Seminar*

Heng, S.K. (2013, September 25). *Student-centric, values-driven education: A broad and deep foundation for a lifelong journey.*

**Lee, H.L.** (1997, Nov. 24). Education in Singapore 21

Lee, H. L. (2004). Our future of opportunity and promise.

**MOE** (1997a) Launch of the Masterplan for IT in education

MOE (1997b) Launch of National Education

MOE (1998) Work plan seminar on education in schools

MOE (2002). Government accepts recommendations for a broader and more flexible curriculum and a more diverse JC/Upper secondary education landscape

MOE (2003) Nanyang Girls' High School to offer the Integrated Programme in 2004

MOE (2005) 43 secondary schools to participate in the Direct School Admission (DSA) exercise for admission to secondary one in 2006

MOE (2008a) New school of Science and Technology to open in 2010

MOE (2008b) More support for school's 'Teach Less, Learn More' initiatives

MOE (2012) 190 Schools Now Offer Niches of Excellence to Enrich Students' Educational Experience

MOE (2013) Engaging our Learners. Teach less, learn more

MOE (2016a) Advanced elective modules (AEM) portal

MOE (2016b) List of Secondary Schools Participating in 2015 DSA-Sec Exercise for Admission to Secondary One in 2016

MOE (2016c) Integrated Programmes (IP).

**Ng, E.H.** (2008, September). Our journey in education – Taking stock, forging ahead

Ng, E.H. (2010, September). Bringing out the best in our learners

**Shanmugaratnam, T.** (2003). The next phase in education: Innovation and enterprise

Shanmugaratnam, T. (2004). To light a fire: Enabling teachers, nurturing students

Shanmugaratnam, T. (2005). Achieving quality: Bottom up initiative, Top down support

Shanmugaratnam, T. (2006). More support for school-based initiatives

Shanmugaratnam, T. (2007). Having every child succeed

**Teachers** (Completion of syllabus for academic curriculum) (2007, September 17)

**Teo, C.H.** (1999). Towards ability-driven education: Making every Singaporean matter

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**Update on Teach Less, Learn More Programme (2010, April 26, Column 169)**


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**Other Documents / Sources**


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Ng, J.Y. (2015, June 29). Niche scheme in primary schools being phased out. *Today Online*.

O'Grady, G., Yew, H.J.E., Goh, K.P.L. & Schmidt, H.G. (2012). *One-day, one-problem: An Approach to problem-based learning*. Singapore: Springer.

Singapore Polytechnic (n.d.). Advanced elective modules (AEMs) for secondary school students. [Web source].

Temasek Polytechnic (n.d.). Advanced elective modules. [Web Source].

Teng, A. (2016, Oct 7). Seven new applied subjects to pique students' interests. *The Straits Times, Home Section, B6*.

Yeow, C.G. (2002). The PEPP Model: Moving towards problem-based learning in technical education..

Hee, S.Y. (2005). Problem-based learning: An institutional perspective.

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**Social structure.** The social structure investigated was determined by the scope of TSLN and TLLM and how these were crafted as policies. TSLN and TLLM introduced programmes and changes affecting primary, secondary and post-secondary institutions in Singapore. As such, the selected documents relating to the policies moved beyond primary 5 and secondary 3 English Language and Mathematics classrooms, which was the demarcated scope of the core 2 study. The study eventually reported only the findings for the secondary 3 sample as an article (Hogan et al., 2013).

**Structural aspect.** Investigating the structural component entailed reviewing documents to identify the structures TSLN and TLLM targeted to change. Did the policies, in implementation, aim to change the structure of examinations, classroom pedagogy, how schooling is organised in a day, or school cluster organisation?

The education minister who spearheaded TSLN was Minister Teo Chee Hean. Thereafter, the minister who took over the education portfolio from 2004–2008 and initiated TLLM was Tharman Shanmugaratnam. Most of the documents on TSLN and TLLM, what constitutes their scope and programmes, are taken from speeches and press releases made by the ministers and the Ministry of Education.

**Agential and Cultural aspects.** Due to space constraints, for this paper, the structural aspects is the main focus with the agential and cultural aspects being mentioned where relevant. For the aspect of agency, only inferences could be made about the kinds of agency schools and teachers could exercise given the structural changes introduced. The cultural dimension, on the other hand, entailed understanding the ideological beliefs and commitments policymakers may have and wish to promote. In RST, these beliefs guide decision-making and influence the direction of change along certain developmental trajectories more than others.

## Findings

### 1a. How educational change occurred under the TSLN initiative

Educational change under TSLN took place under the conditions of an already high performing system. Ideologically, Goh, in announcing the kind of curriculum changes TSLN would undertake emphasized,

Whichever way we cut back and redefine the curriculum, we will ensure our students retain mastery over the core knowledge and concepts that give them the basis for further learning. We must also retain the high standards ... Whatever we do, we must not abandon these fundamentals ... We must not level down. (Goh, 1997, point 20)

The strong structural positioning of the system was accompanied by expressed concerns about ‘effective resource deployment’ (Teo, 1999, point 14). The eventual strategy adopted to bring about system change therefore, approximated extending and supplementing the strong system already in place.

For mainstream primary and secondary schools, the review of curriculum and assessment under TSLN brought about modest transformations. In 1998, most syllabi were reduced by 10 to 20 per cent, up to 30 per cent with no change to the syllabus structure or to the examinations set indicating continuity of what already existed. By 2001, the plan was to phase in new syllabi that infused thinking skills and the use of information technology, and implement project work in schools, though this implementation would not be examinable or affect the examinations (Teo in Budget, Ministry of Education, 1998, 1776-1777; also see Shanmugaratnam, 2004; 2006).

Change in assessment came not so much in the form of greater assessment literacy or alternative modes of assessment, but in the form of adding additional indicators in addition to academic results, as measures of attainment and criteria for entry into institutions. This led to modifications of the university entry criteria in 2003, which also considered students’ participation in co-curricular activities (Budget, Ministry of Education, 2001, 1166-1167). Modifications were also made in the way the quality of schools was appraised – looking not only at results but at sound processes which produced sustainable results over time (Budget, Ministry of Education, 1999; Shanmugaratnam, 2003).

But TSLN did not only bring about modest changes for the primary and secondary schools. In 1997, Prime Minister Lee Hsien Loong announced that the same kind of investment that would go into upgrading and technologizing schools, would go into investing in Singapore’s further education institutions—the universities, polytechnic and Institutes of Technical Education or ITE (Lee, 1997, points 36-37). In Singapore, the ITEs and Polytechnics are applied learning institutions, which receive students from all mainstream government schools, whose results qualify them entry into the various courses offered.

TSLN brought about more significant changes in post-secondary institutions than it did to primary and secondary schools. Following from the announcement of the TSLN initiative, the ITEs, Temasek Polytechnic and Republic Polytechnic made

pronounced efforts to introduce and integrate Problem-based Learning (PBL) in their curriculum, replacing the previously existing pedagogical practices, with practices that were better aligned with applied learning (Yeow, 2002; Hee, 2005; O'Grady et al., 2012).

The greater focus on applied learning in these post-secondary institutions, taking place within upgraded infrastructural support and facilities, would play an important role in helping the government roll out the elective and advanced elective modules for secondary students, and the objectives of TLLM announced in 2004.

### **1b. How educational change occurred under the TLLM initiative**

Focusing on primary and secondary schools, TLLM introduced broad-range changes, which aimed to foster the development of 21<sup>st</sup> century competencies and skills, and diversify Singapore's educational landscape to steer Singapore's education system towards changes needed to meet the demands of globalisation.

**Fostering 21<sup>st</sup> century competencies.** TLLM fostered 21<sup>st</sup> century competencies by introducing elective and advanced elective modules (EMs and AEMs) for secondary students in the different streams. Benefiting from the infrastructural and curriculum shifts undertaken in post-secondary institutions under the TSLN initiative, the applied learning modules for secondary school students are designed and conducted by ITE and Polytechnic lecturers, and are 30-hour-courses which students can opt to attend by applying through their schools. Some of these courses may be conducted in school premises but others may be held at the post-secondary institutional premises (MOE, 2016a) to make use of the available and upgraded facilities there. This arrangement suggests some degree of effective resource deployment rather than duplication.

There are a wide-range of EMs and AEMs that students can sign up for. For students in the Normal Technical stream, there are now 31 EMs related to STEM and non-STEM disciplines (Teng, 2016). For Normal (Academic) and Express stream students, the AEMs comprise applied courses such as 'Application Science in Forensics', 'Engineering in Medical Applications', 'Gene Therapy and Regenerative Medicine', 'Exploring Interior Design and Architecture' and 'Cartoons in Motion'—courses relevant to 21<sup>st</sup> century career interests, just to name a handful of the 150 modules available, though these are not all available at one time (MOE, 2016a; Singapore Polytechnic, n.d.; Temasek Polytechnic, n.d.). Successful completion of EMs and AEMs may be used for future admission into post-secondary institutions and for credit exemptions in related courses (Shanmugaratnam, 2007).

**Reducing the overemphasis on exams.** Rather than introducing structural changes to the examination system, as done in TSLN, TLLM gave some recognition to the non-academic curriculum, accepting different measures of merit. This was another modest structural change that served to add to what already existed rather than to replace it. The Direct Schools Admission (DSA-secondary) program for example, was first planned in 2004 and put in operation in 43 secondary schools in 2006 (MOE, 2005). This program allows schools to select 10 to 20 per cent of their students based on specific and holistic criteria of merit set by the school, before the release of the primary 6 School Leaving Examination results. Similarly, the Joint Polytechnic Special Admission Exercise, allows post-secondary institutions to admit up to five per

cent of their annual student intake using non-academic related criteria, allowing students with specific talents and aptitudes entry into their programmes of interest (Shanmugaratnam, 2005).

**Allowing for diversity and encouraging a range of talents.** Diversity, in the form of different types of schools offering different programmes, was extended into the structure of the Singapore's educational landscape through the TLLM initiative. In addition to the existing mainstream, autonomous and independent schools—which focused on academic pursuits—specialized independent schools, which cater to academic pursuits and included an area of specialization, were introduced. The aim was to recognize and nurture exceptional, talented individuals in Sports, Mathematics and Science, the Arts, and Science and Technology (MOE, 2002, point 5; Shanmugaratnam, 2004).

The introduction of the Integrated Program in four schools in 2004 was another method adopted to modify the structure of the education system. This program allowed students to bypass the high stakes examinations in Year 10 but still continue on to prepare for the Year 12 examinations. The purpose of the program was to develop a more flexible learning environment in the secondary school years (MOE, 2003). Currently, 18 schools offer this program (MOE, 2016c).

For mainstream schools, in order to develop some differentiation, while maintaining the existing core of the system, minor structural modifications were introduced in the form of two bottom-up or school-initiated programmes. In 2005, MOE announced that a sum of up to \$100,000 would be provided to mainstream schools to fund the development of niches of excellence to distinguish each school. By 2006, 12 schools were reported to have niche programs with specializations in Sports, Performing Arts, Uniformed Groups and Robotics (Shanmugaratnam, 2006). In 2012, this number increased to 190 with the range of programs being 87 (MOE, 2012). Another large-scale school initiated programme receiving support from MOE, was the School-based Curriculum Innovation projects implemented by 327 primary, secondary and post-secondary institutions. An additional 32 schools undertook SCIs independently without support (MOE, 2013, p. 10). In this programme schools would focus on a specific focus area to introduce curriculum innovation. Shanmugaratnam (2007, point 21) provided an example:

In Marsiling Secondary, teachers felt that the curriculum should do more to expose students to the environmental issues of the day. So this year a group of Science and Geography teachers ... develop [*sic*] a non-examinable Environment Education Module (EEM) – 4 periods a week for a semester - for lower secondary students. Students use a problem-based approach, and work together on projects which help them understand the environmental challenges facing Singapore, the region and the world.

A broad range of focus areas, apart from English and Mathematics, were undertaken by different schools (see MOE, 2013, pp. 100-111). In 2011, it was reported that '96% of the schools involved in TLLM sustained their SCIs ... [and] scaled up their projects to include more classes within the same level and across different levels and subjects' (MOE, 2013, p. 11) suggesting that at present, while all mainstream schools have continued with delivering the content of the core curriculum, some variations are

likely to exist in all schools as a result of the SCI projects.

## **2. Why educational change was not reflected in the findings reported by Core 2.**

As was highlighted earlier, Core 2, a large-scale educational research project, which undertook in part to study the effectiveness of the TSLN and TLLM initiatives, reported that little change has taken place in the classrooms observed in their study comprising 4000 students and their teachers. It also suggested that the changes brought about by TSLN and TLLM especially constituted, ‘Tinkering around the edges ... [and] is unlikely to achieve the outcomes the system desires’ (Hogan et al., 2013, p. 60) – the outcomes being to introduce educational transformations to enable Singapore’s workforce to meet the demands of globalization and the 21<sup>st</sup> century.

Educational change was not reflected in the findings from observations of Secondary 3 Mathematics and English classrooms because Core 2 interpreted that for TLLM especially, that teachers would make the kind of change that would replace, rather than supplement or extend (see Lee, 2004, points 112 & 121), their preferred pedagogical style with more dialogical interactions. Structurally however, TLLM only enabled schools to make selective change to a focus area of their choice through SCI projects, and these were school-based changes implying that not all classrooms were expected to be affected.

Secondly, the research design located and reduced most of the change efforts, which might affect students’ overall learning experiences, and which the TSLN and TLLM programmes initiated, to the school classroom. In doing so, Core 2 could not take into account the possible impact that other programmes like the EMs, AEMs and the niche programme might have in honing 21<sup>st</sup> century skills and competencies because these programmes took place outside or beyond the confinements of the school classroom.

Thirdly, where school-initiated innovative programmes of pedagogical change under TLLM were concerned, the research design assumed that all participating schools would focus their curriculum, pedagogical and classroom innovation efforts on primary 5 and secondary 3 Mathematics and English subjects (Hogan et al., 2009c) though only results for secondary 3 were eventually reported as a journal article (Hogan et al., 2013). This imposed uniformity however, was far from the case in schools’ actual programme implementation practices. A range of innovations, in a variety of subject areas and subject combinations, were carried out at different primary, secondary and post-secondary levels by different participating schools, many of which the pre-defined and limited scope of the research project could not take into consideration (see MOE, 2013, p. 100-111).

It is therefore not evident why Core 2 claimed, even if only in part, to measure the effectiveness of the TSLN and TLLM initiatives when its research design could not accommodate the variety and range of programmes implemented through the TSLN and TLLM initiatives—not even the range of innovations introduced by over 300 schools under the SCI projects.

This study has explained how core 2’s focus on primary 5 and secondary 3 English and Mathematics classrooms were hardly representative of the changes undertaken by

TSLN, or the varied TLLM programmes initiated and implemented by Singapore schools in the SCI projects. Despite this, the findings were used to make broad and overgeneralized claims about the Singapore education system as a whole, and the ineffectiveness of TSLN and TLLM in bringing about systemic change to prepare Singaporeans to meet the demands of the 21<sup>st</sup> century. The underlying assumption guiding Core 2 seemed to be that the efficacy of educational reform initiatives ought to be investigated ‘at the point they matter most, the classroom’ (Gopinathan & Mardiana, 2013, p. 27). In adopting this narrow focus of interest, Core 2’s findings have led the researchers to perpetuate the narrative that Singaporeans’ educational experiences continue to be primarily didactic, exam-focused and limiting. This study however, has highlighted how the use of classroom pedagogical change as the measure of effectiveness of policies may be problematic and restrictive when understanding how complex education systems, like the one in Singapore, is carrying out change.

## **Conclusion**

This paper has proposed a different explanation about Singapore’s ongoing success in international benchmarking tests and has highlighted the complexity inherent in its educational landscape. The complexity of the system contests the perpetuation of a simplistic narrative that configures the Singaporeans’ educational experiences as being examination-oriented leading to predominantly didactic classroom pedagogical practices which are restrictive, and which invariably results in some inadequacies observed in the development of local students, graduates and workers.

If it is indeed so, and this paper seems to support the notion, that student achievement is also affected by what goes on beyond the classroom and school (Hargreaves et al., 2010), then focusing on the kinds of interaction that goes on in the classroom alone as a measure of effective change severely restricts the kinds of transformations that policymakers can undertake and introduce to improve the learning and educational experiences of students. Rather than implementing radical change, the Singapore educational change experience has introduced programmes to supplement existing classroom practices and the examination system rather than replace them. It has also moved students to extended learning sites beyond the school classroom. Contrary to Core 2’s interpretation of its findings (Hogan et al., 2013), the changes highlighted in this paper do not indicate a prevailing intractability within Singapore’s education system or parts thereof.

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***An Experimental Learning Model for Rfid***

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**Abstract**

Radio Frequency Identification (RFID) has been widely applied in various industries in recent years. The logistics and supply chain is the most common industry applying RFID. While the RFID market is now growing rapidly, the demand on RFID professionals is increasing sharply. However, there are quite a few RFID courses or trainings provided during the study of logistics and supply chain students, this leads to a problem of succession between schools and companies. In order to support this vigorous growth and relieve the succession problem, RFID education becomes important to cultivate future RFID professionals from the students who can apply the knowledge into daily operations immediately. Hence, a comprehensive plan of RFID education at the tertiary level should be well developed. This paper investigates current problems of RFID education, and hence a RFID educational model will be proposed.

Keywords: RFID education, tertiary education, teaching and learning methods

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## Introduction

RFID is a wireless communication technology using radio frequency signal as the medium to identify objects automatically from a distance (Huang, Yeung, Kong, & Gao, 2011). A set of RFID system contains various parts, including RFID tags, antennas, readers and a middleware. As a matter of fact, the adoption of RFID technology involves difficult concepts, setting and cooperation between involved system, equipment and objects. However, the efficiency and effectiveness of task accomplishment by using the technology are guaranteed. Unfortunately, the supply and demand of RFID professionals is unbalanced, which the supply cannot meet the demand. The root reason is that there are limited courses or trainings in the society. In Hong Kong, there are only four universities and one company providing RFID courses or trainings. The lack of courses leads to a succession problem between schools and companies. Therefore, a RFID educational model should be developed to cultivate more well-equipped graduates.

## Background Research

Logistics and supply chain industry has been becoming more and more essential due to globalization. This industry has implemented RFID technology for at least a decade already, including automatic check-in and check-out, warehouse management, inventory tracking, transportation, on-shelf monitoring, quality control and theft control, which all are the most common areas applying RFID (Beheshti & Beheshti, 2010). RFID then becomes a key piece of the technology in the process of supply chain and logistics over the world (Kumar, Kadow, & Lamkin, 2011).

The implementation of RFID technology requires learnt knowledge and trained skills, for example, collecting data, changing business process, integrating enterprise systems and infrastructure, and making proactive decisions. Specific types of tags, frequency and antennas should be used to suit the properties of the goods and the external environment. Also, Das and Harrop (2015) reported that the market of RFID system, including RFID tags, antennas, readers and middleware, was worth over US\$10 billion in 2015, and it was predicted that the value would be increased to over US\$13 billion in 2020. With these figures, the demand of RFID experts and practitioners, who familiarize themselves with RFID technology and applications to different industries, keeps boosting in the society. Companies applying RFID in their business can achieve competitive advantages, which RFID brings higher efficiency and effectiveness to the company. Hence, a person who is not equipped with prerequisite RFID concepts and knowledge may find hard to understand and apply RFID in practice. If a company can acknowledge the significance of RFID education and skill training, the operation will have better performance than that of without RFID acknowledgement. Therefore, there is a need of a comprehensive plan for cultivating RFID experts.

Lecturing is the most common teaching and learning method in education circle (Clynes, 2009), and tertiary education has been dominating by the traditional lectures (Schwerdt & Wuppermannb, 2011; Weiss, 1997). Sangestani and Khatiban (2013) and McIntosh (1996) defined lecturing is a traditional one-way communication without any discussion or immediate practice; students are the passive participants who can only jot notes and may have time for them to ask questions afterwards.

Middendorf and Kalish (1996) and Ghani (2009) defined lecturing is that lecturers are talking and writing on board while the students are listening and taking notes of text written on board. Some criticisms of lecturing are summarised by DiPiro (2009). Lecturing is a passive method and knowledge intention is likely to fail, and it is a kind of information presentation while it is not account for different learning styles. The information and facts delivered in the lesson become outdated rapidly, and lectures do not deliver skills. All these cannot equip students to be professionals. However, a well-presented lecture may succeed in gaining students' attention, and can improve their quality in learning (Curzon, 2004). Penson (2012) also pointed out that lecturing is the backbone of tertiary courses. It is considered to give students a whole picture of courses and overall strategies, and students can understand learning objectives and reasons of the objectives. Further, Bligh (2000) stated lecturing is as effective as other teaching methods on transmitting knowledge, and it is an appropriate tool for teaching science and engineering programs, which is significant to digest a large amount of knowledge. Besides, Penson (2012) suggested lectures could contain some "enhancement activities", for example, short discussions between students, in-class exercises, animations, question-and-answer (Q&A) sessions, workshops, group work etc. These kinds of "enhancement activities" are important to make passive lesson to be active and can encourage students to have deep learning. In addition, lecturing involves deeper cognitive processing and active listening, including interpreting, paraphrasing and questioning, and putting new materials into students' space of prior knowledge (Nilson, 1998).

According to the works and theory of Dewey (1938), Lewin (1951), Piaget (1951) and Kolb (1984), experiential learning is a continuous process of a person transforming the created knowledge through experience, and learners have a chance to reflect their learning through experience (Frontczak & Craig, 2000). Kolb (1984) also defined this learning method with six assumptions, experience learning: (1) is a process, not an outcome; (2) is derived from the experience; (3) requires ones to solve dialectically which may oppose some theories; (4) is comprehensive and integrative; (5) requires interacting with ones and surrounding environment; and (6) results that ones learn the knowledge (Kayes, 2002). Experiential learning was proposed to have a four-stage cyclical model for learners as shown in Figure 1, starting from: (1) Concrete Experience (CE); (2) Reflective Observation (RO); (3) Abstract Conceptualisation (AC); and (4) Active Experimentation (AE). This model addressed that immediate experience of ones is the base of observation and reflection (Matsuo, 2011). Learners can gain new perception on the "experience", then knowledge is developed. This learning method can enhance ones' learning and engagement level, and problem-solving and judgement ability. Learners can also understand the concepts in a better way, and have a greater knowledge retention (Feinstein, 2001; Gross & Rutland, 2017; Gujarathi & McQuade, 2002; McKeachie, 1980; Udovic et al. 2002; Zoller 1987). However, a researcher stated students involved in experiential learning may have a change to create their own actions with unique interpretations from the experience, and hence the knowledge may not be created properly (Dixon, 1999). Because of the advantages, experiential learning is widely spread over the world's medical colleges and health-science-related programs, and is even extended to engineering programs.

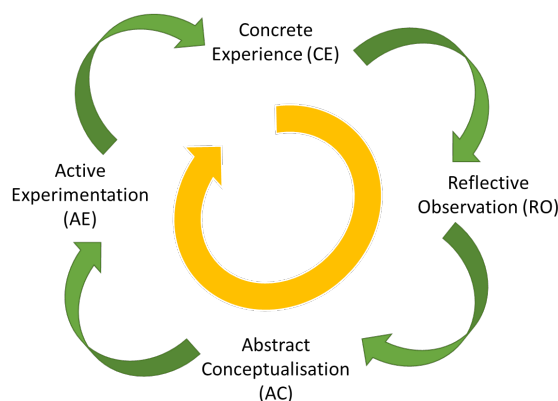


Figure 1 The 4-stage Experiential Learning Cycle

However, when education comes to RFID, there are limited RFID teaching and learning models available for the institutes and companies for reference. Hence, it is necessary to find the problems and propose a RFID teaching and learning model to improve the existing RFID education and training systematically in response to the vigorous expansion of RFID market and complexity of its applications. In this paper, a brief review on two different teaching and learning methods will be first performed, the current situation and problems of RFID education will be then studied, and more importantly, a RFID education model, which target tertiary students, will be proposed at last.

### Design of The Proposed RFID Education Model

A comprehensive RFID education course is rare in the society, wherever in universities and companies. However, society have been depending heavily on the technology, and thus it is necessary to equip students for their future career before graduation. Although some universities provide RFID courses, the courses are not well developed, which are mainly dominated by the lectures. Also, it is discovered that students seldom prepare for the class. Students do not have many chances to experience and practise the use of the RFID equipment and tools during lectures. This learning system leads to a situation that students may only understand the theories and concepts, but lack of practical experience on the situation of actual applications in different industries, including its strengths, opportunities, difficulties, hindrance, effectiveness before and after the applications etc.

Based on previous sections, the proposed model mainly consists of two parts, lecturing and experiencing, as shown in Figure 2.

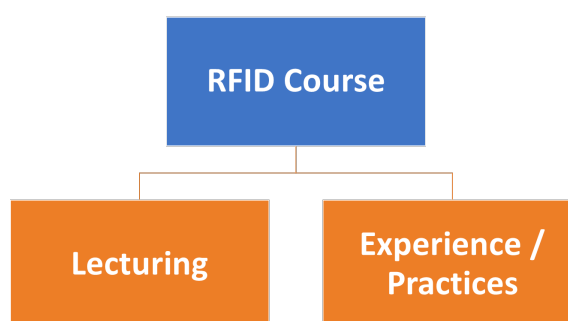


Figure 2 Proposed RFID Education Model

This proposed RFID course aims at enabling students to understand the concepts and general operation of RFID. Thus, students will be able to apply corresponding techniques to tackle the issues on the traditional logistics process and have a working knowledge with one of the latest information and communication technologies. Students can also learn and develop their skills related to RFID.

Lectures will be the backbone of the RFID course. They will be found in the whole course, and will be a guide for teachers and let students to follow and learn RFID. Both teachers and students can have a whole picture of the course. RFID is an engineering subject, substantial teaching materials will be provided to students to read and digest, and finally transform to their own knowledge learnt. Traditional lectures will be presented to strengthen the basic concepts and knowledge of RFID technology, techniques and operation of logistics and supply chain processes, in meanwhile, different kinds of materials, including books, papers, videos, animation, can also be presented in the course to broaden the view of RFID technology. In order to consolidate the learnt knowledge, some enhancement activities in the lectures are suggested, such as providing some exercises to students. Consultation session will also be set during non-lesson time. If students have any questions on the subject, they can visit and ask lecturers, in order to clear up their wrong concepts and move on to the experiencing step.

For the experiencing part, students will have some experience and practices of using RFID technology. Several laboratory exercises and a project will be assigned to students for gaining hand-on experience. They can touch, try, and develop the know-how of using RFID technology. Applying the learnt concepts and theories from the lectures in the laboratory and conducting project can enhance the engagement level of students, they may then understand and remember the concepts more clearly, and this will be much better than only attending lectures. The laboratories will be interjected between the lectures, so students can revise and consolidate the knowledge. A problem-based project will be designed. Students can make use of the knowledge and know-how gained to solve the situation provided and also make suggestions to the case to improve logistics processes.

In order to let students to learn RFID practically, the following laboratory is an example which is designed for students to understand the best position and orientation of tags. By varying the height, vertical angle and orientation of antennas, and location of the tags on a carton, students are allowed to experience the adjustment of vertical-angle, horizontal-angle, orientation and height of antennas, the position of tags and the orientation of the target object, as well as the speed of the moving path (Figure 3). A RFID software, a set of RFID equipment and an environment setting guide will be provided to students to learn, obtain, visualise and analyse the collected tag performance (Figure 4), and then evaluate the current location of the tags on the carton. The equipment and environment setting will be similar to companies which are depending on RFID technology for operation. Therefore, students can have a chance to experience the real situation which they may face in future career. Students are also required to write a report to explain the antenna setting and tag locations.



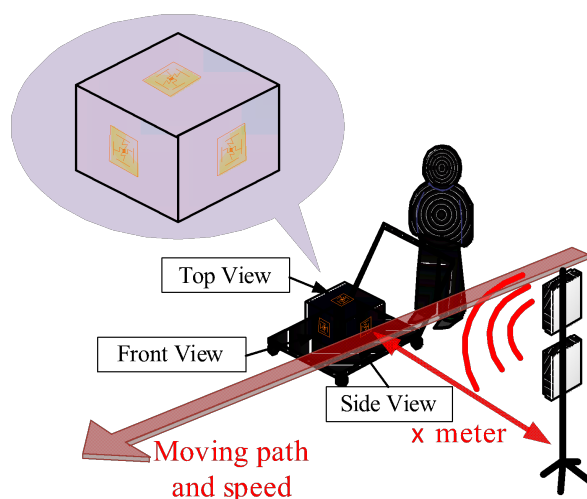


Figure 3 Illustration of the Laboratory



Figure 4 Analysed Results of Tag Performance

## Conclusion

Due to the rapid growth of RFID applications in various kinds of industries and the succession problem between schools and companies, the demand of RFID professionals has been increasing vigorously. Though there are limited RFID courses provided in the market, the courses are less well-organised and students may not be well-equipped to face the challenges in the industries. Thus, a RFID education model is proposed. The model consists of two main teaching and learning methods, which are lecturing and experiencing. Lecturing with two enhancement activities can equip students with concrete RFID concepts and knowledge, and it also encourage students to have deep learning. Experiencing allows students to gain hand-on experiences which students can understand and remember the knowledge they have learnt. With the courses designed by following the proposed model, students would have a better way to get familiar with RFID technology as well as its substantial knowledge and practical experience.

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## ***Automatic Assessment of Programming Assignments to Enable New Educational Paradigms***

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### **Abstract**

Automating the assessment of programming assignments in higher education institutions is important to provide prompt feedback to the students, reduce teachers' workload on repetitive tasks, avoid human errors, and enable the exploration of new educational paradigms such as gamification and course adaptation based on learning analytics. However, the automatic assessment of programming assignments is challenging because of the variety of programming languages, the variety of assessment strategies, the difficulty to assess quality attributes beyond functional correctness, and the need to integrate with e-learning and students management platforms. There are several platforms for automatic assessment that are used namely in programming contests, but that support only one assessment strategy or do not integrate with students management platforms. To overcome those limitations, the authors, from the Faculty of Engineering of the University of Porto, developed an extensible web based platform for the automatic evaluation of programming assignments, integrated with the students management platform, and supporting multiple programming languages (ranging from Assembly to Java) and assessment strategies (input/out, API), as well as gamification and analytics features. The platform, in a controlled and secure environment (protected against malicious code, infinite loops, etc.), executes the code submitted by students against test suites submitted by the teacher, reporting the results to the students and relevant statistics to the teachers. The platform was successfully applied in real class environment, involving 340 students from two different courses, significantly reducing the time for feedback and teachers workload as compared to previous editions.

Keywords: Education, Programming, Automatic Assessment, Gamification, E-learning, Learning Analytics

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## Introduction

In recent times, we have witnessed the increasing use of e-learning platforms and their tools have assumed an increasingly active role in Portuguese teaching. Not only have teachers been giving preference to these tools in that they allow a more didactic and interesting environment to the student of today and emphasize learning through technology.

E-learning tools are characterized by their distance learning model based on an online web browser platform. This teaching method has a wide range of platforms, such as Moodle, FEUP's platform of choice, which has multiple forms of teaching support, such as online text-based exercises, message exchange with teachers, etc. Most of these tools support the addition of new plug-in functionality.

In the case of Portuguese higher education, namely at the University of Porto, Moodle has become a very important platform, being obvious the immense advantages that this brings to the support of teaching, providing resources of document management, provision of curricular contents, communication between students and teachers, creation of quizzes and platform for the resolution of exams and exercises. With regard to the teaching of curricular units that involve programming, there is also the need and the idea of using tools capable of supporting the development and correction of code, since this is done manually by the teacher.

The creation and promotion of programming competitions also added the need to create and develop tools capable of performing and analyze code and compare the results obtained by the program to the competition as well as the analysis of various metrics and statistics. There are many already developed tools capable of realizing all these functionalities, however, all of them have been developed given a specific need, and, therefore, may not be ideal for correcting exercises in a teaching context nor do they allow the teaching institution to manage The students and teachers.

## Motivation and Goals

In the dissertation we intend to develop a web platform integrated with Moodle, a e-learning platform, capable of assisting the teachers of Object Oriented Programming Laboratory (LPOO) and Microprocessors and Personal Computers (MPCP) of the Integrated Master in Computer Science and Computation of the FEUP in the performance of the tasks of evaluation and correction of the practical exercises of programming of the students of these same Curricular Units (UC).

Through the set of unit tests, provided by the teachers of the above mentioned UCs, it is possible to construct a safe and automatic environment that will allow the students to have their exercise evaluated without the intervention of the teachers.

For this dissertation, it was then proposed the development of a system capable of supporting the teaching of the UCs in FEUP, as it can streamline the whole process of correction of programming exercises as well as provide feedback to students when End of the financial year in question.

This system should seek to be integrated with the Moodle platform, already used and accepted in UP, promoting and maximizing the usefulness of the same. This system must, on the one hand, be able to take advantage of all the advantages that the e-learning platforms offer and at the same time allow to perform the analysis of source code as well as its execution, correction in face of the unit tests and Respective analysis of the output result.

The organization and authentication of students and teachers is one of the main characteristics of the system to be developed and will have to be implemented according to the credentials used in the SIGARRA (Information System for Aggregate Resource Management and Academic Records) also used by Moodle. Another extremely important feature is the management of the exercises in an exam or class context; These will have to be identified by occurrence, UC and examination and have associated with them a battery of tests (to be made available by the professor at the time of exam / exercise submission) in order to validate the quality, correctness and efficiency of the source code Submitted by the students in response to the exercise.

The system to be developed must be prepared for the most extreme moments of stress, that is, with a large number of students submitting their exercises. These moments will be unavoidable given the limited time in the examination context. The system should attempt to send a response within the shortest time interval about the validity of the submission and, if it is the intention of the teacher, of the process of executing the student code presenting the information regarding the correction of the source code in order to facilitate the detection of Mistakes by the student.

The entire process of executing the submitted source code must be carried out in a sandbox environment, where malicious code execution will not compromise the teacher's machine or others present on the network. It is necessary for the system to organize, in an organized way, all the source code and associated battery tests, providing a range of statistics, organized by exercise and by exam, such as: Exercise more times wrong; Battery of tests that failed more times and others still to be defined. The system should allow teachers to export, also in an organized way, the source code, the exam, and the test batteries, including previous occurrences of the Curricular Unit.

### **Use of E-learning Platforms Context**

Nowadays, we are inserted in a context that is increasingly dependent on technology; Higher education is no exception, and the paradigms and references concerning the education system and its processes are steadily diverging to an online and technological model

In the case of UP, we see, more and more, the use and support in the tools of e-learning to take a predominant role as it is the case of Moodle. The purpose of this dissertation, as mentioned in the previous chapter, is to develop a system capable of streamlining the entire process of correcting programming exercises and providing feedback to students when the exercise ends. To do this, it is important to analyze which tools allow you to compile and run and evaluate the source code produced by students.



When we want to choose a tool that supports the compilation and execution of source code should be taken into account to define well what we want to obtain from the analysis of the result obtained taking into account several metrics.

These metrics consist of a wide range of points: the comparison of the result obtained with an expected result, the syntax and semantics of the code, the analysis of the source code itself in order to verify if the implemented logical structures respect the intended implementation of the concepts required in the Number of unit tests performed successfully, etc.

## **Moodle**

The Moodle is an e-learning platform, Virtual Learning Environment (VLE), developed in the light of Pedagogical principles and thinking about the creation of communities focused on learning, which is constantly evolving, adapting to the new requirements and needs that arise, being the most used platforms by schools and universities, such as the University of Porto, both for online courses and in face-to-face classes.

Moodle is, therefore, a course management system, developed in PHP to create and manage courses in a way online. Its main advantage is that it is open source, allowing any user to modify and make adaptations of the environment according to their own needs, which has resulted in the development of several different objectives.

In addition to the user-developed plugins, this system has a wide range of features implemented natively. Some of these, and that are important for the context of this dissertation, are the submission of works (file submission), download of files made available by the users (teachers or students), elaboration and Multiple choice, true or false and space filling, and implementation with multiple authentication systems (such as SIGARRA in the case of UP).

After all, Moodle has the major disadvantage of not having support for performing source code analysis and execution.

Moodle and other e-learning platforms feature the basic functionality of student and teacher account management, file submission, and exercise creation. Moodle is more advantageous when compared to other tools because it is free and open source, which allows each user to develop custom functionalities. However, all these platforms suffer from the limitation of not allowing code execution.

## **Automatic Program Evaluation Tools**

Unlike e-learning platforms, these tools already support the compilation and execution of source code and are used mostly in programming contests as Marcos Kirchner describes in his article.

In programming competitions, competitors must create solutions to the problems presented to them. Each solution is a source code file written in the programming language defined by the contest, which, when compiled, executes a program which, through an input, generates an output. Finally, the program is evaluated by the online contest selection tool and wins the competitor who has the best evaluation \ cite {kosa2005evaluating}.

However, given the nature and mode of use of these tools, one can extrapolate their use to a teaching context in the form of programming exercise brokers in the context of class or examination.

Mooshak, for example, is a web system that allows the management and organization of programming contests, developed by Prof. José Paulo Leal of the Faculty of Science of the University of Porto and is used in several programming competitions, such as the National Olympiad of Informatics. In addition to the use of this tool in the scope of the competitions, there have already been efforts to include the use of this tool in the area of higher education and is already used by some university as a way to support programming classes.

All the researched tools did not meet the requirements planned for the development of this dissertation, since they only allow input / output testing.

The UCs for which this platform is being developed require a very specific testing strategy. In the case of MPCP, the input is given in code form and in the case of LPOO the supplied input is unit tests in JUnit.

MOJO was a tool that already integrated Moodle with some online evaluation tools. This tool promised to be a good starting point for the elaboration of the project proposed for this dissertation since it already had an integration module. However, the idea of using this tool as a starting point was discarded for two reasons: the first consisted of time constraints, since if Moodle had been used, it would be necessary to wait for the servers responsible for managing the platform to place the platform online for the validation phase; The second was related to the discontinuation of the tool, which made it impossible for the authors to support the MOJO experimentation.

## **Solution**

In order to overcome the problem presented for this dissertation, a web platform was developed that allows the automatic evaluation of programs developed in an academic environment (in the context of an exam or practical class).

As mentioned the automatic source code evaluation tools are limited to outputs comparison tests, therefore, and as a way of bridging this need for programming languages Java and Assembly, for the LPOO and MPCP, the platform supports, in addition to the simple atomic comparison of outputs, several methods of code evaluation such as executing test batteries provided by teachers, unit tests.

The web system was developed through a set of four technologies: NodeJs, MongoDB, Angular and Java.

In this work, a solution was developed that integrates the client-server architecture and a set of JAR files that constitute the test and automatic evaluation modules. In this way the work developed is basically constituted by two distinct projects, the website and the modules, being that there was a logical separation between both so that, in the future, modules for other programming languages could be developed. The platform architecture is client-server and is described in the figure below:

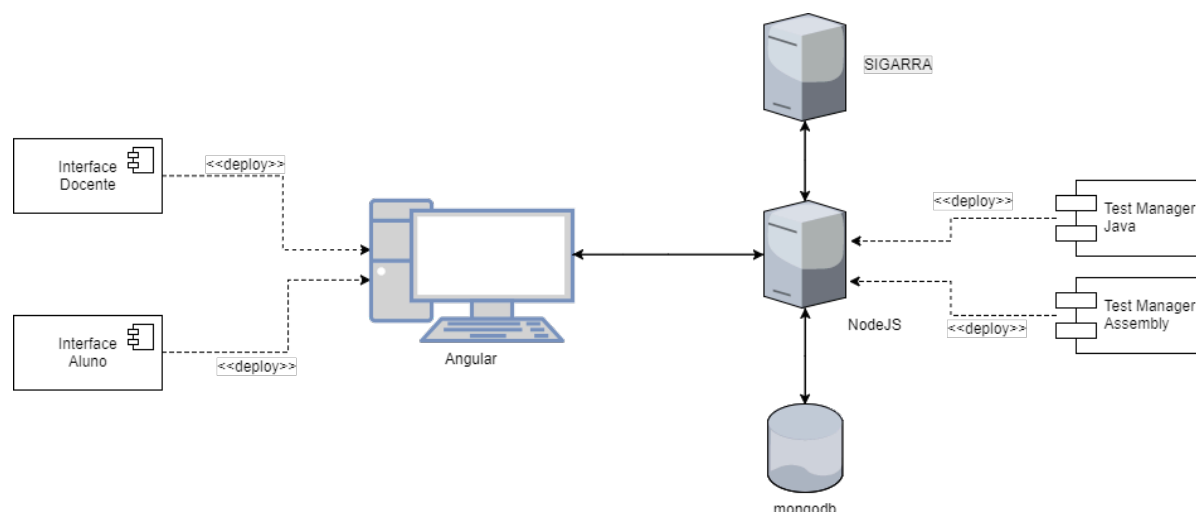


Figure 1: System architecture

The server, developed in NodeJS, stored in a virtual machine on the FEUP network and accessible through the IP 192.168.58.101, constitutes the entire backend of the application that is responsible for executing and managing all requests from the client side through REST requests. In this server are also housed the two automatic code evaluation modules. Authentication is done through a REST request to SIGARRA. The client side is developed in Angular and Typescript having separate interfaces for the teacher and the student, each with different functionalities.

As mentioned, the system includes two different types of users: the teaching user and the student user. Each type of user is authenticated in the system through its institutional credentials, however the features that are allowed to them are different given the nature of their roles. The authentication request, made to SIGARRA, allows you to identify which type of user is, by returning a `{'A'}` code to identify a student and `{'F'}` to identify an employee, who in the context This application is a teacher.

The student is an authenticated user in the system and has access to the exams and exercises corresponding to the UCs that he is carrying out with the purpose of submitting the source code. The complete list of features that a student will have in the system is found in the table below.

Table 1: List of features for the Student

ID	Description
R001	View exam
R002	View the exercise
R003	Submit source code
R004	Edit submission
R004a	Perform new submission
R004b	Delete Submission
R005	View feedback after submission

The teacher, also an authenticated user, has an administrator role in the system, that is, he will be able to manage the content that will be made available to the student, delivery dates, conditions, test cases and exercises.

The complete list of functionalities that a teacher will have in the system is found in the table below

Table 1: List of features for the Professor

ID	Description
R001	Create LPOO exam
R002	Create MPCP exam
R003	Edit exam
R004	Delete exam
R005	Add Exercise
R005a	Write statement
R005b	Define the exercise mode (exam or exercise) which implies provisioning or not of automatic correction feedback
R005c	Define the programming language
R005d	Add test cases
R006	Edit Exercise
R007	Delete exercise
R008	Add Student Material
R009	Generate final report
R010	Export exams from previous years
R011	Export source code submitted by the student

### Platform Utilization

Initially, the teacher creates an exam, which must submit the exercise with statement and test cases and submit them on the platform. It is also possible to submit some initial code to serve as a starting point for the student to begin elaborating the exercise. In the case of UC MPCP, this material consists of 3 files: a mpcp.inc file with required dependencies, a.asm file with an example input to test your code and a file with the source code of the source code. In the case of LPOO this material consists of a Java project to serve as a basis for development.

After submission, the teacher can export the final report with the grades of all the students who made submissions.

After the creation of the exam by the teacher, the student accesses the system, through a provided url, visualizes the exercise, unloads the material provided and then develops the source code. When finished, it submits it to the system and feedback is provided.

### Automatic Evaluation

When a source code file is submitted in response to an exercise the server will run the autocorrection module corresponding to the CU of the examination in question.

The server first checks the language corresponding to the exam through the CU by creating a separate thread in order to execute the code in sandbox in a secure way, thus preventing potential problems due to code Malicious or defective. Then it

executes the correction module corresponding to the language. There are 2 different test execution modules, one for Java and one for Assembly.

The Java automatic evaluation module was inspired by a script created by Prof. Nuno Flores. Throughout several meetings the method used was studied and what were the limitations that it offered. One of the problems that was detected was that it was not possible to continue the process when a student's code caused an exception. Hence the present module was developed.

This module consists of a JAR file consisting of 4 classes: BulkProcessing.java, Configuration.java, Main.java, and SystemCommand.java. The Configuration class is responsible for managing system-specific commands. It populates a Hash Table with all the commands that are used in managing and handling files.

The SystemCommand class takes care of assembling the commands and executing them in a secure and controlled way by creating threads whenever a command is executed. The class BulkProcessing is the main class of the module. It is in this class that the whole process is defined and chained, as well as all the control of errors and writing of the final evaluation grid. This module has 2 modes of execution: analysis of a single submission and analysis of the complete set.

First, the module looks in the base directory of the exam for all the .zip files that represent student submissions. Next, a new temporary directory called correction is created for which the student code is extracted and the teacher's test class copied. After that, the code is all compiled and the test class is executed. Finally, a .csv file is generated on which the classifications of each student are written.

The mode of analysis of a single submission is analogous to the first, but is done for each individual student when submitting the source code

The Assembly automatic evaluation module consists of a single class. First, the module looks for all the test cases included by the teacher within the exam base directory. Then the contents of the test case folder are copied to the student directory and the code is then compiled generating a exe file. After the executable is generated, it is executed by redirecting the output to a text file by comparing it with the expected output. This method is repeated for all test cases, finally generating a .csv file in which the classifications of each student are written.

## **Validation**

To validate the developed platform, it was conducted 2 different experiments, one for each UC. For LPOO the experiment we selected a group of random submissions from a test of past years, submitted then to the platform to see if we achieve the same classification. For MPCP it was gathered 5 students to resolve an assignment and submit it to the platform, after which an actual professor validated the platforms' results.

After gathering all the results of the two experiments it is possible to conclude that they had a certain success, being able to determine that there is value in the project

developed and that the results were very similar to the manual process used by the teachers.

The platform had a very good adhesion rate and the students present in the experience recognized the value and usefulness in the same considering it an added value in the teaching process.

One of the points to note was the weak feedback of the assembly module and this is a point to improve in the future.

Although these experiences show a promising future for the platform, I recognize that the sample is very small compared to the desired one. This was due to the fact that it was only possible to do this validation during the exam period, which meant that the number of students willing to participate in the experiment was very small.

## **Conclusion**

The objective of this dissertation was the development of a web system that allows the analysis and automatic correction of source code developed in response to programming exercises. In order to do this, several existing platforms and tools have been studied that somehow try to fill this need.

In the early stages of development, a number of approaches and technologies were tested that, at first glance, seemed to respond to the needs and requirements outlined, which led to a delay in that not all approaches were compatible with each other, leading to the initial work being redone. However, with the help and advice of my advisors it was possible to come up with a good solution, described in chapter \ ref {chap: chap3}.

The presented solution is in a good state of maturation that allows to respond to the basic needs exposed contemplating all the control and security restrictions, being very evident the success and the promising future of this tool. I think that in the context of this dissertation all the main objectives of automatic evaluation were fulfilled. However, it should be noted that not all lower priority objectives have been met. In addition to the aforementioned reason, the computer attack that occurred in \ Feup \ prevented the agile development of the platform from delaying it for a significant time.

The tests and experiments carried out on the solution allowed to show the viability of the platform in a real context and the adherence to it.

In short, we can recognize that the priority objectives of this dissertation have been successfully met and that it can serve as a proof of concept of the viability of each technology regarding feasibility and the expected purpose.

This dissertation opens up vast possibilities for future work. One of the first steps is to improve the platform in terms of performance and code validation as well as the improvement of the feedback provided in the case of the MPCP module.

An unfinished business is about learning analytics, that is, creating checks of which test cases students are failing most often in order to reinforce these contents in practice classes.

Another point to consider as future work would be the possibility of creating online W3Schools style courses to serve as a form of self-taught learning for students as well as the introduction of Gamification in order to foster the competitive spirit among students in a didactic context.

Finally, an obvious point would be the inclusion of more automatic correction modules in order to cover a greater number of languages and UCs in FEUP.

***Towards a Poetics of Empathy:  
Literary Fiction as a Transformative Experience***

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**Abstract**

Sales of George Orwell's classic novel, *1984*, peaked following the American election in November 2016, leading to a kind of crystallizing moment that author Chinua Achebe would have identified as literature's purpose to help readers "turn to art and find a way out" of dreary reality. Readers seek a way to frame and comment on current affairs. Driven by curiosity, a desire for knowledge of history, or to appease a fearful future, readers find that made-up stories can help them change, cultivate empathy, and promote understanding. This paper advocates for fiction's capacity to engage readers with examining their worlds and urge them to resist dehumanization. It offers a reading list of contemporary literary fiction that cultivates themes and effects of transformation. Fiction authors have the ability to imagine worlds and situations, to induct readers to care deeply about those made-up worlds and characters, and to guide them towards illumination, resolution, or poetic justice in their circumstances.

Keywords: Empathy, Literary Fiction.

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## Introduction

Shortly after the U.S. election in November 2016, sales of George Orwell's classic dystopian novel *1984* peaked (Makishima, 2017), leading to a kind of crystallizing moment that author Chinua Achebe would have identified as literature's purpose: "People are expecting from literature serious comment on their lives [and want] a second handle on reality so that when it becomes necessary to do so, we can turn to art and find a way out" (1997, p. 253).

Readers seek a way to frame and comment on current events and the state of their nation. Driven by curiosity, a desire for knowledge of history, or to appease a fearful future, readers find that made-up stories can help them learn more about situations, cultivate empathy, and promote understanding. The nature of studying literature is inherently rewarding, as it allows readers to engage with and positively change their perspectives. Such engagement has the potential to affect attitudes and actions in everyday life and even have more permanent and positive long-term outcomes.

Readers drawn to Orwell's novel in the wake of a new political era in America, for example, sought in literature another means to regard the intrusive power of governments and the restrictions of individual and group freedom. The protagonist, Winston, seeks in forbidden written texts a way to understand his situation: "The best books, [Winston] perceived, are those that tell you what you already know" (Orwell, 1949, p. 200). But, he discovers that while he "understood how" his world was operating, "he did not understand why," since his government had effectively indoctrinated in its citizens mind control and turned paranoia and fear into the fabric of daily existence (p. 217). Winston desires explanation and context in a completely suppressed world, but he is no longer in a world that values books and their ideas. Orwell represents the tragedy of such forms of oppressive control.

In the year of Orwell's title, Canadian author Margaret Atwood began *The Handmaid's Tale*, about the elimination of a liberal democracy and succession of a theocratic dictatorship (1985). Atwood noted, "Anything can happen anywhere, given the circumstances," and she imagined what could happen when a ruthless ruling class monopolized power in order to subdue humans, particularly women's bodies that are literal and metaphorical vessels for advancing civilizations (Atwood, 2017). She also claimed that everything in her book has a historical reference and is a part of the "nightmare of history" (Atwood, 2017).

At the Woman's March in Denver, Colorado this year, some protestors carried a sign that read, "Make Atwood Fiction Again," expressing the fear that Atwood's horrific society in fiction was taking root in real life. Atwood's imagined Gilead society portrays a devastating world where fertile young women are imprisoned in the homes of a Commander and his wife, in order to be raped monthly until she bears his child. A handmaiden's transgression can result in her maiming or even execution by stoning or hanging. Suddenly, such events seemed plausible in 2017 America.

Since the serialization of Atwood's novel into an acclaimed show this year on the American Hulu channel, women from all over the world have recognized themselves or their sisters or mothers or daughters in this extreme portrayal of systematic and enforced domestic violence. The horrifying correspondence of reality to fiction and

fiction mirroring reality demonstrates one example of literature's atavistic power to captivate readers.

Novels like Orwell's and Atwood's—respectively written 35 years apart from different countries—offer a glimpse of fiction's capacity to urge readers to assess values governing their own worlds and urge them to not repeat the violence of past histories, to resist dehumanization, and to seek and engage with ways to humanize our world.

Fiction authors have the ability to imagine worlds and situations, to induct readers to care deeply about those made-up worlds and characters, and to guide them towards illumination, resolution, or poetic justice in their own actual circumstances. Although authors often seek first and foremost to present a fascinating story, those such as Orwell and Atwood also speak volumes about the fine line between fiction and fact, between imagination and reality.

### **Why Fiction is Good for You**

Jonathan Gottschall in his article, "Why Fiction is Good for You" (2012) declares: "Fiction enhances our ability to understand other people; it promotes a deep morality that cuts across religious and political creeds." Psychologist Dan Johnson adds that as well as providing pleasure and instruction—or, "relaxation and entertainment"— "[r]eading narrative fiction allows one to learn about our social world and as a result fosters empathic growth and prosocial behavior" (qtd in Gottschall 2012).

David Comer Kidd and Emanuele Castano conducted scientific studies on reading literary fiction to explore how affect (emotions) and cognition (inference and meaning of the ideas and beliefs of other people) are enhanced: "Just as in real life, the worlds of literary fiction are replete with complicated individuals whose inner lives are rarely easily discerned but warrant exploration" (p. 378). They highlight literary critic Roland Barthes' distinction of readerly texts that promote a passive experience in contrast to writerly texts that heighten engagement and understanding (Barthes, 1974). In essence, any engagement with reading contributes to aesthetic, intellectual, and emotional enhancement.

Julianne Chiaet (2013) remarks on the study by Kidd and Castano and observes that literary fiction, in contrast to genre fiction does not merely "take readers on a roller coaster ride of emotions and exciting experiences [with] . . . predictable characters." Rather, reading literary fiction teaches readers how to focus "more on the psychology of characters and their relationships . . . [thereby prompting] readers to imagine the characters' introspective dialogues." Consequently, literary fiction may disrupt a reader's expectations, offer the unexpected in unusual ways through a literary process of *defamiliarization* in which the familiar seems both strange and familiar, both imagined and real. This important literary element can bridge fiction's made-up worlds with a reader's actual world.

In teaching narrative—or, literary—fiction for more than two decades at an urban university in the United States, I can attest to the profound effects of literature upon my students, many of whom are first-generation college students. Studying literature through narrative techniques and discussing and debating the merits of social,

psychological, and philosophical issues that arise in the literature have given students intellectual, aesthetic, and linguistic power to transform their perception of themselves, their relationships, and their world: they learn to observe and interpret their own world more thoughtfully through close reading of literature. In writing assignments for their class, they become motivated to express their interpretations and experiences.

The transformation of self-awareness or heightened cognition is not always immediate nor even discernible nor conscious to readers. However, a sustained engagement with made-up stories invites readers to participate in significant acts of the imagination, particularly the imagination to envision lives other than one's own. Reader engagement with an author's believable world and imagined characters can enlarge human sympathies, evoke deeper compassion, and consequently, may cause effective empathetic responses and actions. In other words, the development of emotional capacity is one means towards positive personal and social changes.

How can teachers select literary works that might initiate such positive transformations in readers? I would like to share with you the following selected reading list and offer a brief annotation of their educational value for change and transformation. For this list, I focused on characterization and situation as the most expedient elements that engage readers of all levels. In a literature classroom, other elements such as expressions of time and space in the story can also be analyzed more deeply in order to explore social and philosophical issues.

Characterization is literature's most powerful tool for engaging readers. Literary critic M. H. Abrams (1971) notes that literature can provide a lamp or illumination into our humanity and it also can serve as a mirror or provide a reflection of who humans are and what they are capable of doing and feeling.

Readers identify and empathize with characters that are authentically portrayed; by the same token, readers may reject or feel alienated from characters that do not illuminate nor reflect their experiences or understanding. But a serious engagement is a worthwhile endeavor, one that we can teach our students, to urge them to read about many different complex characters. All confrontations with the new and unusual—or, of the familiar and comforting—can broaden perception and understanding. In other words, while *defamiliarization* may be uncomfortable, readers can explore these and other effects of fiction from the safe distance of literary study.

A story's situation and events are also critical for providing contexts for characters to inhabit and interact. The combination of strong or well-drawn characters fleshed in their historical and geographical contexts, along with an author's literary skill and acumen, can profoundly effect change for readers.

Nobel-prize winning Canadian author Alice Munro offers a fictionalization of her family's long history of immigration from Scotland to the U.S. and Canada in the mesmerizing book, *The View from Castle Rock* (2006). In contrast to the impoverishment of spirit and body that plagues generations of her family, Munro offers a rich exploration of what happened to people when they are not remembered in any official or family records. Who cares about those who were born, lived, and perished on the same earth that we now inhabit? The compulsion to locate the real

facts of her family leads the narrator to this reflection: “We can’t resist this rifling around in the past, sifting the untrustworthy evidence, linking stray names and questionable dates and anecdotes together, hanging on to threads, insisting on being joined to dead people and therefore to life” (Munro, 2006, p. 367).

From one of America’s best writers: Cormac McCarthy’s *The Road* (2006) evokes deepest compassion from readers embarking along with the wounded father and his very young son in a post-apocalyptic world. All around is ruin with little hope for their survival. McCarthy gives voice to the dying and fosters every bit of hope in the most hopeless of situations. The novel becomes almost inaudible at times, unreadable at others, but the smallest flicker of hope in humanity during the most dire of situations sustains a reader’s engagement and causes deep reflection.

From India, Arundhati Roy’s *The God of Small Things* (1997) is family history and cultural history. The Booker-prize winning novel disorients time, in order to depict the terrible tragedy involving a 9-year old girl visiting her Indian father and his family that culminates in further tragedies: the exile of the father’s sister, along with her twin children, after a social caste transgression is discovered. Roy mingles an array of voices in order to weave and shape her polyphonic novel (Bahktin, 1984) that, like Atwood’s, focuses on the liabilities of being a woman in an oppressed system. Readers enter into a dialogue with the author and her characters.

Japanese-born British author Kazuo Ishiguro’s *Never Let Me Go* (2005) starts with narrator Kathy recounting what appears to be a very idyllic childhood at a boarding school called Hailsham. There are the usual childhood antics of finding the right group to belong in or gaining a teacher or guardian’s attention and respect. The novel moves onto a teen-age angst period at a place called the Cottages, and it is there that the dark reality of the students’ lives culminate: there will be one last place they inhabit—a hospital or a recovery center—for the remainder of their short lives; that is, until their organ donations are exhausted and they perish after serving the clone industrialists who created them. My own students want the students in the novel to rebel, to have anarchic fits, and reclaim their lives, until our discussion centers on the perverse socialization of which the novel allegorizes in the form of the students’ truncated and expended lives.

British author Ian McEwan writes a novel that is *about* fiction in *Atonement* (2001): a crime that is committed is resolved with the tools of fiction. Thirteen-year-old Briony causes her sister Cecilia’s pain by having her lover Robbie imprisoned for a crime he did not commit. As the second war looms, Briony begins to make reparations for her role in devastating the lives of the two lovers. In my 20<sup>th</sup> Century Fiction class, I close the course with this novel: on its own the story is powerful because it focuses on themes of love, tragedy, and the desire to seek compensation and change. Read thoughtfully through the literary tools of narrative time and space, and through psychological ideas about loss, pain, and forgiveness, the novel richly develops character, situation and event, and even offers a resolution.

I have taught or will teach the above list of books in my college classes to students who are not naturally drawn to literary fiction. My objective is to enliven their reading with attendant lectures about the cultural contexts of these books and invite them to assess the characters and situations in each story through a variety of literary

tools. I hope to guide them to question and debate the situation in the book and for them to move through a transformative experience with fiction.

Literary fiction can be transformative because it asks much of readers, who are subsequently rewarded for their efforts. Fiction asks readers:

1. To examine the world in the book and contrast and compare it with the reader's own world.
2. To judge the efficacy of choices, under the specific conditions found in the stories.
3. To be engaged, interactive, and responsible for the interpretations they make of stories. They write about their interpretations in order to shape their ideas.
4. To become a custodian or guardian of the knowledge gained from literature by sharing the ideas in the book with others.

### **Conclusion: “In Dreams Begin Responsibilities”**

I want to close by commenting on the reading responses of my students in my 20<sup>th</sup> Century Fiction class. I dream that each book I assign causes an intense response and reflection for each reader, but I can only dream—still, as poet W. B. Yeats notes, “in dreams begin responsibilities.” I like to think that literature teachers have a responsibility to select some of the best literary fiction for their students, so that they may have a first or even a second handle on any reality they chance upon, so that—as Achebe noted—readers can turn to literature and find answers or a way out of their own or their society's dilemmas.

Last semester (Spring 2017), one of my students emailed me at 3:00am after finishing McEwan's novel, *Atonement*. She was mesmerized by the story's ending, a conclusion that she hated and then loved, and hated, and so forth. In other words, she was caught in an emotional pendulum by the author's compelling story and an ending that she had not expected. She told me that she could not stop thinking about the book and would likely think about it for a long time afterward. She had an empathetic experience after reading McEwan's fiction.

I don't expect all of my students to experience such wide emotional arcs, but I admit that I was pleased by the conflicted sense that my student had of the whole novel. The issues presented by McEwan tested a reader's sense of moral and poetic justice, and the final word on the situation in the novel was simultaneously unsettling and offered an effective closure. McEwan populated his novel with neutral characters, victimized characters, and even odious characters. He placed these characters in the turmoil of the Second World War, and he presented them on a world stage in his fiction.

McEwan's feat is quite grand, but perhaps it is the lasting effect of his fiction that remains most memorable for readers—such as my students—who will return to works such as these in order to explore their own humanity. A poetics of empathy for reading and understanding fiction mandates such exploration, and the rewards can be plentiful in any age of dread and uncertainty.

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***A Comparison of the Use of Social Media in China and UK Higher Education in Art and Design Subjects***

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**Abstract**

**Purpose**–The purpose of this paper is to compare the use of WeChat in China vs. Facebook/ Youtube/ Blog/ Instagram in the UK in higher education practice, based on a case study in art and design subjects between a Chinese and a British university(Ningbo University and University of Huddersfield).

**Methodology** –A combination of literature reviews, action research, peer observation and semi-structured interviews. The research consists of two parts: one was conducted in the project *An Action Research of Blended Learning Mode Based on WeChat* in China, funded by the Department of Education of Zhejiang Province, and the other part results from the Visiting Scholar Programme in the UK funded by K.C. Wong Education Foundation, Hong Kong.

**Findings** – The findings represent similarities and differences between the Ningbo University and the University of Huddersfield relating to the use of social media and the strategy applying instructional technology in art and design subjects. It mainly indicates the potentially useful, pros and cons of social media in higher education practice, and presents strategies and innovation practices of adopting social media in creative arts and design subjects, including instant dissemination of ideas and processes, dynamic atmosphere of classrooms and studios, assessment and feedback, and students' portfolios.

**Originality/value** – The paper provides a cross-cultural perspective on sharing the knowledge and good practice of developing or enhancing the use of co-created social resources, strategies and technologies to meet the needs of the future all over the world.

**Keywords:** comparative research, social media, Higher Education, China, UK, creative arts education

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## 1. Introduction and Research Background

Social media are one of the latest examples of communications technologies that have been currently adopted by young people. Global social media research summary (Dave Chaffey, 2017) reports that the core 'top 5' social networks including Facebook and WeChat have not changed much from year-to-year. Other social media such as QQ, Twitter, Instagram, Pinterest, Blog, are also widely used.

Social media has the potential to become a valuable resource to support education. Social media in education means the practice of using social media platforms as a path of making learning ubiquitous and more attractive. The rise in popularity of social media raises the question of should and how these platforms could be incorporated into the teaching and learning environments in universities. The motivation of this research is to compare the practice of using social media in creative arts education in China and UK's higher education sector.

Ningbo University in China and the University of Huddersfield in the UK were involved in the comparative research due to the similarity of their creative art and design curriculum. Researchers work and study in the two universities in the UK and China. The supported project of this study consists of two parts: one conducted in the project An Action Research of Blended Learning Mode Based on WeChat in China, funded by the Department of Education of Zhejiang Province, and the other part results from the Visiting Scholar Programme in the UK funded by K.C. Wong Education Foundation, Hong Kong.

The two universities are public universities and have a high starting point and rapid development, and respectively, are equipped with arts and design academic schools. Ningbo University (NBU), a provincially governed critical University in Zhejiang Province. It established in 1986, with the first donation from Sir Yue-Kong Pao. Pan Tianshou Arts and Design Academy (PADA), one of the academic colleges of Ningbo University. There are six real subjects in PADA, namely Visual Communication, Fashion Design, Environmental Design, Product Design, Industrial Design and Fine Art.

The University of Huddersfield (HUD) is a public university located in Huddersfield, West Yorkshire, England. The present University of Huddersfield can trace its history back through several predecessor institutions and became the University in 1992. The School of Art Design and Architecture is one of seven academic schools in the university. Its subject including Graphics Design and Illustration, Visual Communication, Contemporary and Fine Art, Photography, Fashion Design and Business, Product Design and Textiles, Architecture and Architectural Technology.

## 2. Research Methodology and The Project

The research methodology combined with the literature reviews, action research, peer observation and semi-structured interviews. The study reported here was designed to explore a comparative overview of higher education in China and the UK with a focus on the use of social media for blended learning. Specifically, this paper examines WeChat in China vs. Facebook/ Youtube/ Blog/ Instagram in the UK and compare the use of these social media channels in the two countries' higher education practice,

based on a case study in art and design subjects between a Chinese and a British University (NBU and HUD). The study proposed the following questions:

- What are the potential uses, pros and cons of social media such as WeChat in China higher education and Facebook/ Youtube/ Blog/ Instagram in the UK higher education?
- How do teachers and students use social media in art and design education at NBU and HUD?
- What are similarities and differences between the NBU and HUD relating to the use of social media and the strategy applying instructional technology in art and design subjects?

### **3. Potential Usefulness, Pros and Cons of Social Media in Higher Education**

#### **3.1 Facebook, Youtube, Blog and Instagram in the UK higher education**

Facebook is a social network in the USA and has been existing from 2004. Until November 2013 about 350 million photos are uploaded every day. Until now, Facebook has 900 million users by estimation. Facebook is the most popular social media product in the world undoubtedly and the “share” function plays a critical role in the processing. It enable the users can communicate with friends within Facebook network very quickly and effectively for acquainting and grasping what friends’ status are up to while sharing of photos, journals, videos and so on. Facebook will announce when friends appreciate with ‘Like’ and make a statement of opinion on your sources. Staff writers (2009) states Facebook is not only a normal way to seek old friends at the same time it enable the users to know about what is happening now and recently, but also, it is an effective and free learning tool. Teachers and lecturers can utilise this social media for class projects, for boosting communication and so on.

Except Facebook, there are some other valid social medias for communication and sharing. For example, Youtube, Blog and Instagram. First of all, reference to Blog, in modern society it has become an easy approach to communicate on education. It is increasingly being utilised for educational purposes as a rapid and simple to use knowledge exchange and sharing platform. Blog is different from websites, the normal teaching websites just provide some links of referencing sources, and however the Blog provides more comments and wider range of background information. Blog is a fair and free platform, it does not need all the same opinions, and the most important characteristic is the Blog allows the users filtering information. It can make information be easily transformed into useful knowledge. The Blog is an important knowledge sharing platform which enables learners or target audience to enter into a great study environment and communicate equally.

Blog is a powerful, individual or customised personal knowledge management system. It can be integrated with work, hobby and study. In our daily life, accumulate with what to see and which is essence and reach the ideas collision during the processing. Perhaps, this is why the reason that in the UK, most of the students prefer to choose Blog to display the art works, then communicate and sharing to their target audiences. Youtube is an effective visual teaching platform as this social media website can allow users to upload and share their videos to general public users. In the context of its application on art and design related teaching material, Youtube can play

enormous role in visually guiding students to enhance their learning experience and hence produce effective learning outcome. Some typical examples are “Teachers TV: KS3 Art & Design - The New Curriculum” ([www.youtube.com/watch?v=xjx0gCz2ZY4](http://www.youtube.com/watch?v=xjx0gCz2ZY4)) and TEDx educational programs.

Instagram is a mobile app that allows users sharing images instantly. It is very convenient to choose image filter styles. Instagram not only shares pictures but also as is a very interesting and enjoyable app. The Instagram is a diversified social software. Perhaps, this is the most invaluable that it is still surviving as a free online service.

UK art and design lecturers often utilise the Blog that contains thought-stimulating articles that are illustrated with creativity, contemporary student art and design work, such as the examples shown below. The site has a multitude of resources for students and is promised to keep their target audience engaged for hours. Blogs and websites focus on higher quality works of art in the Higher Education sector. Consequently, it has a lot of advantages to readers/target audience. In fact, it has started to arrange a list of items that the people can easily search and utilise. Perhaps, the users would prefer to read which one is they interested as well as create a stylish blog. “The blog contains thought-provoking articles that are illustrated with creative, contemporary student artwork, such as the examples shown below by Beth. The site is a rich resource for GCSE and A Level Photography students in particular (these are qualifications studied by high school students in the UK) and is guaranteed to keep you engaged for hours. Highly recommended.” (Gale, A. 2017)

Blog is the most important social medium in teaching and learning sector in the UK. It can effectively shape a public platform. Also, it is the most effective approach of interactive learning and teaching. Especially in the UK education, it is not just has a long history and but has a widely used. Teachers will pay more attention to the blog teaching which includes the educational and art related contents, the images, the format and so on. The teachers tend to share the latest knowledge, news and the most valuable knowledge resources with their students through the blog communication.

Lectures and Course Leaders often create a page for their course on Facebook and these course pages usually establish multiple image bars and discussion sections. As a result, lectures can use the functions provided to enrich the courses on the page.

Art and design students in the UK usually upload and share their video clips and portfolio on YouTube or Vimeo. Many art schools and colleges have their official channels on YouTube or Vimeo to present their facilities and student work as a marketing tool. Video contents on these platforms are interesting and creative, and more importantly, the platforms are mobile friendly and accessible from various devices. The quality of these video resources and their value to learning has been well-documented in many disciplines including creative art and design. On these platforms, students can learn not only from their tutor and fellow students but also other relevant content in their field. In fact, many graduates and alumni still follow the social network channels of the institution and course where they graduated from.

### 3.2 WeChat in higher education in China

WeChat is a mobile communication and private social networking app. It is known as Weixin (literally: "micro message") in China —was launched in January 2011 by China's largest listed Internet company, Tencent, and has grown into the strongest leading social network during the past years in China. By 2016 it was one of the largest standalone messaging apps by monthly active users, with over 889 million active users (China Tech Insights, 2017).

Messaging, Official Accounts and Moments is the more important features of WeChat. For Messaging and Instant Messaging, it enables users to send messages by texts, photographs or voice and making video calls to either a single person or a particular group of individuals.

There are three types of *WeChat Public Platform* (official account): service account, subscription account, and enterprise account. WeChat Public Platform enables users who register as an official account to dispatch information to subscribers and interact with them.

*Moments* supports users to post image and text, share music (associated with QQ Music or any web-based music service) and article, as well as comment and "like." It can be set open and privacy to friends by the user. There are others features in WeChat: WeChat Pay payment services, City Services, Heat Map, Enterprise WeChat, WeChat Mini Program, Friend see and WeChat Index. All of them makes WeChat more compelling because it's fast, reliable, multifunction, private, and always on.

To some extent, WeChat is a mobile app combining the features of Facebook, Twitter and Instagram all in one, mixed with Skype and a walkie-talkie (JunWu and QingqingWan, 2014). Given its popularity, it's possible effectivity becomes a growing research topic and is being developed and promoted in various fields, including education.

It is the fundamental situation that the hardware and network meet the conditions for everyone who use WeChat in universities in China. In other words, University teaching environment ensure that the student cohort are indeed already literate with WeChat platforms and have a pre-existing presence within the social media space. With the development of mobile terminal, WeChat as a social media gradually become a new mode of research content for e-Learning and mobile learning. WeChat, especially its WeChat public platform aid individuals or organizations to create free curriculum platform, intelligent management curriculum resources, editing, publishing, retrieval, etc.. WeChat provides a new way to obtain learning resources, as well as two-way interactive features based on knowledge content.

China Association of Higher Education opened its exclusive subscriptions (WeChat ID: zggdjyxhwx) in October 2014. It means that the WeChat be confirmed and applied in higher education in China.

More and more empirical research immerse in various subject areas and papers and study reports published increasingly. For example, Empirical Research on WeChat Public Platform Assisted Class Teaching (XiaoxiaDeng, 2014), A Research on

Visualization Application of WeChat in Education in China (Danyanli, JieyinCao, 2016), The Strategy of WeChat Public platform in Higher Art Education Teaching Design (ZhengSun, 2017).

#### **4. Strategies and Practices of Using Social Media in Arts and Design Subjects**

##### **4.1 Peer observation and semi-structured interviews in UK**

The Blog can stimulate students to use the information which they are reading, writing, drawing and analysing the information which they are being provided with. For British students, blog is a necessary learning tool and most importantly it is a free platform, perhaps, this tool maybe different style in China. A blog can allow the author to organise a systematic study plan and make sure that their target students to pay enough attention to some design topic on the Blog. Some students are stronger than others at some fields, through the Blog, the students can find the areas where they have difficulty with and then mastering by deep learning. It is clearly to see, the same teaching field has different teaching methods. Blogging is more liberal and flexible methods to teach and learn. It also provides the students more enjoyable learning environment as well as a very effective and cost-efficient learning tool and approach.

Lecturers: Blog has three important aspects in teaching method. First of all, it can manage the knowledge systematically, manage sources and files through the Blog. At the same time, lecturers can use the knowledge system to summarise and prepare for the next lesson. Secondly, the information exchange can be realised, on the base of the internet as a medium for the interaction flourishes. Finally, it is convenient to make a record with question and advisable in the Blog and it has a key instructive to students. All in all, lecturers can view the updates of students through the home page on time and acquire that whether their target students have grasped the knowledge as well as understand the existing problems. If the students have problems, the lecturers can guide and help them to solve it as soon as possible.

Students: Students can look at articles from lecturers and other students through the Blog and acquire whether the other students have grasped the knowledge. The students enjoy the free environment because it can share with different opinions and cultures. Blogging not only can consolidate the key knowledge and difficulties, but also grasp other relevant knowledge. Otherwise, the Blog can broaden their users' eyes and as well as create a platform for interactive communication.

##### **4.2 A case study of using WeChat in NBU**

*WeChat Public platform for media* is the most active and influential tool on the WeChat platform (OU Yifan, 2016). The case study is based on Wechat and WeChat Public Platform Subscription Account "ZhiFen Mico Learning" (ID: nbu-dzfwjx) .



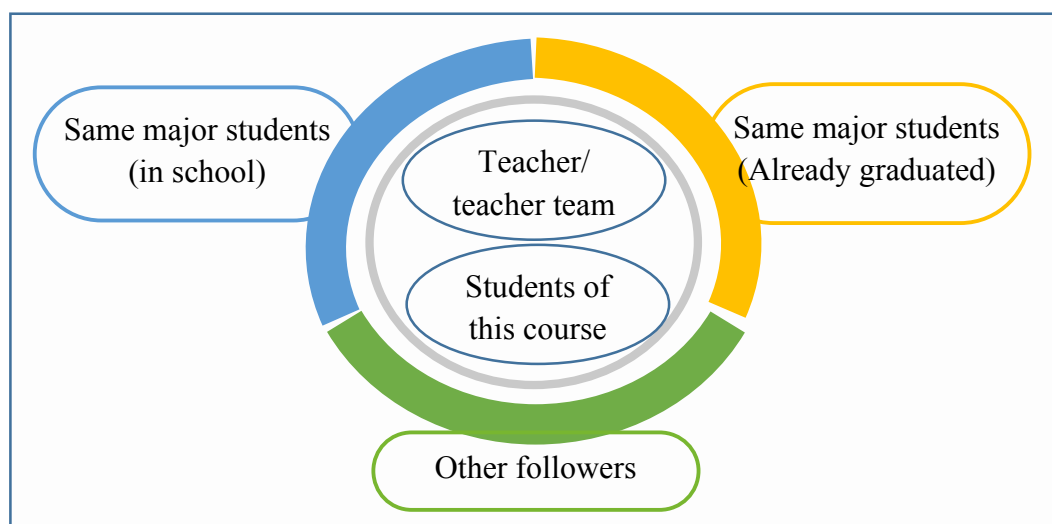
**Figure 1.** The WeChat Account of the case study

In this case, the teaching subject is fine art, and the type of WeChat Public Platform Account is individual subscription, mainly used to push the teaching information, curriculum resources, education share and learning assessment. What in the WeChat Public Platform? In generally, indicative references, lecture notes, teaching record, course assignments, presentation and the rethinking on teaching would convert to the reading material for WeChat public platform, in the form of text, photo and video. They could be selected and edited to cover the learning outcomes of the course.



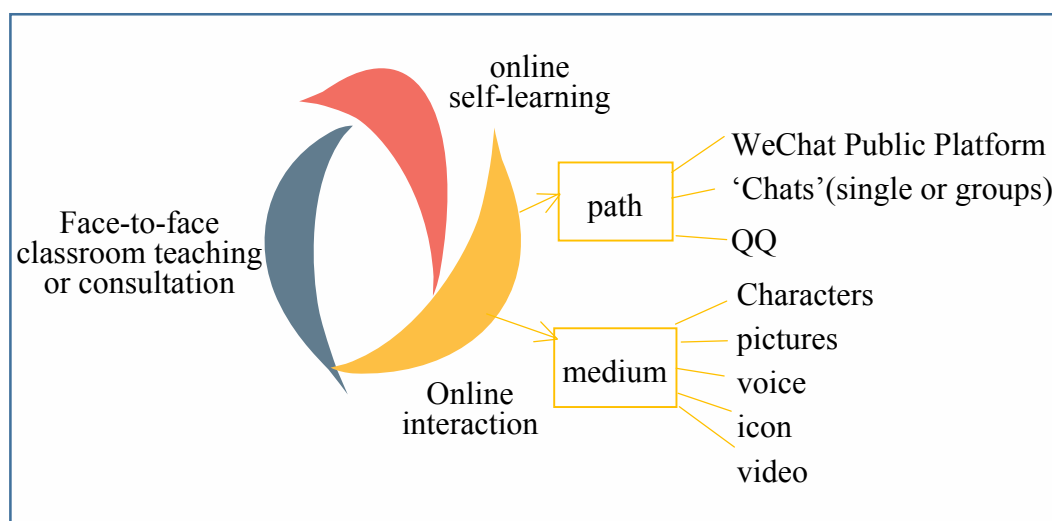
**Figure 2.** The forms of reading material on WeChat public platform

Who edits and manage the WeChat Public Platform? The teacher is not the only the editor because students take part in the activity of learning materials collection, preparation, and delivery, more correctly, the teacher is the director and manager. Who are the participants? The users of WeChat Public Platform did not limit in teachers, students and human participant related to the course. What the teacher need to do is to batch group the users, divided them into the path group and the non-course group, the course group is labeled the real class, student's name, and ID. The whole class students were grouped according to the students voluntarily; usually, there were about four members of a course study group. Not only that, but team members can also extended to the same grade with the same primary. Therefore, teacher(teacher team) and students that from different grades and classes, even graduates would be an echelon, at the same time, form a learning community.



**Figure 3.** The Participants of WeChat Learning

There three forms about education interactive: Face-to-face classroom teaching and consultation , online self-learning and online interaction. During the using process of WeChat official accounts ZhiFen Mico Learning, students can leave a message in forms of character, picture or voice via the dialog box in real time, and the background editors or managers can receive real-time information and communicate with the users. Meanwhile, the users can exchange and communicate with other users via the community module on the WeChat. In spite of the WeChat Public Platform contain functions of interactive, such as answer menu, message, and comment, more handy interaction medium is *Chat* (single chat or group chat) in WeChat, one to one or one-to-many, at the same time the medium QQ frequently be used in combination. It is the most common interaction that the information is pushed with the combination of pictures and characters, mainly, make full use of image and video contents. With the application of visual materials, the users from art and design subjects may be more interested in understanding the contents.



**Figure 4.** The Form About Education Interactive

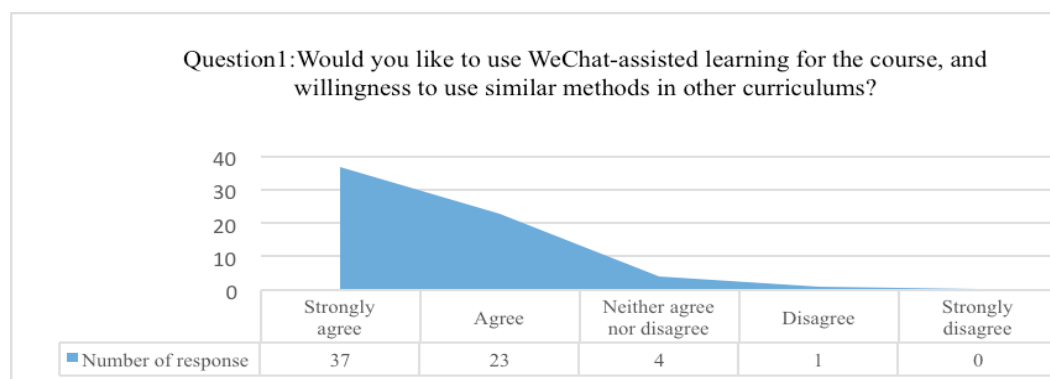
The WeChat public platform can present the process of teaching and learning , in a manner, the similar features of electronic portfolio broaden the evaluation of participants. The function of “comments” and “vote” can collect fans’ advice by users,

and it can set the valid time, participant range and assessment options. For example, the presentation (impromptu speech about art education from ManYang, <http://mp.weixin.qq.com/s/856uvRfygJP575rPNW0hZw>), including her video, self-evaluation, classmates, and online voting. In addition to class classmates, there are 126 online Participants were given to vote.

What are the unique advantages of using WeChat for arts and design learning? One side, it is very useful and conveniently for people to Visual communicate by WeChat. A lot of references can provide through various links to website, WeChat Official Accounts, or Apps. Search Specified Content can provide keywords search from Moment, Articles and Official Accounts on WeChat. The students and teachers can focus on subscribing to popular art and design account or others, which updates displayed in real time in the subscription bar. Some much attention subscription is very active. For instance, “SanShui Art” (WeChat ID:art-33, a private type official account) recommended outstanding artists at home and abroad; “China Art Academy” (WeChat ID:caa1928, a business type official account), is aimed at the academic family of art to push to the user palm.

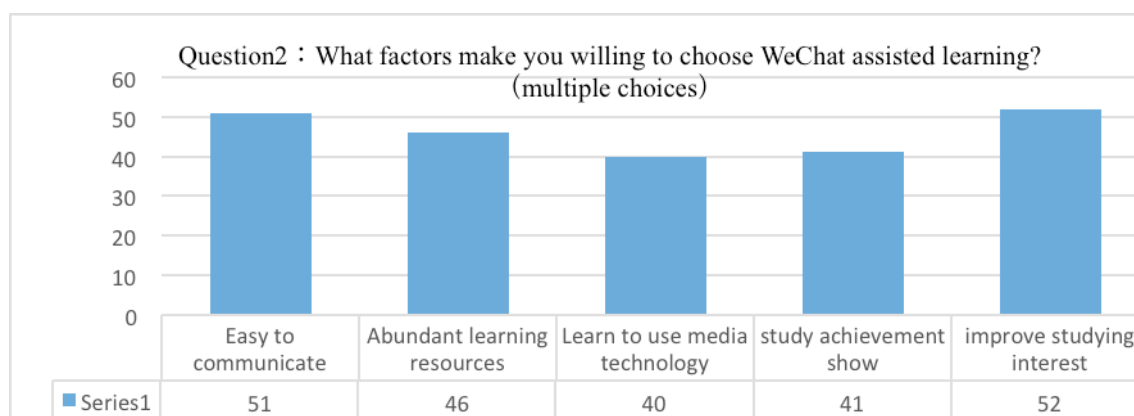
On the other side, it is a good way to improve the visual and digital literacy of art and design students. As editors of the WeChat platform, their image editing and video production ability have improved in the study, and the operation of the social media also developed. When operation WeChat, editor or designer (students or teachers) often incorporation into other PageMaker, for example, XiuMi (xiumi.us), 135WeChat Editor (www.135editor.com), 96WeChat Editor (www.96weixin.com), Little Ant Editor (www.xmyeditor.com), and photo and video editor such as I JianJI and Corel.

The case has witnessed the incorporating social medium learning platforms with more traditional-style lecture/tutorial style transfer. Using WeChat-assisted learning, which meets the behavior of contemporary undergraduate habits, can be actively recognized and involved. Another way to view the effects of the case is the evidence collected over the two years on the evaluation questionnaires. The results are shown in questionnaire survey among participating in the study of 65 students, 92% of the students expressed they would like to use WeChat-assisted learning for the course, and willingness to use similar methods in other curriculums. There are some factors make you willing to choose WeChat assisted learning, such as Easy to communicate, Abundant learning resources, Learn to use media technology, study achievement show and Improve studying interest.



**Figure 5.** Survey results from evaluation questionnaires-1





**Figure 6.** Survey results from evaluation questionnaires-2

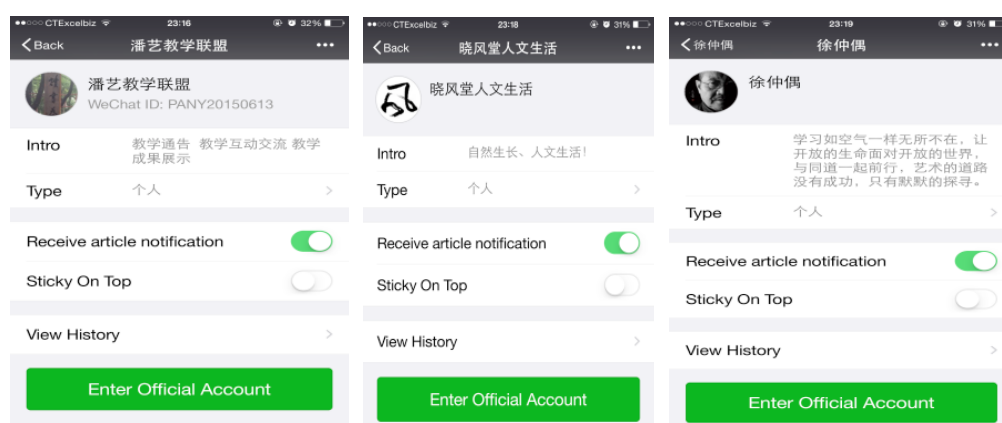
Answers to the open question “what is the harvest do you weigh from WeChat-assisted learning”, were summarized. The main findings are:

- Using WeChat, flexible bite-sized learning become possible. Learning not only takes place in the classroom but also in any space at any time. Meanwhile, using social medium platforms create rich learning environments to empower students to take ownership of their learning.

- Learners have more opportunities to express their opinions and share their work. It will soon be able to get a lot of comment and more valuable advice about my works through significant WeChat interaction, in addition, easy to get similar reference pictures or web link. According to the security need, it can be selected the way of interaction, private and public spaces, in other words, the way of one-to-one or chat in group.

The future career of art college students more likely connected with social media design. The process of editing is an excellent practice opportunity to explore design ways of media platform.

In addition to this case, there are other WeChat official accounts involved in teaching in PADA. For example, ‘PADA Education Alliance’ in charge of college teaching management part, ‘Xiaofengtang Humanities Life’ run by fashion and textile design department, and other WeChat platform such as “Xu Zhongou” managed by the individual.



**Figure 7.** Other WeChat account of the case study

## 5. Conclusion

There are some similarities and differences between the Ningbo University and the University of Huddersfield relating to employing social media in higher education practice. The similarities include the following several aspects: have the more valuable resource for supporting education; instant dissemination of ideas and processes; the dynamic atmosphere of classrooms and studios; assessment and feedback; students' portfolios. Certainly, there are some differences. Firstly, leading social media include Blog/YouTube (Vimeo)/ Facebook/ Instagram in HUD and WeChat in NBU. Secondly, except blog, students independently choose media assisted learning according to different functions and multiple paths in HUD. The students relatively lack active choice of media supported learning, but teachers organize consciously in NBU. Thirdly, design personalized interface in a blog which itself is an artwork, on the contrary, independent design in WeChat is that within a narrow range of choice. Lastly, the network course resources are also different between HUD and NBU. Students take to learn video courses more initiative and more entertaining in HUD than in NBU.

With regard to future research in this field, researchers should prospect further address the specific benefits and challenges of using social media as a teaching and learning platform. Furthermore, search for the solution of potential barriers about social media as a teaching and learning platform such as copyright, privacy issues and network literacy of both students and faculty. The cross-cultural perspective on sharing the use of co-created social resources could also be explored to promote the understanding of this emerging pedagogy to meet the needs of the future all over the world.

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