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***Mutual Efforts Restoring Growth in Education for Public-Private Sectors  
Partnership: Basis for a Proposed Action Plan***

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**Abstract**

This study aimed to describe the responses of the participants to the Public-Private Sectors Partnerships (PPP) in Education in DepEd Ibaan District, Province of Batangas, Philippines in order to achieve the schools' goals and sustain public-private sectors partnership engagement with schools in the district. This study employed the descriptive –qualitative research in which responses of eighteen school heads of DepEd Ibaan District who were the respondents were coded, analyzed and interpreted. School Administrators, community stakeholders, future administrators and researchers may use the proposed plan of action as a guide in providing future directions for a Public-Private Sectors Partnerships (PPP) in Education.

Keywords: Private Sectors Partnerships (PPP) in Education, partnership engagement, DepEd, Ibaan District

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## INTRODUCTION

Public –Private Partnerships (PPP) in Education enormously gained support particularly on the construction of school buildings, improvement of school facilities, professional learning and development of teachers, feeding programs of poor schoolchildren, upgrading classroom instructions through provisions for instructional equipment and application of modern technology, all of which have goals in bringing all the children to schools and outcomes for quality instructions. PPP can be defined as a contractual relationship between government and private sector for a specific project, with simultaneous involvement of government and private sectors in education, with an understanding to share the costs and benefits and risks and rewards. Under PPP, public sector agencies (central, state, or local) join with private sector entities (companies, foundations, non-governmental organizations, academic institutions or citizens) and enter into a ‘business’ relationship to attain a commonly shared goal that also achieves objectives of the individual partners. Both parties agree to work together in implementing a program, and that each party has a clear role and say in how that implementation happens (Blagescu and Young, 2005).

As such, Brigada Eskwela is one of the Department of Education’s program to mobilize private organizations and companies as well as the public agencies to come together and be involved in the preparation of public schools facilities. There are activities such as Jingle-Making and Poster-Making Contests to attract more volunteers for public-private sectors partnerships engagement with schools in the country. Encouraging more partnerships engagement helps our schools acquired the needed resources for a child-friendly environment. Other forms of assistance are also offered like professional services and other goods and services needed by the schools.

But in most cases public schools administrators and teachers had been placed to some challenges particularly political pressures as they engaged with local government units for partnerships with non-government organizations (NGOs) in the community. Mutual agreement was set initially between those in the local government and the target non-government organizations partners for this purpose in order to achieve schools’ goals to sustain partnerships engagement between and among the Local Government Unit (LGU) and Non-Government Organization (NGO) and other stakeholders in the community. With this, those in the public schools are not put into situations which could undermine their non-partisan mandate by Civil Service Commission.

Hence, this study aimed at proposing a plan of action for the encouragement of public-private sectors partnership which aimed at helping public elementary schools attain quality education. Through this developed output, the efforts of restoring the growth of education in Ibaan District will be a mutual understanding and partnerships of the concerned public-private organizations and not just left to the government agencies without the fear of being biased to political organizations or party.

### Research Questions

This study was conducted to describe the responses of the participants to the Public-Private Sectors Partnerships (PPP) engagement in order to propose a plan of action for mutual efforts restoring growth in public school education.

Specifically, the following were the questions answered in the conduct of the study.

1. What comprises the public-private sectors partnerships?
2. How do the participants respond to the mutual efforts in restoring growth in education?
3. What action plan maybe proposed to establish partnerships between Local Government Unit and Non-Government Organization for a mutual effort to quality public education?

### **Scope and Limitation**

This study covered the status of the public-private sectors partnership in DepEd Ibaan District as to the goals of schools to sustain partnerships engagement. The variables measured in the status of partnerships engagement are sectors that comprise the public-private sectors partnerships and the responses of DepEd administrators specifically the eighteen (18) school heads in the Ibaan District, Division of Batangas.

### **Significance of the Study**

The importance of the study is signified by the individuals or groups who will be benefitting from the output of the study such as the school administrators, community stakeholders, educational planners, and the future researchers.

### **METHODOLOGY**

The following are the methods used in the conduct of the study.

#### **Research Design**

This study employed the descriptive and qualitative research. Descriptive research aims to describe a phenomena or occurrence wherein the status of the partnerships of public and private sectors in Ibaan District in the delivery of quality education in public elementary schools.

#### **Subjects of the Study**

The participants to this study were the eighteen (18) school heads from the public elementary schools in Ibaan District, Division of Batangas. The purposive sampling method was used since the subjects were the intended participants who can give the needed data for the completion of the study.

#### **Instrument Used**

Interview notes were prepared by the researcher in order to gather pertinent data. They were based on the objectives of the study.

## **Data Gathering Procedure**

The researcher made an appointment with the participants for a face-to-face interview. For some participants who can be grouped, a Focus Group Discussion (FGD) was conducted.

## **Data Analysis**

Data gathered through face-to-face interview and FGD were analyzed through coding and thematic analysis. They were then interpreted and presented.

## **RESULTS AND DISCUSSIONS**

The following are the findings of the study.

### **1. What Comprises the Public-Private Sectors Partnerships**

Public-Private Sectors Partnerships (PPP) is a government initiative to invite the private sector to join in its efforts towards education development through a specific project or it could be the initiative of the private sector to convince or compel the government to accept a new method of operation in which the private sector and the government jointly deliver a service/activity. Generally various models of PPP involve a formal contract between the government and the private sector to carry on some specific pre-defined activities in education, such as to set up new institutions, and/or to run the institutions, or carry on a particular activity in education – all financed by the state and/or through self-generated resources.

There are two models of PPP that implies the private sector providing infrastructure and service delivery, designing, financing, building and “operating” and it recovers its investment through lump-sum or annualized payments from the governments and through user chargers. With this partnership scheme, it shares risks with the state. Another model is wherein the government invests in infrastructure and the private sector operates, with government paying recurring costs to the private partner on per student basis; or the private sector provides infrastructure and government runs the institutions, government paying annualized/lump-sum payments to the private sector for capital investment; or private actors build infrastructure and run the institution, government paying for all costs, or government paying for the government sponsored students only and the private players recovering other costs from other students.

In recent years several hybrid partnerships have also evolved, involving new combinations and permutations of state and non-state sectors engaged in a range of activities in education. Different forms of PPP include public institutions with private financing, private institutions with public funding, public institutions under private management, government setting up institutions and outsourcing their running to private bodies, and private sector setting up institutions and government taking over their management and funding. Most partnerships of the recent period are based on market-oriented logic, while many models prevalent during earlier periods were not so, and they were also not described as PPP models. There is a main difference between the earlier models and the recent ones. The government was interested in PPP, when it proposed, say for example, university-industry collaborations, essentially for academic reasons, to improve the relevance of curriculum, increase employability of graduates etc. Nowadays, the main objective of proposing PPP is to



raise private funds and save public resources. The current widespread discourse on university-industry linkages is also found to be rooted in the same neo-liberal ideology (Evans and Packham, 2003)

The advocates of PPP advance three kinds of arguments. One, as the government does not have money, it is necessary to opt for PPP. It is claimed that PPP will ease financial constraints, as the private sector makes huge investments on its own under PPP. As the private and public sectors complement each other, it is claimed, the total resource base will increase. The PPP is projected as a major strategy to tap untapped private financial and human resources, including specialized skills that may not be available in government and to encourage active participation of the private sector in national development. With the increased resource base, there will be improved access to education and improvement in quality of education. In the absence of PPP, with limited public resources, education system might severely suffer. Under such circumstances, PPP is viewed as a major, if not the only, option for education development. As Pritha Gopalan (2013) observed, paradoxically, public education, which is an essential service, to remain public “needs partners outside the government to keep it up-to-date, efficient, transparent and engaging.” Secondly, PPP is advocated to overcome the weaknesses of the public system: it is claimed that the public system is inefficient; it is rigid and inflexible; it does not respond to market needs; it is not autonomous and so on.

On the other hand, it is argued that PPP will provide flexibility in relaxing restrictions associated with the public sector, such as in the salary structure, recruitment policies, fees and resource mobilization and management and development rules (e.g., civil works). It promptly responds to changing market signals in academic and other aspects; it even promotes innovativeness; and increases transparency. It is considered as a model that embraces market-based ‘efficient’ solutions and logics with state sector, and is free of the rigidities associated with state sector. Thirdly, it is argued that PPP increases competition, brings in efficiency associated with the private sector, improves accountability, reduces costs, improves cost-effectiveness, and thereby reduces prices or fees in education. For example, the Planning Commission (2008) argued that private finance initiative and public private partnership in “designing, developing, financing and operation is critical not only for meeting wide resource gaps but also for bringing about internal and external resource-use efficiency, improvement in quality service delivery and promotion of excellence.”

Further, the proponents of PPP assume that under PPP private partners will be philanthropic, with no commercial motives; or even if they are profit-motivated, it is ok. What is wrong with profit? -- they would ask. Secondly, public bodies will be able to effectively regulate the private actors to play a positive role in the development of education for national progress; or both public and private players will be self-regulatory and that there is no need for regulation at all by any outside body or the government. Thirdly, it is assumed that PPP will improve, at least will not worsen, inequalities in education. Fourthly, it is argued that PPP will allow allocation of scarce public resources exclusively for the benefit of the poor, and the private efforts will take care of the interests of the rich; and thus under PPP both the rich and the poor will be taken care.

Lastly, it is also assumed that the government will be able to protect and nurture the public good nature of education and/or the private players themselves will be interested in ensuring the public good character of education. It is also assured by the government, to silence the critics that the major responsibility of providing education finally rests with the government, that the government continues to remain accountable to the people for educating its citizens. Governments further assure the people that PPP does not mean lesser provisioning of government resources; it does not mean abdication of government responsibility; it is not a transfer of responsibility; it is certainly not privatization of the sector; but is a tool for augmenting the public resource base (Venkatraman and Bjorkman 2004).

Such is the case of the Department of Education (DepEd) Brigada Eskwela Program. It capitalizes on the partnerships with the private agencies or companies and individuals to help ready the infrastructure or facilities of the public school in time with the opening of the classes. With this in mind, the school is able to provide quality education to the youth through its clean, safe and conducive ambience for studying as well as through its technologically supported delivery of teaching and learning process.

## **2. Responses of the Participants to the Mutual Efforts in Restoring Growth in Education**

As responses to the mutual efforts in restoring growth in education by the participants, the following are the themes that emerged. They are the expression of gratitude, dissemination of stakeholders' support or being part of the school operation, making affiliations or linkages, collaborating with the stakeholders, and campaigning stakeholders about the project.

In terms of the expression of gratitude, the participants said they gave out letters of gratitude to those from the private sectors who helped carry out the objectives of the Brigada Eskwela program. They were also recognized during the stakeholders' day by giving them certificates.

*“As a school head, I respond to the mutual effort of public-private sectors by acknowledging them during the program in the school. Thank you letters were sent to them. We publish their support in our school paper. Pictures were uploaded in the social media.”*

Another way the participants respond to the mutual efforts in restoring growth in education is through their taking part in the management of the school since the school's area is situated in not a well-off barangay. As a school head, there are needs of the school which could be addressed through the concerted efforts of the school and all its stakeholders. With this, being affiliated with DepEd gives the stakeholders a sense of ownership of the school. And when there is a sense of ownership or belongingness, they work towards a common goal to the betterment of the quality of education.

With this, collaboration of all stakeholders of the school is achieved.

*“Through these initiatives, Tulay Elementary School work hand-in-hand with the stakeholders in all the programs being implemented in restoring growth in education.”*

It could be gleaned from the responses of the participants that the mutual efforts in restoring growth in education could be achieved through Public-Private Sectors Partnerships (PPP) through the initiatives of the school heads.

### **3. Proposed Action Plan to Establish Partnerships Between Local Government Units and Non-Government Organization for a Mutual Effort to Quality Public Education**

Based on the data gathered, the following is the proposed action plan to establish partnerships between local government units and non-government organizations for a mutual effort to quality public education.

**Table 1**  
**Proposed Plan of Action to Establish Partnerships Between Local Government Units and Non-Government Organization for a Mutual Effort to Quality Public Education**

<b>Key Result Area</b>	<b>Suggested Activity/ Project</b>	<b>Duration/ Resources Needed / Persons Involved</b>	<b>Expected Outcome</b>
Private sector providing infrastructure and service delivery, designing, financing, building and “operating”	Establishing a partnership on Adopt-a-School through construction of school classroom	Whole year round/ Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU)/ All responsible stakeholders	Classroom built for the benefit of the learners
Tap untapped private financial and human resources, including specialized skills	Having private sectors to finance school computer laboratory equipment and the like	Whole year round/ Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU)/ All responsible stakeholders	Learners to be technologically adept for 21 <sup>st</sup> century learning
Private sector providing faculty development and professional growth for teachers in the public school	Continuing education and professional development of public school teachers through scholarships from partner universities	Whole year round/ Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU)/ All responsible stakeholders	Public school teachers to be abreast with the latest trends in education

The suggested activities and projects are based on the partnerships afforded to the public sectors by the private partnerships whether financing school classrooms or buildings, as well as equipment for school laboratories specifically computer laboratories. With this in mind, the learners’ welfare is at end. It will pave the way for

learning 21<sup>st</sup> century skills needed to be at par with other students from the private sectors. In addition, continuing professional growth of public school teachers through scholarships from private university partners will enable our teachers to be abreast with the latest in education, research and development.

## **CONCLUSIONS**

The following are the conclusions arrived at from the findings of the study.

1. The Public-Private Sectors Partnerships (PPP) is comprised of government initiative to invite the private sector to join in its efforts towards education development through a specific project or it could be the initiative of the private sector to convince or compel the government to accept a new method of operation in which the private sector and the government jointly deliver a service/activity. Either way, it benefits the public sector in terms of achieving quality education for learners in the public schools.
2. The participants who are the school heads of public elementary schools respond to the mutual efforts in restoring growth in education through expressing gratitude to stakeholders, campaigning them for a partnership, and having them participate or collaborate with them in the management and maintenance of the school.
3. The proposed plan of action will benefit the learners to acquire quality education for the 21<sup>st</sup> century world of work.

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*A Report on Students' Views about Japanese Secondary Education for the Global Age in 1999 and 2019: The Basic Research for Developing Learning Content for the Original E-Learning Programme of Intercultural Training*

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**Abstract**

The aim of this study is to describe how Japanese students' views on secondary education for the global age evolved between 1999 and 2019. As part of her 1999 doctoral research, the present study's author distributed a questionnaire to students in Japan and England. Its purpose was to investigate their perspectives on contemporary educational needs. Findings indicated both similar and differing opinions between respondents from each country. Some sentiments, such as the importance of forming good relationships with people, are universal, fundamental aspects of education for the global age. On the other hand, some differences of opinion reflected social, cultural, and educational variances, such as Japan's hierarchical academic structure, and they should therefore be considered independently. Two decades later, the same questionnaire was redistributed to 130 Japanese students. The intent this time was to explore how Japanese education, social backgrounds, and students' views on secondary education for the global age may have changed. The findings indicate that students in 2019 are more satisfied with what they have learnt in high school than students were in 1999. Further, the importance of forming good relationships with people is also evidenced in the 2019 survey. More detailed findings are presented, along with descriptions of current issues in Japanese secondary education. This study is part of the author's preliminary research into development of learning content and effective teaching methods for intercultural training.

Keywords: Global age, secondary education, Japan

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## Introduction

In this study, ‘global age’ refers to the fact that people from different countries are in contact with one another to a much greater degree than ever before. The Internet has sped up access to information produced in other countries, and many issues, e.g., the environment, human rights, and conflicts between and within countries, are discussed at international levels. Further, many countries have seen an increase in ethnic diversity, with more people studying and working abroad than in any previous era (Kato, 2001, p. 30).

To prepare for life in the global age, a UNESCO report (Delors, 1996) argued that there are four necessary pillars of education: 1) learning to be; 2) learning to do; 3) learning to know; and 4) learning to live together. The present study bases its concept of education for the global age on these four pillars.

In 1999, the researcher investigated views held by students in England and Japan regarding education for the global age. Altogether, 400 Japanese and English university students and 40 teachers participated. The findings indicated that some opinions were common to both countries, yet others, reflective of social and cultural differences, varied.

Similar findings revealed two main objectives of education. The first concerns fundamental priorities, such as forming good relationships with people. For decades, the substance of these concerns has remained the same worldwide. The second objective involves more up-to-date education. This type of instruction should be introduced and improved according to changes in the world. Examples include such topics as information communication technology (ICT) skills, and a greater emphasis on global issues.

Moreover, some respondents believed instructional content may need to shift, moving away from knowledge-based, and toward thinking- skills-based, education. What is required in the global age may not be vast amounts of knowledge, but the skills to fully utilise information in various contexts. Many respondents from the two countries emphasised the importance of continuous assessment, rather than one test which only assesses memory at the end of a course.

Meanwhile, some of the varied findings reflected social, cultural, and educational differences. These issues, such as Japan’s hierarchical academic structure, and political interference with education in England, should be considered independently for each country. Many teacher respondents believed that the world will continue to shrink in the global age. Yet, social and cultural influences on education are enormous, and, in order to improve education in each country, should not be neglected. In this sense, some issues facing education in the global age should be considered carefully, according to each country’s social and cultural situations.

After two decades, the researcher distributed the same questionnaire to 130 Japanese students. This time, its purpose was to explore how secondary education, social backgrounds, and students’ views on education for the global age may have changed. The findings, along with current descriptions of secondary education in Japan, will be presented herein.



## Background Information

Before looking at the findings, some general and educational information about Japan should be provided. First, the Japanese population was 126 million as of 2018 (Statistics Japan, 2018a), accounting for about 1.9% of the world's population (Statistics Japan, 2018b). Japanese people, apart from groups living in Hokkaido in the north and in Okinawa in the south, are basically ethnically homogeneous. Nevertheless, the number of foreign people living in Japan is continually increasing. In 1994, the registered foreign population was 0.8% of the total population. By 2017, it had grown to 1.9% (Ishizaka et al., 1994; Ministry of Justice, 2017).

All education falls under the School Education Act of 1947 (Shimomura, 1998), which establishes the so-called 6-3-3-4 system as Japan's basic instructional schedule. This includes six years of elementary school, three years of junior high school, three years of senior high school, and four years of university, or, in some cases, two years of college. In this study, 'secondary school education' implies junior and senior high school education.

In 2018, public expenditure on primary and secondary education was 2.7% of the Gross Domestic Product (GDP). This is lower than the 3.5% average among Organisation for Economic Cooperation and Development (OECD) countries (OECD, 2018a). Some 98.1% of pupils continue their education from primary to secondary school. Ultimately, 54.8% enter college or university (MEXT, 2011; 2018a).

## Methodology

In 1999, a questionnaire was administered to students in two Japanese universities; one public, the other national. In 2019, two other universities, a private and a national, took the same questionnaire. Students' courses of study varied both in 1999 and 2019.

Quantitative analysis using statistics tests such as ANOVA and chi-square tests and qualitative analysis which considers factors such as social and cultural issues were performed. However, there were no significant statistical differences between the groups. Accordingly, the main analysis method used in this study is qualitative. Thus, the focus of the analysis is highlighting differences and similarities in findings from each group.

## Findings

### 1. Total Respondent Population

The population of responding students was 197 in 1999, and 131 in 2019. It totals 328 responses. Altogether, the respondents consist of 61.9% female and 38.1% male students. This does not mean that there are more females than males enrolled in Japanese higher education. In total, Japanese universities are 66% male and 44% female (MEXT, 2018a). However, one of the universities participating in the 2019 survey has 62.8% female students. Thus, the sex balance of the survey has been influenced. As for age group distribution of the respondents, 78.2% were aged 18 to 20.

## 2. Views on Secondary Education

Questions 1 to 5 investigated students’ views about the secondary education they received. First, Question 1 assesses respondents’ degree of satisfaction with their secondary education. Findings show that students in 2019 (79.4%) are more satisfied with their secondary school education than students in 1999 (49.6%). A significant statistical difference was not found between the two groups.

Question 2 listed four academic issues (Q 2.1 to 2.4) and three non-academic issues (Q 2.5 to 2.7) in secondary schools. Respondents were asked about their degree of satisfaction with each issue. Listed academic issues were 1). content of school subjects; 2). teaching methods; 3). pace of instruction; and 4). methods of assessment. In the findings, more respondents were satisfied with their academic secondary school education in 2019 than in 1999.

Table 1. Mean percentage of students’ responses to the academic issues listed in Questions 2.1 to 2.4.

Respondent Year	Very Satisfied	Neither Satisfied nor Dissatisfied
1999	25.2%	45.8%
2019	67.6%	10.2%

Questions 2.5 to 2.7 ask about non-academic secondary school aspects. Listed non-academic aspects are 1). relationships with school friends; 2). social activities; and 3). school events. The findings again revealed that fewer respondents in 1999 were satisfied with the social aspects of secondary school. The mean percentages of students answering ‘very much satisfied’ or ‘a bit satisfied’ were 47.9% in 1999, and 76.3% in 2019.

Both the 1999 and 2019 surveys show that relationships with school friends were a very important issue. Results of Question 2.5 (see Figure 1) show that many respondents were either ‘very satisfied’ or ‘a bit satisfied’ by relationships with school friends.

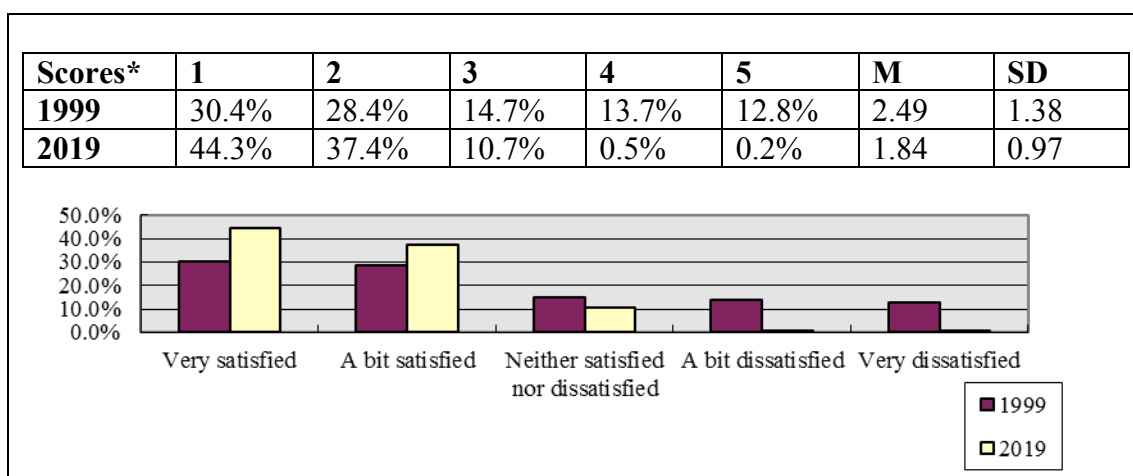


Figure 1. Q. 2.5: Relationships with school friends

\*5 degrees of satisfaction are divided into 5 scores, as follows: Score 1 = Very satisfied; Score 2 = A bit satisfied; Score 3 = Neither satisfied nor dissatisfied; Score

4 = A bit dissatisfied; Score 5 = Very dissatisfied. M = Mean Score. SD. = Standard deviation.

Moreover, the findings in both 1999 and 2019 show that humanistic development through social activities in secondary school is one of the most important aspects for Japanese students. 43.1% of students in 1999 and 73.2% of students in 2019 were satisfied with social activities. However, some students were negative about social activities, due to bullying and/or strict rules. Although the number of respondents who were satisfied with social activities is higher in 2019, it should be noted that reported bullying and violence continue to increase in primary and secondary education (MEXT, 2018b).

Question 3 asks the degrees of usefulness of what students studied and experienced. The findings show that over 80% of each group felt what they have learnt and experienced is useful. Although more students in 2019 than those in 1999 seem satisfied with their education, there is no statistical difference between the two groups.

In 1999, Questions 4 and 5 asked respondents which subjects and experiences were most useful or useless in their present lives. However, many students mentioned various personal experiences, making it difficult to discern specific academic subjects from the survey. Therefore, in 2019, the focus was on asking about academic subjects. In comparison, the survey in 1999 excluded findings about experiences. Rather, it simply described the academic subjects mentioned in Questions 4 and 5. Findings from Questions 4 and 5 reveal slight differences between the two groups in selecting subjects as ‘useful’ and ‘useless’.

Table 2. The five most useful subjects

	1999	2019
<i>1</i>	• Social studies	• English
<i>2</i>	• English	• Japanese
<i>3</i>	• All I have learnt at school (including school events, extra curriculum activities)	• Social studies
<i>4</i>	• Domestic science	• Mathematics
<i>5</i>	• Every academic subject	• Domestic science • Physical education

While findings showed that social studies was popular, the highest number of students overall selected English as useful. This shows that English is very important for vocational and academic reasons. Moreover, it also serves as an international communication tool.

For many years, foreign language education in Japan’s secondary schools focused on learning grammar by rote. Since the 1940s, English has been a compulsory subject both in secondary education and as a requirement for entering university. Pupils were

expected to have the high-level vocabulary and reading skills necessary to pass extremely competitive examinations.

However, rote learning didn't work well for Japanese students in developing strong English speaking and listening skills. In the late 1990s, following the 1999 survey, Japanese secondary education introduced a new teaching method called the 'communicative approach' (Ogawa, 2017). Unfortunately, Japanese students' scores on TOEFL iBT tests are still the lowest among Asian countries. Thus, investigations continue into better methods for teaching and learning English. Clearly, however, English has always been a controversial subject in Japanese secondary education.

The second interesting outcome is that there were a few responses indicating the usefulness of studying mathematics, irrespective of students' course of study. Mathematics was not listed in Table 2 under the 1999 results. However, some students noted things like 'I thought maths was completely useless. But it was a good lesson to be persevering' (Kato, 2001, p. 139). Meanwhile, students in 2019 who denoted mathematics as useful stated such things as 'I like it because I calculate in my head instantly using mathematical knowledge, and I can easily use this knowledge in my daily life' (Kato, 2001, p. 139). These remarks show that, in many ways, mathematics is a special subject to Japanese students.

Question 5 asks about academic subjects which students did not find useful in their present lives. Table 3 below shows findings from each group:

Table 3. The five most useless subjects

	<b>1999</b>	<b>2019</b>
<b>1</b>	Mathematics	Mathematics
<b>2</b>	All academic subjects	Science
<b>3</b>	Science	Chemistry
<b>4</b>	Physical education	Physics
<b>5</b>	English	Biology

The findings from Question 5 show that Japanese students in both 1999 and 2019 felt mathematics and science were useless, regardless of their personal academic focus.

In the 2019 survey, a substantial number of students responded to Question 4 by saying that mathematics is useful. Nevertheless, this result may show a general tendency of Japanese students to have negative attitudes toward mathematics and science. It would appear that this has not changed over the course of two decades.

In 1999, discussion indicated that one of the reasons for this result might be the highly competitive entrance examinations for Japanese universities. As Inui (1993) explained, such responses also reflected the excessive demands of a competitive society. Mathematics and science are often viewed as a typical symbol of Japan's highly competitive entrance examinations. Consequently, the 1999 findings mentioned these examinations, ranking them sixth in the above table.

However, university entrance examinations have changed greatly. Apart from the academic test, there are now two main types of entrance examinations. The first is an entrance examination prepared by each university's admissions office. It requires only

interviews, essays, or good records in high school. Recently, 80% of private, half of national and public universities have introduced this type of examination (MEXT, 2018c).

Second, there is an examination for select candidates. Universities set certain standards for high school marks, and pupils who satisfy these requirements can apply to the university. In a way, this examination process fulfils the desires of the 1999 respondents, who emphasised the importance of continuous assessment. Typically, this evaluation includes interviews and essay-writing. This examination type is also quite popular in Japanese universities; 98.2% of private universities and 95.9% of national and public universities have introduced it (MEXT, 2016; 2018c). As a result, 44.3% of all university students enter through one of these examinations (Obunsha, 2018).

Academic testing has also undergone some changes. In the past, almost all national and public universities required pupils to take tests in seven academic subjects, including mathematics and science. However, a few national and public universities now require only three subject tests. As described above, students nowadays do not necessarily have to be good at mathematics and science to enter universities. However, findings show that those subjects are still difficult for Japanese students to tackle.

Regrettably, 8.0% of Japanese students surveyed in 1999 felt all academic subjects were useless in their present lives. In contrast, such negative attitudes toward secondary education weren't seen in the 2019 survey. Discerning a clear reason is difficult, but it might be helpful to note current teachers' efforts. Although it has become a serious issue in Japanese education, teachers have the longest working hours of any OECD country (OECD, 2018b). They work longer, and not only in a teaching capacity; they also serve as academic counsellors and managers of extra curriculum activities. Furthermore, they work to take care of their pupils' personal and social issues. In general, secondary school teachers have become keener to address all aspects of their pupils' lives. This could be a good reason for the findings in the 2019 survey.

### **3. Views about Education for the Global Age**

#### **3.1. The Aims of Education**

Question 6 solicits students' views on the aims of education in the global age. The aims listed in Question 6 are as follows:

- 6.1. To help pupils acquire the skills needed to get desired jobs in adult life
- 6.2. To help pupils acquire a broad, general knowledge base
- 6.3. To help pupils develop an understanding of other countries and cultures
- 6.4. To help pupils develop an understanding of different communities in their own country
- 6.5. To help pupils develop a sense of being a citizen of the world
- 6.6. To help pupils learn to deal with problematic situations
- 6.7. To help pupils exercise greater autonomy

First, more respondents in 2019 (mean percentage: 77.3%) than in 1999 (54.2%) felt that the aims listed in Questions 6.1 to 6.7 should be emphasised in education for the global age.

In 1999, the smallest number of students (49.0%) felt that aim 6.4, ‘to help pupils develop an understanding of different communities in their own country’, should be emphasised. However, by 2019, the number of respondents agreeing that the above aim deserved emphasis had increased strikingly to 80.1%.

Meanwhile, in 1999, most Japanese students (64.0%) felt that aim 6.7, ‘to help pupils exercise greater autonomy’, should be emphasized. The same was true for students in 2019 (85.5%; see Figure 3).

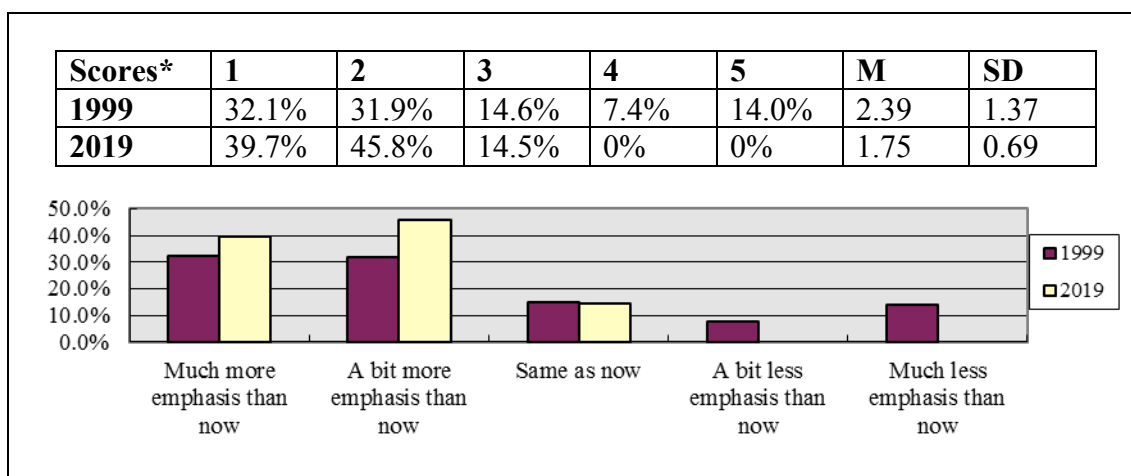


Figure 3. Question 6.7. To help pupils exercise greater autonomy (learning to be)

In the late 1990s, some movements tried to revise the outmoded, excessively knowledge-based educational structure. They wished to encourage the personal and social development of young people. This philosophy is called ‘*kokoro no kyoiku*’: i.e., ‘the empowerment of greater autonomy’ (listed in Question 6.7).

In 2019, ‘*kokoro no kyoiku*’ is no longer the centrepiece of Japanese secondary education. In fact, as described in the previous section, teachers nowadays manage students’ personal and social issues to a greater degree than ever before. However, the 2019 findings show that autonomy is still the main concern of Japanese students. This leads to another possible reason. Personal social development and whole-person education (part of Delors’ ‘learning to be’) has always been extremely important. That is to say, empowerment of greater autonomy is always the central issue in Japanese secondary education. Such is the case regardless of time period and educational movements in each era.

### 3.2. Curriculum Contents

Question 8 asks about curriculum contents of education for the global age. The curriculum contents listed in Question 8 are as follows:

- 8.1. Basic skills (literacy, numeracy)
- 8.2. High skills/knowledge

- 8.3. Foreign languages
- 8.4. Learning about other countries and cultures
- 8.5. Learning about different communities in their own country
- 8.6. Developing a sense of responsibility toward people living in other countries
- 8.7. Developing a sense of individual empowerment
- 8.8. Visiting and living in other countries
- 8.9. Worldwide issues (e.g. environment, human rights, war and peace)
- 8.10. Information and communications technology skills
- 8.11. Activities which take place outside school

In a comparison of mean percentages, more respondents in 2019 (75.8%) than in 1999 (46.2%) felt positively about emphasis on the content items listed in Question 8. The following table shows the three most emphasised curriculum content items:

Table 4. The three curriculum content items most emphasised in Question 8

	<b>1999</b>	<b>2019</b>
<b>1</b>	8.3. Foreign languages. 58.7%	8.3. Foreign languages. 90.0%
<b>2</b>	8.9. Worldwide issues. 58.5%	8.6. Developing a sense of responsibility towards people living in other countries. 88.5%
<b>3</b>	8.7. Developing a sense of individual empowerment. 53.2%	8.9. Worldwide issues. 84.7%

‘Learning about foreign languages’ and ‘worldwide issues’ place within the top three in both surveys. This may mean that these content items were not emphasised enough during the two-decade timespan between 1999 and 2019. Apart from that, the curriculum content which students in 1999 were least interested in emphasising was ‘high-level skills/knowledge’ (Question 8.2). This factor was also of least interest to students in 2019. However, a high percentage of students in both eras (52.1% in 1999 and 35.9% in 2019) answered that this instruction should remain the same. This finding may indicate that the excessively knowledge-based education of 1999 had eased by 2019.

### 3.3. Teaching Methods

Question 10 asks about students’ views of teaching methods in the global age, listing five teaching methods. These are as follows:

- 10.1. Collaborative activities (where small groups of pupils must work together as a team)
- 10.2. Individualised programmes of work (where each pupil works alone, at his/her own pace)
- 10.3. Whole-class teaching
- 10.4. Computer-assisted learning packages
- 10.5. Activities which take place outside of school (e.g. work experience, exchange visits, outdoor education)

The mean percentages show that more students in 2019 (72.7%) than those in 1999 (42.9%) are positive about emphasising the above teaching methods.

The teaching method which most students in 2019 (83.2%) feel should be emphasised more is ‘computer assisted learning packages’. Over the two decades, the number of schools using computer-based learning has increased, with 19.6% of high schools providing a tablet-type personal computer to each pupil (Obunsha, 2019). However, many teachers (46.3%) feel pupils should learn about ethics using ICT (Obunsha, 2019). In addition, some students still have no opportunity to learn ICT in high school. Needless to say, most companies require young people to possess computer skills. Consequently, respondents in 2019 still feel a need to develop proficiency in using computer assisted learning packages.

Meanwhile, most students in 1999 (53.8%) felt that ‘activities which take place outside of school’ should be emphasised more. This finding may reflect the Japanese educational sensibilities of the time. The contemporaneous government report on educational reform suggests that activities outside of school (i.e., mainly volunteer work) should merit credits in the school curriculum (Nihon Keizai Shinbun, 2000). Activities such as this are also noted as important in the 2019 survey, with 79.2% of respondents feeling they should be emphasised more. However, it is important to note that no activities outside of school are included in students’ academic credits. They are very popular nowadays, however, and may be mentioned in records.

Another interesting finding is that students in both 1999 (59.0%) and 2019 (34.4%) answered that ‘whole-class teaching’ should remain the same. Although there has been much discussion on the advantages and disadvantages of whole-class teaching, students’ opinions suggest that it may remain as the foundation of various teaching methods.

### **3.4. Assessment Methods**

Students’ views on five assessment methods are investigated in Question 12. The listed assessment methods are as follows:

- 12.1. Written examinations
- 12.2. Oral examinations
- 12.3. Presentations in class
- 12.4. Thesis/research report
- 12.5. Coursework/projects

The main findings regarding assessment methods show that students in 1999 and 2019 held very similar opinions. Most students in 1999 (53.1%) and 2019 (72.2%) felt ‘course work/projects’ should be emphasized. In addition, students in both 1999 (59.9%) and 2019 (39.7%) felt ‘written examinations’ should remain the same as now. These findings indicate that students prefer an emphasis on continuous assessment methods, although most recognise the value of traditional methods.

### **Conclusion**

It is clear that most students in 2019 are essentially satisfied with what they have learnt in high school. This is a notable difference compared to students in 1999. In addition, more students in 2019 felt positively toward an emphasis on the four main pillars of education. The four central findings from this study are summarised below.



First, relationships with school friends are a very important, non-academic aspect of secondary school. Humanistic development through social activities is also one of the most important factors to Japanese students. These items were also identified as very important in the 1999 survey in England. Thus, it might be said that fundamental educational aspects remain unchanged for decades in countries worldwide, and will prove essential to education for the global age.

Second, in terms of academic disciplines, Japanese students found English most useful. Mathematics is rated least useful. In addition, 'learning about foreign languages' and 'worldwide issues' are noted as important educational items for the global age. Mathematics was previously found to be disliked because it symbolised Japan's highly competitive university entrance examinations. However, results from Question 8.2 indicate that the excessively knowledge-based education prevalent in 1999 had eased by 2019. Further, university entrance examinations are not as competitive as they once were. On this basis, findings reveal that mathematics is simply a difficult subject for students to master. In summary, English, mathematics, and learning about worldwide issues seem to be central topics of Japanese education for the global age.

Third, as for teaching methods, most students in 2019 felt 'computer assisted learning packages' should be emphasized more. Most students in 1999 said 'activities which take place outside of school' should be emphasized more. Since the 1999 survey, activities outside school have increased. Hence, it may be said that students in 2019 are more focused on computer assisted learning. ICT skills are considered increasingly important, and many issues, such as ethics, require more attention.

Fourth, students in both 1999 and 2019 agreed that continuous assessment methods should be emphasised, although most also recognise the value of traditional methods. In considering education for the global age, these will be the core assessment methods. For further discussion, it might be interesting to redistribute the questionnaire in England. Doing so would allow a comparison of findings, leading to further exploration of education for the global age. Finally, based on the findings of this study, content will be developed for an original e-learning programme on intercultural training.

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***Parents as Learners, Teachers and Facilitators in an Intervention Program for Enhancing Children's Math Learning in Taiwan***

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**Abstract**

Parents who are involved in their children's education contribute not only to higher academic achievement, but also to positive behaviors and emotional development (Stevenson & Lee, 1990). In this report, I will share qualitative analyzes on data analyzes from an intervention project (parental involvement in children's math learning) conducted in Taiwan. Data sources are questionnaire, diaries, focus group interviews, worksheets and videos. Results indicated that research-based tasks in math camp engaged parents as learners, teachers, facilitators, leaders (Civil and Bernier, 2006) and observers. Such roles created potentials for parents to take charge of children's math learning in school and at home.

Keywords: Parental involvement, learners, teachers, facilitators, children's math learning

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## 1. Introduction

This is an intervention project on parental involvement with a goal to enhance children's learning in mathematics in Taiwan. In an elementary school near my university, I offered bi-weekly Friday Math for parents and children year round for each grade over time. Results for grade 1-4 were reported (Leung, 2012; Leung, 2015, Leung 2019, in Chinese). The project was extended to kindergarten (Leung, 2018,) and finally grade 5 and grade 6. The overall goal is for a K-6 model on parental involvement. In this report, the result is on analyzes of data for grade 5 and grade 6.

### 1.1 Parental Involvement

Educating the next generation is a responsibility for all. The word "education" included 5 vowels that sounds "great" for all nations. In Chinese, education is "教育" which means to cultivate for growth. Research on large scale comparative studies confirmed the importance of parents' involvement (e.g. Chiu & Zeng, 2008). It was found that parents contributed to academic achievement, positive behaviours, and emotional development of children (e.g., Stevenson & Lee, 1990; Weston, 1989). Parental involvement in children's education is gaining increasing attention in many countries.

### 1.2 Partnership of home, school and community

To date, there are various projects on home school partnerships around the world such as project NNPS in US (Epstein, 1995); for families of socioeconomic status in New Zealand (Maher, 2007); for Latinos families in project CEMELA (Civil & Bernier, 2006) and also in the east like Hong Kong (Ho and Kwong, 2013). These projects are exemplars showing successful outcomes by joining combined efforts from parents, teachers and teacher educators who worked together.

In this study, I attempted to integrate efforts (teachers and parents) in an intervention project. It is on parental involvement with a goal to enhance children's learning in mathematics. In an elementary school near my university, I offered bi-weekly Friday Math Camp for parent-child year round for each grade over time. Preliminary results for grade 1-4 were reported and a book was published (Leung, 2015; Leung, 2019 in Chinese). The project was extended to kindergarten and grade 5/6.

The research questions are: What roles do parents assume as they attend this Math Camp over time? What exemplars can be collected as evidence of roles that carry potentials in enhancing parents and children's math learning?

## 2 Literature

### 2.1 Curriculum standards emphasis parental involvement in math learning

In both US and in Taiwan, parental concern for children's learning of mathematics is emphasized in curriculum standards documents. "Families become advocates for education standards when they understand the importance of high-quality mathematics education for their children" (NCTM, 2000 p. 378). In Taiwan math curriculum standards documents, there is a part on reminding parents; "learning math should be a happy experience to students." When parents find children having hard time with learning math or having low scores there is no need to be anxious. In this document, parents are urged to ensure students to complete homework with full

concentration. If not, students make mistakes, get frustrations and finally give up learning math. Research studies on strategies enhancing math learning are useful in intervention program for parents, the activity can be in form of a game (van den Heuvel Panhuizen & Buys, 2008; Leung & Lo, 2010), reading a picture book (van den Heuvel Panhuizen, Boogard, & Doig, 2009), posing problems and diary writing (Leung & Wu, 2000), completing a math trail (English, Humble & Burmes, 2010).

## 2.2 Combined Efforts: Working together

The framework I used is from co-learners' sharing knowledge by Jaworski (2008). The model by Jaworski (2008) explain the mechanism, when a Venn diagram represents how a mathematics teacher educator (MTE) and teachers share knowledge. One circle carries MTE's knowledge of research and theory while the other circle holds teachers' knowledge of students and schools. The sharing of knowledge, given in the intersection of the two circles, means that passing of knowledge is bi-directional: teachers also pass knowledge to MTE. In this study, a third circle is used to include parents: parents share knowledge of children's behavior at home.

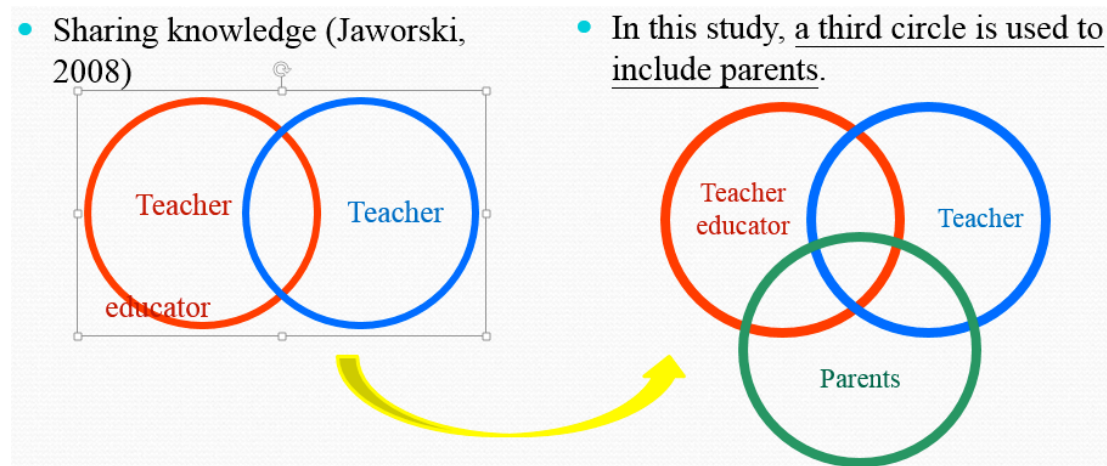


Figure 1: Working together

## 2.3 Parental Roles

According to Cai (2003) there are 5 roles of parents in assisting children's math learning:

motivator, monitor, resource provider, mathematics content adviser, and, motivator and monitor. The study compared the relationships of children's math performance to parental roles. Among the five roles, motivator and monitor is the best predictor for children's math performance (and not content advisor). However, these five roles from Cai (2003) were "parents as teachers" according to Civil and Bernier (2006). They gave examples of four more parental roles: as learners, as teachers, as facilitators and as leaders. Thus, Cai (2003) addressed to multiple roles of parents that happened to be one role called "parents-as-teachers" according to (Civil & Bernier, 2006). In the east and in countries like Taiwan, parents are anxious about children learning, will they tend to take the role as teachers?

### 3 Method

#### 3.1 Case study

This is a case study and the method follow that of Yin (1994). The research team consisted of a math teacher educator (myself) and her research team (a research assistant and 2 graduate students). Participants also included an elementary school teacher, parents and children. The teacher educator (myself) had been to elementary schools 4 years teaching her two sons' classes. The elementary school teacher used to be her undergrad student and also her graduate and her master degree thesis is on parents' study group. In this program, the participants came to meet in the elementary school that was only 5 minutes' walk from subway station and from my university. By referring to Civil and Bernier (2006), I started with Parents as learners and have parent-child pairs learn math together. I referred to curriculum standards and textbooks series to develop research-based activities suitable for parent-child Math Camp during Friday afternoons. Two characteristics of each activity are: Learn Math together, Promote Parent-Child interaction. To explain how to motivate parents and child in learning math concepts and as well enhance parent-child interaction, I include one example in Space Strand (S) below. The other activities can be in form of a game, reading a picture book, posing problems, paper folding, writing a diary, or, completing a math trail.

Example Task: Write a story using plane figures from Tangrams (Space Strand). For plane figures, the child and the parent each do paper folding that results into paper Tangrams. Each person in a family used the seven pieces to create an object (e.g. a tree; a kite). When asked how to make shapes, the teacher educator gave examples of "don't"s instead of "do"s. Examples of "don't"s meant the pieces could not overlap nor separate. If she suggested "do"s (e.g.: a cat) the participants might just followed (also make a cat). After each of them finished making a shape (e.g.: a kite and a tree) then parent and child make a story using a tree and a kite and record the story in a diary. Sharing and communication is emphasized and spatial sense is enhanced. Later, they could remove the pieces and made other shapes and wrote different stories. Although the activities were developed by me, I sent to three elementary school teachers to check if they were appropriate. Revisions were made until all agree on the timing, appropriateness of math materials, and potential opportunities for interaction of child with parents.

#### A typical Friday Math Camp (Time: 13:40 to 15:20)

During the first session parents and children attended class in two separate classrooms. In my classroom (for parents), I talked to parents and explained how children learn math; conducted focus group interviews and asked parents to fill in questionnaire. In the other classroom (for children), the elementary school teacher and the children went to a hands-on activity. For example, asking children to make up teaching aids required for playing math game with parent in the second session; folding paper to form a card for Mothers' Day or, shading colors on fraction cards and cut them into a deck of poker cards. During the second session parents and children attended class together. I introduced math games (so that learning took place in families). The seating arrangement is: one table, one family. I made sure each family could play on their own before all families played together. Finally, there was a whole class discussion and I sent out a follow-up activity and a diary sheet to do at home and share what happened during the next meeting.



### 3.2 Stages

The stages for this intervention program as above. The order of the grade levels: grade 1 to grade 4; Kindergarten, grade 5 to grade 6 was due to administration decisions on school building and timetabling of this school. As mentioned before, this report only includes results on two research questions for grade 5 and grade 6 (Stage III)

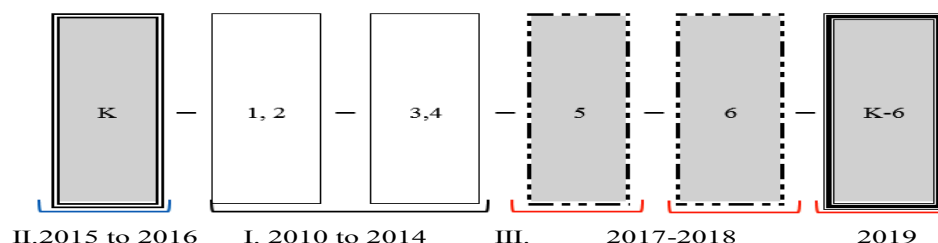


Figure 2: The three stages

### 3.3 Data Source and Analyses

In each school year, there is total of 16 bi-weekly Friday Math Camps. However, the number of families attended varied according to grade. Data source were: questionnaire, diaries, parents' focus group interviews, worksheets and videos; the data were analyzed qualitatively as in Creswell (2009). Data were coded by two independent raters and reliability was checked. Disagreements were discussed and resolved through e-mails or telephone discussions.

## 4 Results

Over the two years there are instances of multiple roles of parents over time. They are learners, teachers, facilitators and leaders as given in Civil and Bernier (2006). Also, parents were observers of children learning math in school and were partners or opponents of their children when they played family math games at home. Below are exemplars as evidence of such roles that carry potentials in enhancing parents and children's math learning.

### 4.1 Parents as learners

First, they learned math themselves. In the activity (Poker Factor-Multiple) the math materials is on Factors and Multiples. Parents learned how to find factor cards of a given number as in a Multiple card and were grade 5 "students". *"I almost forgot what they (Factors and Multiples) are and their relationship until I played this card game"* (2017.11.06). They also learned which 11 configurations of 6 squares that could make a cube by actually making the cube (2018.02.18). Second they learned about children's thinking by reviewing exam papers together. In review of grade 5 first exam, the teacher educator worked out solutions and explained children thinking. Parents talked to each other: guessed how children solved problems and suggested strategies and misconceptions. During "Q and A" session, parents asked about why their children homework was wrong and the teacher educator contrasted the correct methods with common misconceptions. Third, they learn how to respond children: the teacher educator demonstrated how to talk to children, how to use gestures and praise.



Figure 3: Make a Cube, Review Exam paper, and Responding to Children

#### 4.2 Parents as teachers

First, they posed problems for children to solve. In the activity (Guess Me) the math material is on unknown (Algebra Strand) one of them used plastic flower chips as unknown and posed this problem. “the cost of 4 flowers is \$12, when purchase 3 flowers, how many dollars should one pay?” Another evidence is from the Math Fun Fair (Grade 6 end of term), parents created games (Chess, Dragon Boat Festival) and made up teaching aids and during the Fun Fair helped out as teachers (Figure 4). Parents expressed that they learned a lot, as they compared children’s responses.



Figure 4: Fun Fair

Second, our parents monitor, provided resource and then advised on content. How do we play “Make the Most” at home? (A set of cards each with either “0” to “9”, one of the four operations symbols, equal sign, or “.....” meaning remainder. The goal is to use as many cards as possible to form correct expressions. The player who used out the most is the winner.) *When we played “Make the Most” I let my two children flipped the cards out. The older one asked if he could use division so that he could use more cards but his younger brother (who only knew addition/subtraction) did not understand what division was. Until then I just monitored and did not participate. After “division: was mentioned but I helped them to check the expressions.* Diaries (5-1;2017.10.06; Parent: HuaChun Children: Yin, Chian)

Parents as players (partners or opponent of child). When the activity is a Fraction Poker game. *When we played fraction poker cards (parts of circles are shaded as in the fraction indicated on the card with circle) I told her when the shaded parts of two cards added to one circle then the two fractions added to “1” my girl and I found this game fascinating.* Diaries (5-1;2017.10.27; Parent: ChuYuen Child: MinYu)



Figure 5: Resource provider, monitor

### 4.3 Parents as facilitators

First, they shared thoughts and attempts at home. A parent was asked to present diaries and did story telling about what happened at home. After doing so other parents would join in. *“It was not until I was asked to take a turn to tell during the next meeting then I made an effort to record down what he did at home. He folded a paper and cut out a yellow butterfly which is symmetric. Next he used grid paper and made 2 more figures by line symmetry in red and in blue ...”* (see Figure 6)

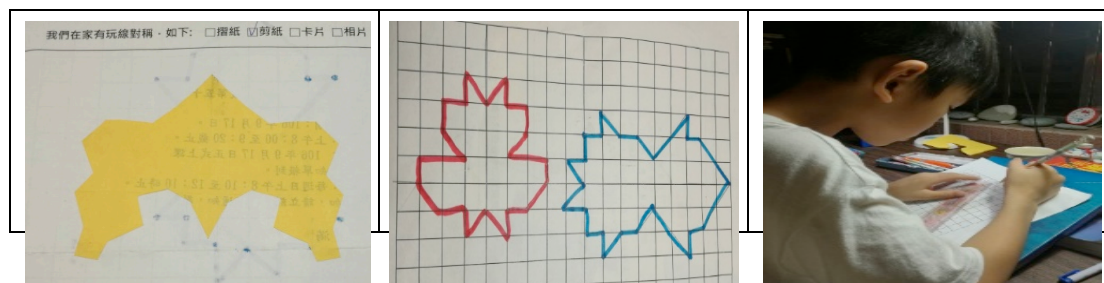


Figure 6: Worksheets (5-2;107.04.27) Parent: Yinwen ; Child: HweiChian

More parents joined in afterwards. One parent told other parents that she used cubes to make a solids then asked her child to find surface area by counting top and bottom (9, 9); left and right (9, 9) and finally front and back (9, 9) then added the total number of faces. (see Figure 7)

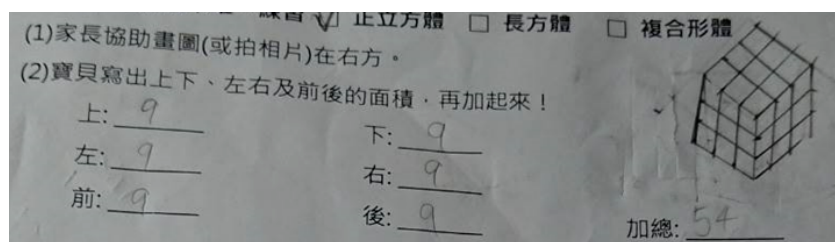


Figure 7: Worksheets (5-2;107.05.04): I know how to find surface area

As they shared results the discussion was facilitated. Parent Tinyi used 10x10 grid (100 squares) paper to play a game on Percents with her girl Pei. The game is “You say I draw”. One say “5%” the other shaded 5 squares. What followed was 20%; 12%, and 35%. When the next ones are 40% and 38% the shading is a Chinese character. Mother and child then changed the game. This time, one player drew and the other told the percentage. The house is 43% while the fish is (26%). Suddenly, the child wrote her Chinese name and occupied three different percentages respectively. To end, she drew “I ♥ U M A” and signed using a face. That was a very sweet ending (see Figure 8 for shadings and percent).



Figure 8: Worksheets (5-2;107.06.08): “You say I draw” (Percent)  
Parent: Tinyi ; Child: Peiche

Second, they interacted with other parents in groups and checked each other’s work before reporting findings for the group. In the left photo of Figure 9 parents fold paper into a tangram, cut into seven pieces then used them to make shapes and named them. Finally, they used the named shapes to create a story and came to the stage to tell the story. *“The presentation was most unforgettable. We seldom had a chance to present results.”* (Diaries, 2018.0102). In the right photo of Figure 9, they two parents played “Make the Most” in class settings. To play, display a set of cards each with either “0” to “9”, one of the four operations symbols, equal sign, or “.....” meaning remainder. The goal is to use as many cards as possible to form correct expressions. The player who used out the most is the winner. A daddy and a grandma sat together and did not know how to start. One of them (the grandma) started to remember one day her grandchild told her about the game after school. She started to use cards “ $12 \times 5 = 60$ ” until both of them in the group used out nearly all the cards.



Figure 9: Parents worked in groups

#### 4.4 Parents as leaders

First, they gave a talk. One parent, Kuei, shared what she knew on origami. All of us used 8 sheets of paper and make a kite. Second they came to the front to explain a solution or demonstrate a knowhow. (see Figure 10)

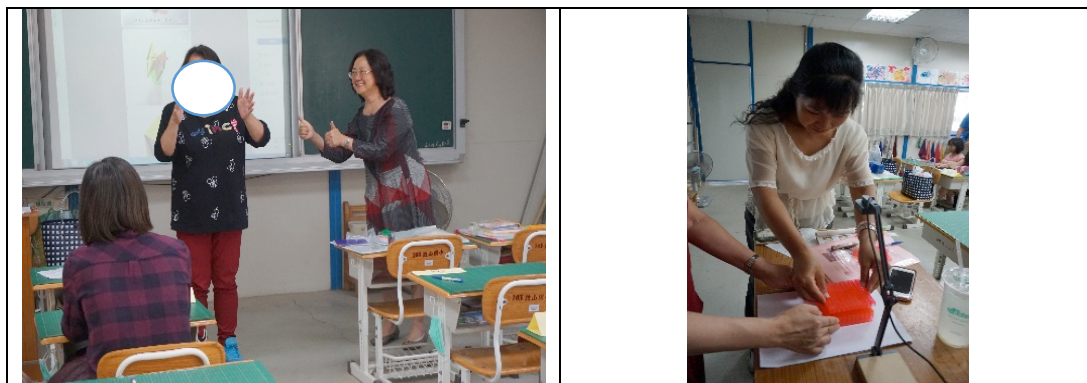


Figure 10: gave a talk, Explain solution

#### 4.5 Parents as observers

I arranged for parents to observe me teaching their children during Wednesday mornings. For example, in teaching factors and multiples I taught them how to play Factor Family: considered the number of factors of a given number and then used number cards to form a “family” of members that are factors of a given number (e.g. 1, 13). Later they used sets of cards to beat each other. The more could beat the less (e.g. a set of “2, 3, 12” will beat the set of “1, 13”). When they went home they played with their family members. Another example is the conversion of units such as “Time”. The game is called “Fair Trade”. A deck of cards with one side writing a unit (day) then the other side another unit (week). I asked them to shuffle the deck of cards and picked one so that one person read only one side. If both players managed to read out the number of units that were equal the 2 players shook hand and recited “THIS IS A FAIR TRADE”. If one said “8 days” and the other said “1 week” then at least one of them will say “I will not trade, this is not a fair trade”. *“I never can imagine how my child (and friends) attend school until I sat at the back of the classroom that Wed morning. Learning math by interaction with friends was meaningful. The games were so interesting that we continues to play at home.”*



Figure 11: Factor family, Fair trade

## 5 Conclusion

In this study, parental multiple roles and examples at home were analyzed in terms of potentials of learning math and parent-child interactions. In the model I propose, the intersection region of three overlapping circles is the key to success. The findings indicated that working with parents, it is feasible engage parents to take multiple roles by (Cai, 2003) where parents’ roles were teachers. Besides the role as teacher, parent were also as learners of math, facilitate during sessions, and volunteered to be leaders (roles as in Civil and Bernier, 2006). Finally, in order to add the role as observer, I purposely arranged for them to observed me teaching. This arrangement

could assist them to envision how children learn math in class settings. Results indicated that research-based family math tasks engaged parents as learners, teachers, facilitators and leaders (Civil and Bernier, 2006) and observers. Such roles also lead to potentials for enabling parents to take charge of children's math learning in school, at home and in community.

I close with anticipation to my next step: to empower parents, to include them as exemplars; and, to assist them to lead other parents in the community. Parents, as Civil and Bernier (2006) reminded, are resources; the resources are not limited to helping out in cafeteria or doing notice boards; the resources can be an enhancement in children's math learning.

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***Matching the Competencies of Hospitality Graduates with the Expectations from the Hospitality Industry in Ghana: A Case Study***

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**Abstract**

The purpose of this paper is to match the competencies of hospitality graduates with the expectations from industry in the Ghanaian context. The main aim of the study is to contribute both theoretically and empirically to addressing the challenges of training and developing suitably qualified hospitality graduates. The study envisages the use of Pragmatism as it seeks to apply both Positivism and Interpretivism approach to collect data from key stakeholders of the hospitality education and industry. The research design found appropriate for this study is the case study method with the use of mixed strategies. With the mixed method, the research will use in-depth interview to collect data from industry practitioners and lecturers whilst survey will be based on structured questionnaire for graduates working in the industry. Findings would be used to build a competency framework for hospitality programs at the Ghana Technical Universities. This research identifies the need to match what is taught in the Universities with the expectation of the industry and is limited to the hospitality and tourism industry. The gaps between the University hospitality curriculum and the industry are identified and a framework built to fill the gap. This research work will assist in the review of the hospitality curriculum and enhance the proposed Competency Based Teaching for the new Technical Universities in Ghana.

Keywords: Competencies, Hospitality industry, Hospitality curriculum, industry expectation

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## Introduction

The significant contribution of the tourism and hospitality industry to economic sustenance in both developed and developing countries deserves the attention of governments, economic growth policy makers, and researchers. The industry, which consists of four segments namely travel and tourism, accommodation, food and beverage and recreation, is one of the world's largest industries with a global economic contribution (direct, indirect and induced) of over 7.6 trillion U.S. dollars in 2016, according to the World Travel and Tourism Council (WTTC, 2017). The direct economic contribution of travel and tourism alone amounted to approximately 2.31 trillion U.S. dollars in 2016 (WTTC, 2017). In 2017, the total contribution of travel and tourism to the world's economy was forecasted to grow by 3.5% (WTTC, 2017). Africa's travel and tourism industry continues to record impressive growth over the years. In 2017, the continent hit a 63 million high in international tourist arrivals as compared to 58 million in 2016 which represent 9% increase compared to 2016 (World Travel and Tourism Council, 2016). This in general represent an improvement above the global performance of a 7% rise in 2017 resulting in 1,323 million international tourist arrivals in Africa (World Travel and Tourism Council, 2016). Travel and tourism contributed a total of 8.1% to Africa's GDP (USD 177.6 bn) in 2017. This percentage was expected to rise by 3.7% (to reach 12%) in 2018 (World Travel and Tourism Council, 2016).

In Ghana, the direct contribution of travel and tourism to GDP in 2016 was USD1.2 M (3% of the country's GDP), forecasted to rise by 5.6% in 2017. In 2016, travel and tourism generated 288,000 jobs. This was forecasted to grow by 4.7% in 2017 to 301 500; thus supporting the crucial role of the tourism and hospitality industry in employment generation in Ghana (World Travel and Tourism Council, 2016). To cater for the growing amounts of international visitors, it is imperative that staff is suitably qualified to cater for the needs of these travellers. This requires that the tourism and hospitality training institutions in Ghana produce the qualified human resources for the industry.

In spite of the fact that the educational curricula offered in tourism and hospitality is expected to equip students with the necessary knowledge and skills to meet industry needs, graduates are often not able to articulate their skills (Wong, Siu & Tsang, 2005; Asirifi *et al.*, 2013; Avorny, 2013). Not surprisingly therefore, several studies reveal that the tourism and hospitality industry is plagued by inadequately trained staff that often lack practical skills (Blomme, van Rheede & Tromp, 2010; Asirifi *et al.*, 2013; Brown, Arendt & Bosselman, 2014; Pepra-Mensah, Adjei & Yeboah-Appiagyeyi, 2015). This creates a gap between human resource supply and competencies required by the industry.

## Problem Statement

The tourism and hospitality industry is one of the major contributors of economic growth and sustainability in Ghana. (WTTC, 2018). As the largest sector in the tourism industry, the hospitality industry fulfils a major function in catering for the needs and wants of tourists. Thus, there is a need to sustain and advance growth in the hospitality industry by employing suitably skilled graduates. To achieve this, it is

imperative that university curriculums adequately prepare students for the world of work.

Although nine out of ten Technical Universities in Ghana offer Hospitality Management, there has been persistent complaints from industry that graduates do not meet the expectations from employers in the hospitality industry. The national tourism development plan published by Government of Ghana (2013) confirms this mismatch. There is thus a need to ascertain the expectations from industry and to ensure that university curriculums address the concerns. It is also imperative that the expectations from hospitality graduates are considered, so they can be successfully integrated into the industry. The main objective of the study is thus to propose a framework to match the competencies of hospitality graduates with the expectation from the hospitality industry in Ghana.

**The main aim** of the study is to contribute both theoretically and empirically to addressing the challenges of training and developing suitably qualified hospitality graduates.

#### **Main Research Question:**

How can the competencies of hospitality graduates be matched with the expectations from the hospitality industry in the Ghanaian context?

#### **Specific Research Questions**

1. What are the key competencies expected from hospitality employees from a literature and industry perspective?
2. To what extent do hospitality graduates exhibit the competencies expected of them by the hospitality industry?
3. What are the gaps between the competencies of hospitality graduates and the competency expectations from the hospitality industry?
4. Which framework can be proposed to match the competencies of hospitality graduates with the competency expectations from the hospitality industry?

#### **Literature Review**

Research identifying the necessary competencies for the hospitality industry is extensive (Chan & Coleman, 2004; Jauhari, 2006; Kalargyrou & Woods, 2011; Lee, Lu, Jiao, & Yeh, 2006; Ricci, 2010; Walsh & Linton, 2001). Employers in the hospitality industry worldwide are expecting graduates to be work ready, possessing competencies such as interpersonal skills, teamwork skills, communication skills, and problem solving skills to make them employable (Andrews, 2015; Balakrishnan, 2016).

Studies on the competencies required from hospitality graduates has been conducted since the 1980s. These include studies that focused on hospitality (Breiter & Clements, 1996; Harrill, 2005; Mulder, Weigel, & Collins, 2007), the hospitality industry in general (Nelson & Dopson, 2001; Valaei & Rezaei, 2016), and some special areas of hospitality (Baum, 2002; Jauhari, 2006). Jauhari (2006) focused on the existing gap in terms of ensuring that the needs of industry are met by the ongoing skills development in India and found that the critical success factors to be a strong

customer orientation, outstanding service, flawless operation management, marketing and cost management.

Interestingly, Chan and Coleman (2004) sought the views of human resource managers on the skills and competencies needed for the Hong Kong hospitality industry and found that employees must be service-minded and committed to the industry, with some degree of working experience rather than having a good educational background. Kay and Russette (2000) also concluded that the most essential managerial competences were leadership and interpersonal skills. Focusing on the competencies needed by the graduate student, Robinson et al. (2005) emphasise that soft skills, behavioural skills and generic attributes are the core competences needed by graduate students in the hospitality industry.

Some widely known studies that focused on hospitality management competencies include Tas, LaBrecque, and Clayton (1996), Siu 1998, Nelson and Dopson (2001), Baum (1991) and Partlow (1990). These researchers specifically surveyed hospitality managers on the essential competencies for the hospitality business and found human relation skills, leadership skills, communication skills, problem-solving skills and conceptual skills to be very important to the industry. Shum, Gatling and Shoemaker (2018) and Williams (2015) surveyed hospitality managers to ascertain their job related skills and highlighted solving guest-related problems, ethical standards, good communication, good relationships with customers and employees, and maintaining a professional appearance as pertinent to the hospitality environment.

Chen and Hsu (2007) found that being able to perform an operational analysis, on-the-job training, negotiation, management of service encounters, managing change and creativity were essential skills required from hospitality students. Baum (1991) concurs with these findings, while Partlow (1990) identified competencies which hospitality students at the bachelor degree needs to acquire. This included conceptualizing managerial responsibility, developing goals and objectives, developing procedures and policies, developing standards, etc. Enz, Renaghan and Geller (1993) used a mail survey to sample the views of graduate students, faculty and industry representatives on the competency requirements for the industry.

Graduates' ranked forecasting of future trends, managing and leading groups and problem identification and solution as the most important competencies. Faculty on the other hand, saw problem identification, conceptual thinking and current industry knowledge as the most relevant set of competencies whilst industry representatives rated acting in an ethical manner, leadership and communication skills as the three most important aspects that a competent person in the industry should possess. Using a brainstorming session, Ashley et al. (1995) gathered from industry executives that people's skills, communication skills, ability to develop service orientation and the problem identification and solving skills were some of the competencies required from the industry. Through a Personal Intercept Survey, hospitality managers stressed the development of teamwork skills, effective listening and communication skills as some of the vital management competencies for the industry (Tesone & Ricci, 2006).

Also, some of the studies on competency requirement for the industry were undertaken with specific focus on a particular specialized area in the industry. For example, Okeiyi, Finley and Postel, (1994) as well as Jeou-Shyan and Lu (2006)

looked at the competency requirements for the food and beverage segments of the hospitality industry. Their studies ranked human relation skills the number one competency needed for the food and beverage segment. Furthermore, some studies compared the competency needs of some specialized areas within the industry (Agut et al., 2003), whilst others looked at the competencies needed for club management and the culinary arts (see Perdue, Ninemeier & Woods, 2000; Zopiatis, 2010; Koenigsfeld *et al.*, 2011; Riggs & Hughey, 2011).

Millar, Mao and Moreo, (2008) conducted a study using an exploratory qualitative approach to identify competencies that students need to possess by focusing on educators and industry professionals in the lodging and food and beverage industry. Per the findings, educators and professionals in the food and beverage segment seem to agree on administrative, conceptual technical and leadership domain but not on interpersonal competencies. This they claim might be due to the fact that, most of the educators involved in the study had worked in the industry and had brought this knowledge to the classroom. As compared to the lodging industry, educators and industry differed in the competencies required. Whilst industry placed high premium on technical skills, educators emphasized conceptual competencies (Miller et al., 2008).

A study by Nolan *et al.* (2010) in Ireland sought to determine whether there were agreement among hospitality management graduates and employers with regard to the very important competencies required in the hospitality industry. They also looked at how these two stakeholders perceived the relevance of the training they received for working in the industry, with emphasis on the acquisition of the essential competencies. Both groups rated interpersonal skills and professional knowledge skills as very important competency domains. However, whilst employers regarded teamwork and cost control as important, graduates on the other hand rated managing poor performing staff and identifying training needs of staff as important. In all employers were fairly satisfied with the competencies in Information Technology, operational skills and financial knowledge of graduates of the hospitality programme. Ultimately, leadership and communication skills were rated as the major factors used to determine how successful a graduate will be in the industry (Nolan et al., 2010).

### **Challenges of working in the hospitality industry**

As beneficial as the hospital industry is to the different stakeholders, it is confronted with several challenges that negatively affect its performance (Salleh, 2010). Some of these challenges relates to operational issues such as the long working hours of employees which has been found to impact negatively on their mental, emotional and physical health (Salleh, 2010).

Jin-Zhao and Jing (2009) further argues that poor human resource management strategies remain another challenge in the hospitality industry which influences on high employee turnover. There is globally a lack of skilled workers and there is a continuous concern for organisations to source suitably skilled employees. This naturally also extends to the hospitality industry (Wang & Jing, 2009). This is further aggravated by the relatively low levels of employee motivation which may negatively affect service quality and customer satisfaction resulting in high employee turnover (Salleh, 2010).

### **Competencies for working in the hospitality industry**

Competence is defined as “a cluster of related knowledge, skills, and attitudes that affects a major part of one’s job (a role or responsibility), that correlates with performance on the job, that can be measured against well-accepted standards, and that can be improved via training and development” (Lucia & Lepsinger, 1999).

Kokt (2018) explains that competence comprise four main components which are knowledge, skills, attributes and ability which are discussed below:

**Knowledge** implies an understanding of facts, truths and principles an individual gained through formal training and experience (Kokt, 2018).

**Skills** imply a developed proficiency (mentally or physically) that can be acquired through specialized training (Kokt, 2018).

**Attributes** imply the characteristics and qualities individuals possess. Individual attributes are a combination of genetics and experience gained. This component is often neglected by employers as it is the most subjective. The fact however remains that specific personality traits have been linked to individual performance (Kokt, 2018).

**Ability** implies the aptitude to perform the mental and/or physical activities that are expected from individuals that want to work in a particular profession (Kokt, 2018).

According to Kagaari (2007), employers are not highly enthused about the quality of skills of graduates churned out by higher educational institutions (HEIs) onto the labour market. The blame is subsequently placed on academic institutions, and the nature of programs they run for their students (Jamali, 2005). Blom and Saeki (2011), supporting the argument believes the challenge is due to the insufficient supply of quality skills in contemporary industries. Effah *et al* (2014) in a related study, pointed out that most developed countries have achieved this as a result of establishing institutions with the sole aim of giving its students technical and technological training. The object according to them, is to take care of unemployment and human resource challenges by churning out students with the required quality skills to enhance productivity and development of their nations’ economy (Nduro, Anderson, Pephrah, & Twenefour, 2015).

### **Theoretical Framework**

Competency-based education in Hospitality Management is necessary to prepare graduates for working in the industry. Since theory and practice are inseparable, a review of relevant theories towards competency-based hospitality education is necessary. As the study aims to address both curriculum issues as well as human development issues, both the Curriculum Theory and the Human Capital Theory will apply. This is explained below.

#### **Curriculum Theory**

Curriculum Theory has an ultimate goal of preparing the student for life through the best possible way. As put by Boyd (2003) and cited in Millar, Mao and Moreo (2008):

*The central theory of curriculum is simple. Human life however is varied and consists in the performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for these specific activities. This requires only that, one goes into the world of affaires and discovers the particulars of which their*

*affairs consist. This will show the abilities, attitudes, habits, applications and forms of knowledge that men need*

One major purpose of higher education is to prepare students for the field of work (Starkey, Hatchuel, & Tempest, 2004). Curriculum therefore ensures linkage between institutions and industries to ensure that, what is required of the hospitality graduate is what is taught the learner. Simply put, the hospitality educator should prepare students for work in the hospitality industry. This they ought to do by imparting students with competencies expected of them in the field of work.

### **The Human Capital Theory**

Human capital includes the skills, knowledge, capabilities, social and personality attributes embodied in people that can be translated into organisational productivity (Abel & Gabe, 2011; Fulmer & Ployhart, 2014). Some writers, such as (Protogerou, Kontolaimou, & Caloghirou, 2017) and (Teixeira & Tavares-Lehmann, 2014) have described human capital as crucial to a firm's capacity to absorb and organise knowledge and to innovate. Human capital is an important component for organisations to produce economic value and sustainability.

If human capital is not adequately prepared for the jobs that they need to perform, a mismatch can be created between the competencies of employees and those expected from employers. This can have far reaching consequences for organisations and industries. As the Human Capital Theory supports investment in individuals and organisations to increase productivity through education, it directly links to the objective of this study.

### **Conceptual framework**

The following section presents the conceptual framework for the study.

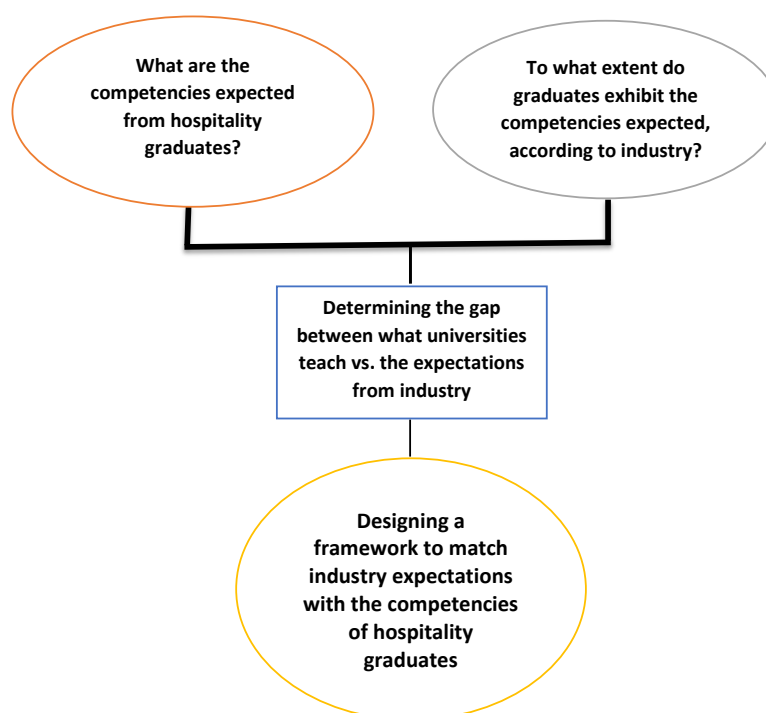


Figure 1: Conceptual framework of the study.

In their quest to supply industry with suitably trained graduates, universities need to ensure that their curriculums address the concerns from industry (Starkey et al., 2004). In achieving this in the Ghanaian context, Figure 1 relates the main constructs of the study. The competencies expected from hospitality graduates need to be determined (both from a literature and industry perspective), where after the extent to which graduates exhibit these competencies needs to be measured. This will enable the researcher to identify the gaps between what curriculums teach students and what industry expects from them. Finally, the gaps identified will inform the framework to match the curriculum offerings with the expectations from industry.

## **Methodology**

The study envisages the use of Pragmatism as the study seeks to apply both Positivism and Interpretivism in the conduct of the study.

### **Research approach and design**

Saunders and Thornhill (2007) refers to two approaches in research, the deductive approach and the inductive approach. This study follows the deductive approach because it moves from theory to research questions, to data collection, to findings and to either rejection or confirmation of the research question.

According to Kothari (2004), the basic approaches to research is the quantitative and qualitative approaches, while Caruth (2013) highlights that the mixed-method approach is receiving increased attention from researchers. Quantitative research is underpinned by exact and objective knowledge and it requires methods such as experiments and surveys to describe and explain phenomena (Anderson, 2010; Muthu, 2007). Quantitative research emphasises objective measurements and the statistical, mathematical or numerical analysis of data collected through polls, questionnaires and surveys, or by manipulating pre-existing statistical data using computational techniques (Pandey & Pandey, 2015). Brynard and Hanekom (2006) agree that quantitative research methods include techniques such as observation, pilot studies, quantitative analysis and questionnaires.

Qualitative research, on the other hand, is a systematic approach to describe life experiences by gaining an understanding of underlying opinions and motivations (Burns & Grove, 2010). The intention of qualitative research is to uncover trends and aims to probe deeper into the particular problem. According to Oun and Bach (2014), the goal of a qualitative researcher is to develop an in-depth understanding of human behaviour. Qualitative research, thus, examines and answers questions of how, where, what, when and why a person would act in a certain way towards a specific matter.

A mixed-methods study is research in which quantitative and qualitative approaches are combined or integrated intentionally as components of the research. The use of these approaches can occur at different points in the research process (Caruth, 2013; Creswell & Clark, 2007; Tashakkori, Teddlie, & Johnson, 2015). Owing to the nature of this investigation a mixed-method approach will be followed.

The research design found appropriate for this study is the case study method with the use of mixed strategies. Robson (2002) indicates as cited by Saunders and Thornhill (2007) that this exploratory design is a valuable means of finding out what is happening, it seeks new insights, ask questions and assess phenomena in a new light.



With the case study design, Saunders also admits that the use of mixed methods enables triangulation, which is an advantage because it enables the researcher to look at the problem from different view or standpoints (Saunders and Thornhill 2007).

The relevance of the case study design for this research stems from the fact that it makes it possible to embark on an in-depth investigation of a particular individual, programme, or event within a defined period of time. According to Leedy and Ormrod (2005) a case study may be single case or multiple case with the latter involving two or more cases to allow comparisons to be made, build a theory, or propose generalisations. This research therefore employed the multiple or collective case study method as it targeted five selected Technical Universities in Ghana. The multiple case study is used to enable the researcher to do extensive study and to draw clear conclusion about the data.

### **Ethical considerations**

The main ethical challenge researchers' face in the industry is the fear of practitioners to lose their trade identity and trade secret because of competition. This the researcher will ensure that respondents will not be forced to release information of any sort and the researcher will ensure and maintain confidentiality.

Ethical considerations for the investigation will include the following:

- No harm shall be caused research participants.
- Participants shall partake freely and voluntarily in the investigation based on informed consent.
- The research will be designed, conducted and reported in accordance with recognised standards of scientific competence and ethical research.

The possibility of producing misleading results will be minimised and eliminated (Bak 2004; Welman et al. 2005).

### **Expected Outcomes**

**Scientific outcomes:** The scientific relevance of this research is seen in the examining and compilation of current competences that is required for success in the hospitality business, which can form a basis for further studies and also enrich the Ghanaian hospitality.

**Social impact:** The developed competency manual will provide a framework for training both the hospitality student and the industry employee on the job. It will also provide a wealth of information to prepare students for the job market. The work will be useful to researchers, practitioners, lecturers as well as learners to facilitate skill development, supervision and management in general.

**Innovations / patents:** The proposed competency framework will be published and made available to all hospitality schools and Universities in the country.

### **Organization of the study**

The study is organized into eight chapters. Chapter one, this chapter introduces study background, the research problem, research questions, research objectives, main aim of the study, study outcomes. It also introduces the research methodology adopted for the study and the organization of the study. Chapters 2-5 deal with the literature review.

Chapter two, setting the scene for the study literature, defines competency, discusses competencies required in the hospitality industry, challenges of working in the hospitality industry and competencies required for work in the hospitality industry. The chapter also discusses the theoretical framework, the theories related to the study and the conceptual framework.

Chapter three discusses the global, African and Ghanaian hospitality education, the growth of hospitality in Ghana in both education and industry, gaps in learning skill or competencies in Ghana, overview of curriculum models in the hospitality sector and their relevance to the industry.

Chapter four discusses the reason why graduates pursued a career in the hospitality industry.

Chapter five focuses on competencies employers require of hospitality graduates and the extent to which the graduates exhibit these competencies expected of them (Assessment on whether hospitality graduates possess the required competencies).

Chapter six The Research Methodology provides tools used in the investigation and discuss the research methodology that will be applied to the empirical part of the study. Topics discussed includes the research philosophy, research approach and design, population, sampling and the data gathering instruments for the study.

Chapter seven Data analysis and the presentation of results. It Presents the data analysis and the findings of the empirical investigation.

Chapter eight presents Conclusions drawn and provides recommendations presenting the proposed framework based on results from this investigation.

### **The outcomes of the study**

Scientific outcomes: The scientific relevance of this research is seen in the examining and compilation of current competences that is required for success in the hospitality business, which can form a basis for further studies and also enrich the Ghanaian hospitality.

Social impact: The developed competency manual will provide a framework for training both the hospitality student and the industry employee on the job. It will also provide a wealth of information to prepare students for the job market. The work will be useful to researchers, practitioners, lecturers as well as learners to facilitate skill development, supervision and management in general.

Innovations / patents: The proposed competency framework will be published and made available to all hospitality schools and Universities in the country.

### **Conclusion**

This research is ongoing and therefore what is presented is the proposal. As such the main work is hopefully due to be presented at the next conference as the researcher is

working assiduously to collect the data, present, analyse, discuss and write the final conclusions and recommendations.

### **Acknowledgement**

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## ***Integrating Independence & Interdependence: Education Beyond Dualism***

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### **Abstract**

We must realize that the current needs of society are due to how we have developed the minds of our society within our educational systems. In order to create a path of peace and wisdom in the world, we must understand how the stagnation of education and narrow-minded socioeconomic pressures have misguided students, teachers, and societies, and these must be changed in order to change the state of our future. By dismantling the dualism that has been ingrained in societal values and beliefs, there is potential for fostering greater understanding and implementation of the idea that, regardless of the different individual entities that exist, we are all part of one world and one collective consciousness, a humanity that must recognize the importance and responsibility of this interconnectivity. Education, which stimulates greater awareness through integrating independence and interdependence, would be evolutionary. Key to this evolution is allowing students to learn and expand their awareness beyond mere cognitive academic material into experimenting with consciousness and gaining insight into greater development of oneself and mankind. It requires the development of newer methods of educating not only the minds but also the hearts and spirits of students.

Keywords: Dualism, Collective Consciousness, Education, Independence, Interdependence, Dehumanization

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## Introduction

We are on the threshold of a paradigm shift in how the world functions. This is a turning point for humanity, as we know it. If we consciously decide to choose a path toward a humanity based on collective consciousness (i.e. a collective humanity in which we are one) and the integration of independence with interdependence, this path has the potential to evolve beyond the divisive construct of dualism, which has guided most of the actions of society throughout history, causing dehumanization and division to be propagated throughout our global community.

Education has the power to re-determine the foundation of our values as a society and is the key to this transformation. Education can foster the foundation of a new path upon which societal values and actions can develop towards a globally integrated, peace-promoting environment. This is a unifying path of peace and love, in which a more evolved definition of independence and interdependence can be taught to students and thereby integrated into our societal reality.

Society must evolve beyond the linear, Newtonian dualistic reality, in which we continue to function, and which limits individual potential and dehumanizes humanity, thus creating a dysfunctional reality. From this dysfunctional reality, we must advance towards an Einsteinian-based environment of evolving potentialities and collective consciousness. Education is both the tool in bringing this new path of human evolution to fruition and is, itself, in need of this paradigm shift in order to inspire this global change. How we educate the minds and hearts of this generation will not only determine the connection individuals have with themselves, but the connection individuals will have with the world. Education thus has the potential to affect the state of all of humanity.

We must ask ourselves three important questions in understanding this paradigm shift. First, what world do we wish create? Second, are we fulfilling this intent? Third, how? In essence, are our education systems developing conscious, independent individuals, who understand what it means to live in a global community and thus are capable of leading a global community thriving on true interdependence rather than dualism, separation and unhealthy co-dependence?

## The Call of Humanity

Why is it that we are continuously pointing out the shortfalls of our society, but are not willing to make the necessary changes through the minds of our future generations? How can we evolve to a new world, which integrates an environment of independence and interdependence, when we continue to function within a linear construct of dualism?

This dualistic construct of “*us versus them*” is deeply embedded in the very mental fabric of society and continues to persist within our human value system. As such, the power of the education system is being subverted into a tool for the propagation and maintenance of the dualism-based social structures of today’s decaying world. Furthermore, our human value system is being focused on values that do not coincide with our highest good and fulfillment.

The ethos of dualism is dehumanizing and hinders the development of a transformative independence integrated into a humane global society of interdependence. (Marrie H.J. Bekker, Judit Arends-Tóth, Marcel A. Croon) Throughout history, the dualistic construct has laid the stage for the propagation of dehumanizing laws, acts of injustice, mind numbing indoctrination, and a shutting down of a humanity which is humane. Therefore, for humanity to evolve, we must recognize the call towards an evolution in our societal beliefs and constructs. As a society, we must tap into the power which education has to pioneer the critical change to a new, more evolved path at this important turning point in human history.

The current educational system began over 150 years ago, originally being put in place during the industrial revolution for factory workers. These factory workers were evaluated and 'graded' for their ability to be 'productive' parts of the industrial system and thus were expected to conform to certain behaviours that would ensure enhanced productivity and suppress individuality. These conformist behaviours were embedded in the school curricula and thus instilled into the school children in order to prepare them for the workplace. Thus, the education system became a systematic means of training labourers to become the necessary prototype for the industrial revolution; and to this day this system continues to function on the same basis for which it was originally created.

Technology has evolved. Cellphones, modes of transportation, worldwide-web communication and artificial intelligence have become indispensable in our daily lives. However, what has remained markedly unchanged for 150 years is the foundation on which the education system is based.

Now, just as much as 150 years ago, this system continues to not only disconnect individuals from their own potentiality, but also train individuals to accept that authority and the system, in which they are placed, pre-determine their appropriate behaviours and purpose for living. Once individuals are no longer of use to the system (i.e. are not productive), they no longer have any value. The intrinsic value of an individual has been usurped and the individual has become is a mere cog in the wheel of industrialization and of the technological revolution.

A human being was no longer a human being, but was objectified and dehumanized, as a 'working machine.' This hindered an individual's complete evolution towards his or her fulfilled self, and it has been perpetuated through the dualistic construct underlying the education of students. An educational system which is not re-connecting students with their core selves, but rather it is disconnecting students from who they intrinsically are and from their human potential. How can we create an interconnected world, when individuals are trained and educated to be disconnected from themselves? I share this now, as a means to demonstrate how there is a call for humanity to shift dehumanized systems to sentient environments.

We must reflect upon Albert Einstein's quote regarding the world, which we wish to create. He stated, "*We can not solve our problems with the same level of thinking that created them*" (Brainy Quotes, Albert Einstein Quotes) and "*Insanity Is Doing the Same Thing Over and Over Again and Expecting Different Results.*" (Motivation Quotes) To develop an atmosphere of change, we must help evolve the minds and create a new mentality within the students, who are, in fact, the present-day creators

of the future world. The potential for this path of change is present, it beats in our hearts, yet the truth is, this change for which humanity calls threatens the very foundation of our civilization, as we have known it.

The call of humanity is for evolution beyond dualism, and this evolution is what will stimulate and strengthen the ‘humanness’ of humanity within ourselves. It will ensure that society will evolve into becoming more intrinsically humane. This can no longer be ignored both within our global society and most importantly within our educational systems.

### **Awareness and Collective Consciousness: Leaving the Threat and Stagnation of Dualism Behind**

What is dualism and how is it a threat? The dualistic perspective is derived from the “*us vs. them*” perspective. This mentality has an essential process. The process begins with separation. Separation is followed by the ability then to objectify another individual or group of people. Objectification is followed then by consequently being disconnected from whomever we have objectified. Within this disconnect there in lies the seeds of conflict. The conflict of, “*us vs. them.*” The human being is no longer an individual, but an object to the mind. Essentially, this disconnects our connection to our humanity, the individual’s humanity, and the ‘humanness’ of our very existence. This allows for dehumanizing, discriminatory, dividing and violent behaviours to occur. This is only a mental construct however, that can be re-defined, leaving the threat and stagnation of dualism behind.

To live a changed future, we need to advance the consciousness of the creators of that very future. Meaning, humans must expand from the unconscious automatic behaviours of dualism of “*us vs. them*” and evolve into the collective consciousness of being simultaneously independent and interdependent, “*you, me, and us.*” This is the expanded awareness of potential future generations and will allow humanity to move away from the dualism, which creates enemies amongst ourselves and life around us. In other words, moving from being artificially separated one from another, to living in an environment of collective consciousness and fundamental, internal peace.

An educational system based on the paradigm of collective consciousness will empower students to experience the power of the mind in creating a multi-potential reality. In other words, this education system will enable students to experience enhanced awareness of their whole independent selves integrated into the collective consciousness of interdependence. Such students will learn how to navigate with greater awareness of collective consciousness and experience how mind controls perception and perception influences the manifestations of consensual reality.

Neale Donald Walsch, an innovator and world-renowned author in the field of human consciousness, emphasizes that, “*The idea of separation is the biggest crisis facing humanity... Today, because it produces all the other crises... If we taught our children in all the world’s schools that separation is an illusion and doesn’t exist, the world would change in one generation.*” (Neale Donald Walsch *On Awakening The Species, Who We Are, And What Truly Matters*, MindValley) In other words, dualism is an illusion. Humans must awaken and understand the unity of our existence. For, if not, our human race will continue to dwell in separation, division

and conflict. Neale Donald Walsch further states that, “*An awakened species sees the unity of all life and live into it. Humans in an unawakened state often deny it or ignore it*”. (Neale Donald Walsch On Awakening The Species, Who We Are, And What Truly Matters, MindValley) This new way of being, this new path of awareness and education has not only been discussed at various times throughout history, but it is also recognized by several modern day philosophers, researchers, educators, and political thinkers such, as Rudolf Steiner, Jiddu Krishnamurti, John Dewey, John Kenneth Galbraith, Henry Louis Mencken, David Icke, Martin Luther King Jr., Neale Donald Walsh, Robert Kiyosaki and Gregg Braden, to name a few.

Neale Donald Walsch explains the need to evolve beyond dualism and the importance of enhancing our understanding of divine dichotomies. According to him, the concept of divine dichotomies allows us to recognize that contradictory truths can exist simultaneously in the same space. By dismantling the dualism that has been ingrained in societal values and beliefs, there is potential for fostering greater understanding and for implementing the idea that, regardless of the different independent entities that exist, we are all part of one world, a humanity that must recognize the importance and responsibility of this interconnectivity and interdependence. The human race exists as a group of individuals with different characteristics, we are one, we are humanity, and if anything, these diverse characteristics are to be celebrated for their contributions to the vast variety of people, ideas and ways of being in our world. In other words, dualism is the biggest crisis facing humanity. We are being challenged to evolve or risk remaining in a stagnant dualistic mental atmosphere, which has, throughout history, produced conflict, and consequently, violence and which continues to do so.

We must dissolve the illusion of separation between human beings. We must not only ask ourselves what kind of future it is, we wish to create, but also reflect on how that future must exist within the individuals, who will create it. Do we wish to continue living within a mental construct driven by separation and objectification, or do we wish to live within an interconnected world of true independence and interdependence that emphasizes the message that we are one and is the compass orienting the healthy evolution of humanity? If we wish to change the world, our actions must follow our words.

We are in a unique period of history, in which we are witnessing the unfolding and universalization of social imperatives, social justice, social equity, freedoms and overall human rights. As a result of our human achievements and ever-expanding knowledge, our social paradigms and understanding of human existence are being brought into question. We can pioneer our own evolution or remain the perpetrators of our own destruction, allowing for dualistic constructs to continue to govern our educational systems and to perpetuate stagnant societal structures. (Raja Roy Singh, Page 9, CHP. 2)

It has become increasingly evident that, we as a human race are neither satisfied nor content with the state of the world today and of our humanity, as tensions arise on a global scale. In order to change the world, we must set a vision in motion, because “*without a vision the future may be only an illusion.*” (Raja Roy Singh, P. 5) A vision only becomes a reality when we are willing to acknowledge and then act upon it will full effort and intent. “*Therefore, the first suggestion... about educating for the 21st century is that we must better develop our capacity to make visions*”-Speaker at

Symposium (Raja Roy Singh 1, P. 2) How do these visions coincide with a greater humanity? It is essential that we constantly question ourselves in creating a new path for humanity. Where do our values lie? Are these values truly bringing the highest good for all of humanity?

### **Evolution Towards a New Paradigm of Integrated Independence and Interdependence**

Our fears, our educational programming, and the entrenched societal systems based on dualism make us resistant to change. Not only are we creatures of habit, as we have become too comfortable in our social constructs, but this radical change that is critical to our human evolution is epic and reality shifting. It would completely shift the paradigm of our existence, from a world, based on the dualistic construct, which continues to slip humanity further and further towards acts of violence, discrimination, injustice, and poverty and hate, into a world based in love, profound understanding, greater awareness, and interconnectivity. Martin Luther King Jr., human activist and leader of the Civil Rights Movement, stated *“Violence is immoral because it thrives on hatred rather than love. It destroys community and makes brotherhood impossible. It leaves society in monologue rather than dialogue. Violence ends by defeating itself. It creates bitterness in the survivors and brutality in the destroyers”*. (LIBQUOTES)

How do we move forward in defining a new paradigm of the integration of true independence and interdependence, furthermore, peace? What do these terms actually mean? Being able to be independent is to recognize the responsibility we have to ourselves to reach our fullest potential. In doing so individually, we are collectively reaching humanity’s fullest potential. As Jiddu Krishnamurti, philosopher, speaker and writer, explained that, when one individual evolves, there is a leap in the regeneration of humanity. In addition, our ability to be interdependent means that we transition the definition of a global relation from co-dependency to a true understanding of our global interconnectivity, living from a place of unity and thus true support. For this to occur, there is a question we must answer, how do we evolve the collective consciousness? The answer is through the regeneration of the minds of our future generation through quality education. Jiddu Krishnamurti described quality education as, *“Regeneration of the mind in the quality of intelligence and understanding...love above all...teach love, how to love oneself and love of all existence.... only hate can divide us, and only the truth of love can evolve and connect this broken humanity...”* (Can There Be a Regeneration of the Mind, Krishnamurti Foundations Trust Ltd)

Neale Donald Walsch has commented, *“The entire planet faces a crisis of consciousness. He has asked, “Can self-interest ever be replaced by the best interests, the common interest of humankind? If so how?”* He has proposed that, *“putting our children in a place of awareness...developing the discovery of who they are and where they are”* is the, *“the greatest gift and act of love we can give our next generation.”* He believes that love and education are connected and that teaching children the purpose and truth of life expands the conscious awareness of all humanity and will transform the world. He has written, *“If you want to give your children a better tomorrow, give them a better understanding of who they are, why they are here, and the purpose of all life.”* (CONVERSATIONS WITH GOD, Volume 2, Neale Donald



Walsch)

## **The Role of Quality Education**

Quality Education is goal number 4 in the United Nations' sustainable development goals. The United Nations target is to reach Quality Education by Agenda 2030. The United Nations states that obtaining quality education is the foundation to creating sustainable development. In addition to improving quality of life, *“access to inclusive education can help equip locals with the tools required to develop innovative solutions to the world's greatest problems.”* Article 4.7, Sustainable Goal 4, Quality Education, within the 2030 Global Agenda states, *“By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.”* (Education-United Nations Sustainable Development). We must realize that the current needs of society are due to how we have developed the minds of our society within our educational systems. In order to create a path of peace and wisdom in the world, we must understand how the stagnation of education and narrow-minded socioeconomic pressures have misguided students, teachers, and societies, and these must be changed in order to change the state of our future. We have to further ask ourselves, why are we educating the young? Why do we have education systems in place? Is it because we want to build a strong global economy? To build influential political leaders? Enlightened beings? First and for most, we must reflect on what is the true intention behind what the educational experience is teaching student. Is the desired outcome economic prosperity, political stability or spiritual fulfillment? These are all aspects that do contribute to the reality of our world. What the educational experience brings to students is what the students will eventually bring to the world.

What is quality education? The term education itself is powerful. There are two given definitions of what education is. The standard definitions of education are first, education is “the process of receiving or giving systematic instruction, especially at a school or university and second, “an enlightening experience.”(REF) Are we willing to re-define education to re-define humanity? The reform and ‘enlightenment’ of the education system would include education through truth and not deception and furthermore, education of the mind, body and soul. Educating one's cognitive and personal development, empowering one's ability and learning how to optimize one's talents and love oneself. Educating student on what it means to be human of this world and beyond that, the universe. Education, which stimulates greater awareness and incorporates collective consciousness through integrating independence and interdependence, would be evolutionary. The key to this evolution is allowing students to learn and expand their awareness beyond mere cognitive academic material into experimenting with consciousness and gaining insights into the greater development of oneself and mankind.

Quality education requires the development of innovative methods of educating not only the minds but also the hearts of students. What if the purpose of education shifted from educating children for the workplace to educating children to know oneself, re-defining what it means to be an active member, a pioneer in society?

Education which encourages student to develop an understanding of the world in which we live and to provide enriching experiences that will not only develop their cognitive abilities, but more importantly that will allow individuals to develop their emotional, spiritual, social, and intellectual intelligence and awareness. What if we were to raise a generation of world changers? This could be the new blueprint for quality education and change in the blueprint of our future and thus the future of the human race. *“Educational development becomes more consciously future-oriented rather than being only a medium for the transmission of the past; the setting of goals for education becomes a crucially important strategy in effecting change.”* (Raja Soy Singh, P. 4) Bringing future-oriented, collective consciousness-based, quality education to students will enable them to develop a connection with their souls, with the essence of life, the essence of our innate multidimensional selves and with all of humanity.

Schools would teach students about the parts of themselves and life that are not only physical, but which foster connections to one’s soul, one’s own unique abilities, and to the collective consciousness of humanity. For example, Rudolf Steiner, philosopher, economist, and social reformer launched a prototype of quality education, namely the Waldorf Schools. Steiner believed that education must also be beyond mere cognitive approaches. It must incorporate a student’s intellectual, emotional, social, and spiritual intelligence. The essence of Waldorf Schools is based on the educational approach developed by Steiner, known as Anthroposophy. Anthroposophy deals with the existence of an objective, intellectually coherent spiritual world, accessible to human experience. Thus, Steiner envisions a society where there is a desire to further understand the life of our souls, both as individuals and as a human society, on the basis of truthful knowledge about the spiritual aspect of who we are. Steiner wrote about a spiritual reality that exists and that is evolving alongside our material world. He wrote, *“there is no difference in principle between the spiritual and the sensible perception, but only a transition from the one to the other.”* (Rudolf Steiner, *The Story of My Life*, P. 68) It is clear to him that both exists and have rightful places in the experience of reality. The Steiner Waldorf Education is a pedagogical movement with over 1000 Waldorf Schools globally. *“The great aim at the Waldorf School is to bring up free human beings who know how to direct their own lives”* (MAE, P. 201). For example, *“Spiritual development is learning respect and tolerance for others - this is essential for a just society”*. (A Conversation between John Dewey and Rudolf Steiner: A Comparison of Waldorf and Progressive Education, P. 8) Spiritual development was an essential part of Steiner’s beliefs in developing human beings and thus shifting our world.

Spiritual development is incorporated in Waldorf Schools through their multidisciplinary and progressive classrooms, where spiritual development is encouraged rather than shut down. Steiner explained that, *“The subjects taught in Waldorf schools include art appreciation, history and social studies, the sciences, and mathematics. In some form, most of these subjects are taught throughout the school years but they are taught in ways fitting the developmental phase of the pupils. Spirit is the center that ties all of the subjects together.”* (A Conversation between John Dewey and Rudolf Steiner: A Comparison of Waldorf and Progressive Education, P. 11) Steiner taught that this system of education is, *“important from a young age, as children are malleable in their perception of the world, to create a sense of connection*

and no separation to the outer world, then will the child understand the connection they have to themselves, their spirit, and humanity.” (MAE, P. 138)

The current education system fails to recognize that as humans we are complex beings. Furthermore, we must understand we are beyond mere calculations and chemical reactions, but we are spiritual and holistic beings. In order to truly educate not only the minds, but the hearts, bodies and souls of our future generation, we must integrate all parts of our being into understanding what we are and what we are here to do. *“Holistic phenomena... are not capable of being understood by the reductionist method. In consequence we find that a whole range of human apprehensions such as intuition, ethical thinking, aesthetic perception are either treated as invalid or as irrelevant. In education these modes of human apprehension are of the very substance of educational action if education is to be anything more than a mechanical exercise in conditioning”* (Raja Roy Singh, P. 15) We must teach the generations of the future to be ready, willing and able to expand their personal awareness and consciousness, by including this in the educational experience of students. What empowers you? What excites you? What benefits both you and the world around you so that the “you, me, us” situations can occur? This is in stark contrast to, “you must learn this, you must do that, or you are either with us or against us”. There is a difference between teaching students what to do versus how to do. Humanity is calling for a new reality. This new reality can be attained through education systems which teach: awareness and consciousness; belief in oneself; future world leaders to have the best interest of humanity as their guide in political endeavours; and an understanding of the integration of an independent higher self within the interdependent collective consciousness. Such students will be empowered to live in wisdom and peace and navigate the world with an approach of, ‘being one with humanity’, free from separation of dualism.

According to David Icke, the current education system teaches students four main values:

1. Authority establishes truth
2. Intelligence relies on memorization
3. Reward is attributed to accurate memory and repetition
4. Conformity both in intellectual and social are expected, as non-compliance is punished

(David Icke on Education, Wembley Arena London, 2012, Nov 4)

Even more concerning, it teaches:

1. To disconnect by ignoring our fullest potential
2. Fear based mentality driving how children are raised
3. Dualistic identifiers of people in the world

The nature of current education is state controlled. The curricula and programs designed to “educate” students within the school systems are systematically designed to produce the workforce that the government requires in the workplace. Instead, the nature of education must evolve and transition into enlightening, teaching and giving children an educational experience that will not only give them the critical tools to be citizens of this world, but also tools that will give them the wisdom to be the citizens of themselves. Such children would develop a profound understanding and an in-depth knowledge of what it means to be exactly these two things, citizens of the world

and citizens of themselves. This is the integration of independence and interdependence.

Imagine the transformation within students if the education system were to transform its experience, from the four values outlined by David Icke, to the following four values:

1. Belief in oneself
2. Teaching and developing world leaders who truly have the best interest of humanity as their guide in political endeavours
3. Understanding one's purpose in life and in the world
4. The wisdom to apply knowledge student have learnt in order to make critical and creative decisions, in the context of a meaningful life within a global, interdependent world

An example of this is a presentation at the United Nations by UNESCO, which described the shift in reality and experiences students in Syria have when educators from UNESCO teach these students how to transition from fear into hope. Through education, the Syrian students learned how to transition from emotions of fear and powerlessness to experiences of love and drive to create a better future. Furthermore, as the conflict rises in Syria, access to quality education is intensely challenging. Under the Cap Ed Programme, UNESCO offers primary school students, who have failed final exams, the opportunity to improve and continue to the following year. It is an intensive eight-week summer program, which combines academic and extra-curricular activities such as music, games and sports. In addition, students receive gender-sensitive psychological and social support. Trained counsellors and teachers provide this in order to help children cope with trauma and stress related to the ongoing conflict in Syria.

Similarly, another example of the power of enlightenment through education is from a teacher in Pakistan. She is a pioneer in bringing mediation to students, who have misbehaved, and using this opportunity as a means of expanding their awareness of their daily actions, words and thoughts. Instead of sitting in a classroom for detention, an environment which instils fear of authority, control and punishment, students are taken to rooms where they meditate on their actions and begin to converse with themselves. They are encouraged to ask questions of themselves such as, Why is it I felt I had to do this? Does this make me feel good? Is this who I choose to be? How can I improve? How has this affected other? The power of bringing students awareness instead of solely penalizing them is an important opportunity for change within the school environment in Pakistan by this teacher I had interviewed, who wished to remain anonymous. She shared that, after this program was instituted, there were no detentions the following year.

With the increasing violence in Pakistan, students would come to school seeing men with machine guns at the top of their school buildings. Not only did this become "normal" within the belief systems of the students, as the teacher described during our interview, but also it became a symbol of ever-present violence and human disconnect. This would subconsciously cause students to react out of fear and distress. During meditation sessions, students were given the free space to express themselves. This would often include, as she mentioned, students questioning if mediation was a Hindu belief, as "students were taught to separate themselves from all Hindu beliefs."

This teacher would respect each individual's needs and beliefs, however could identify the constant dualism and separation of "us vs. them" that existed not only in her generation but now also in the generation to come. Thus, she would allow for students to ask as many questions regarding who they are, what their religion represented and what other human beings are made of. This created a deeper sense of awareness within their own being and she stated they were then able to connect to the greater idea of the collective humanity.

Another example is The Baltimore Elementary School in West Baltimore, United States of America. At his elementary school, meditation is practiced as way to foster greater awareness and create change. Principal Carlillan Thompson shares, "The students having an opportunity to meditate... It deals with looking inside of themselves. Taking that energy that is negative and refocusing it into something that's very positive." (CNN, School replaces detention with meditation, 2016, Nov 4) Students start each day of school with 15 minutes of guided meditation and stretching. They have yoga classes during and after school. Students, who are disruptive, are sent to the meditation room where trained staff help them through breathing exercises and help students self-regulate. "HOLISITC ME" is posted large on a yellow board in classrooms. Since the incorporation of meditation, the school reports far fewer behaviour problems amongst students and within the greater school environment. The use of mindfulness continues to expand within the education system. Across England, there are 370 schools where children will be taught how to meditate, techniques for muscle relaxation, and breathing exercise for mindfulness. (Menezes, Mindfulness And Meditation To Become Part Of The Curriculum In 370 Schools In England, 2019, May 21)

John Kenneth Galbraith, economist, public official and diplomat, tried to show that our evolution as individuals and as a society are inextricably linked with education. He wrote that, "The main factor of evolution, as individual, or as its children on the social scale is represented by education. Ignorance leads only to hard work, uncomfortable, boring and often, to not work at all. The improvement comes once with education and only with it; there is nothing without education and the only plausible last appeal is to crime and violence. It may be possible that people on the lower social level get the best education, as they are in great need of means to allow them to climb, to get rid of ignorance." (Galbraith 1)

Martin Luther King Jr. wrote, "The function of education is to teach one to think intensively and to think critically. Intelligence plus character that is the goal of true education". In other words, the education system may gift us with reason, but with no morals, and this is when humans become dangerous, students learn to disconnect from what intrinsically is apart of what makes us human, our moral character. Thus, the nature of education must not only teach students to think critically as well as creatively, but also give student's a greater awareness of who they are, and their divine essence. By doing so, students experience their connection to the world. Through this, they both understand and experience collective consciousness, as a fact that cannot go unrecognized. This is humanity. This is not only a demonstration of the love we give to our students, but it is the love we allow students to give to themselves and the state of humanity, thus guiding them towards inner peace.

## **Conclusion**

To conclude, dualism and the systematic shutdown of consciousness as well as awareness, which permeates education and society, has set us on a trajectory, which fosters dehumanizing and violent thoughts, as well as actions that continue to cause society to abandon our humanity. Nonetheless, humanity is becoming restless due to this constant division and antiquated ways of being. We have the choice to spearhead an evolution into a global integrated, independent and interdependent society through the power of a transformed education system.

We can actively change the history of the future through the reformation of the educational values from the expectation of conformity to a pattern of history to inspire growth within individuals towards progressive ways of evolving, understanding and leading the future. Needless to say, unless we can find peace within ourselves, we cannot find true peace in the world that surrounds us. For our internal state will create our external conditions. As stated by Neale Donald Walsch, “The only peace in all the world that is sustaining is internal peace. Let each person find peace within”. Nelson Mandela proclaimed, “Education is the most powerful weapon which you can use to change the world.” Finally, we must recognize the power education has to re-define humanity and evolve the human race.

***Cognitive and Informative Level of Knowledge about Puberty in Primary School Pupils in Sweden***

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**Abstract**

Knowledge is gained in the process of learning and represents the level of awareness. The level of knowledge about puberty includes the amount and quality of relevant information. Puberty culminates when the reproductive capacity is achieved. Puberty can be described as a major hormonal process involving significant physical changes, mental changes, and awareness of one's own personality. Puberty is an important element of sexual education in both the European and the global dimension. Children need to be prepared for puberty on time and in an appropriate manner, including all changes, relationships, and contexts. Timely preparedness for puberty means that children should acquire the necessary knowledge of puberty before it starts. That is, during the prepubescent period, when they are primary school pupils. The present educational research focused on the level of knowledge about puberty among primary school pupils in Sweden in the context of research results in the Czech Republic, China, and Spain. The research instrument to analyse the level of knowledge about puberty among primary school children was a knowledge achievement test. The level of knowledge about puberty was verified by 9 free-response test tasks. The content of the test tasks focused on the concept of puberty, definition of puberty, age range of puberty period, knowledge of bodily changes in boys and girls, knowledge of other changes emerging in puberty, and importance of puberty in human life. Descriptive statistical methods were used to describe the data sets and their characteristics.

Keywords: puberty, pupils, knowledge, testing, results.

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## Introduction

Previously, the authors published the results of testing the level of knowledge about puberty among primary school pupils in the Czech Republic, China, and Spain including a comparison of these countries (Rašková, Provázková Stolinská, 2018; Provázková Stolinská, Rašková, 2018). The authors also published their results concerning communication about puberty among Czech and Chinese primary school pupils, their teachers and families (Rašková, Provázková Stolinská, 2015, 2017; Rašková, Provázková Stolinská, Vavrdová 2015). The results of this questionnaire survey revealed children's perspective of communication about puberty with their peers, parents, and teachers. In the area of verbal communication, friends and classmates together with the mother and teachers in school were more frequent sources of information about puberty than visual sources. If children communicated with each other about puberty, they did so sometimes or rarely; children considered puberty a normal and natural phenomenon. Children assessed their information about puberty as adequate and were interested in knowing more.

The present paper describes a topic which is part of a contextual educational research started in 2015. The research is carried out as part of Student grant competition at Palacký University Olomouc (IGA\_PdF\_2019\_020; Cognitive and informative level of knowledge about puberty among primary school pupils in Sweden; principal investigator doc. PaedDr. Miluše Rašková, Ph.D.). The key concepts of the educational research were puberty (Vágnerová, 2000) and knowledge about puberty among primary school children in Sweden in the context of the Czech Republic, China, and Spain.

Puberty is a significant element of sexuality education in an international context (Comprehensive sexuality education, IPPF; Standards for Sexuality Education in Europe, 2010) and represents an important aspect in comprehensive education of children. A number of countries not only in Europe are accredited members of the International Planned Parenthood Federation (IPPF), which defines the context of human rights and is active in the area of sexual and reproductive health. In 2010, the World Health Organization (WHO) drafted the Standards for Sexuality Education in Europe, 2010, the purpose of which is to help introduce a system of comprehensive sexuality education from birth.

Sexuality education including the issue of puberty has three levels (Rašková, 2008, etc.), which are affected by a number of components including the family, school, external environment – world around the child, etc. One of the three levels is the cognitive level, which represents the tier of gaining knowledge (i.e. the cognitive line in the form of basic information, knowledge, skills and habits). These three tiers including emotions and relationships and the level of skills, habits and behaviours overlap, cannot exist in isolation, and none of them can be omitted. Emotional relationships of the child serve as the basis for behavioural patterns; these models then become a pillar for gaining sexual knowledge.

The cognitive and informative level of learning about puberty represents the tier of gaining knowledge and includes the amount and quality of relevant information (i.e. knowledge) that the child should learn or has learned. The authors of the study tested the cognitive level, which is the pillar of general education of each person.



Knowledge (Janík, 2005) is gained in the process of learning and represents the level of children's awareness. Most information is of a general nature (e.g. puberty, physical appearance, human development, reproductive organs, assertive behaviour, etc.) and is an important part of general knowledge.

The selected data collection method was a non-standardized knowledge achievement test (Hendl, 2006; Chráska 2007). The level of knowledge about puberty was tested by means of 9 items with open-ended answers. The content of the test items focused on the definition of puberty (Q1); puberty age range in both genders (Q2 to Q5); knowledge about physical changes in boys and girls (Q6 to Q7); knowledge about other changes that puberty induces in both genders (Q8); significance of puberty in human life (Q9). Pupils' responses in the test were coded by means of the following numbers: 2 = correct answer, 1 = partially correct answer, 0 = incorrect answer. Test items with a missing answer were coded with the number 5. The data were described by means of descriptive statistics (Hendl, 2006). To identify any statistically significant differences in pupils' responses in Sweden and other countries, the non-parametric Kruskal-Wallis test was used.

The research questions were derived from the research problem and were as follows: What is the level of knowledge about puberty among primary school children before its onset? The research question was complemented with the following sub-questions: What is the level of knowledge among primary school children that they use to define puberty? What is the level of knowledge among primary school children concerning the age range of puberty in both genders? What is the level of knowledge among primary school children concerning physical and other changes in both genders? What is the level of knowledge among primary school children concerning the significance of puberty for their lives? Are there any differences in the level of knowledge about puberty between pupils in Sweden in comparison with pupils in the Czech Republic, China, and Spain?

In terms of the structure of the research sample, the largest group were pupils aged 10 to 12 years.

Table 1: Structure of the research sample.

Summary Frequency Table (DATA)				
Marked cells have counts > 10				
(Marginal summaries are not marked)				
COUNTRY	SEX boy	SEX girl	Missing Data	Row Totals
Czech	71	71	4	146
China	69	66	0	135
Spain	12	14	0	26
Sweden	20	22	0	42
Missing	0	0	0	0
All Grps	172	173	4	349

## Conclusions

The results inform about the level of knowledge about puberty among the respondents. Overall, the differences in the point score (questions Q1-Q9) between

countries are statistically significant ( $p < 0.0001$ ). There is also a statistically significant difference in the total point score between all countries.

Table 2: Kruskal-Wallis test – comparison of the overall test results

Depend.: Score	Multiple Comparisons p values (2-tailed); Score (DATA) Independent (grouping) variable: COUNTRY Kruskal-Wallis test: H ( 3, N= 349) =74,64667 p =,0000			
	Czech R:173,40	China R:136,40	Spain R:307,77	Sweden R:222,43
Czech		0,012794	0,000000	0,033091
China	0,012794		0,000000	0,000008
Spain	0,000000	0,000000		0,004199
Sweden	0,033091	0,000008	0,004199	

The following text describes the overall results concerning the level of knowledge about puberty in individual countries with a focus on the definition of puberty (Q1); puberty age range in both genders (Q2 to Q5); knowledge about physical changes in boys and girls (Q6 to Q7); knowledge about other changes that puberty induces in both genders (Q8); significance of puberty in human life (Q9).

### Definition of puberty

Q1 – Definition of puberty: Puberty is a stage in which the reproductive capacity culminates. According to Czech professionals, the period of puberty is marked by the age of 13 to 15 years. Puberty is thus identified as a principal hormonal process of physical changes. A child changes to an adult person who is from a biological perspective ready for reproduction. Biological and psychological changes are also accompanied by social changes.

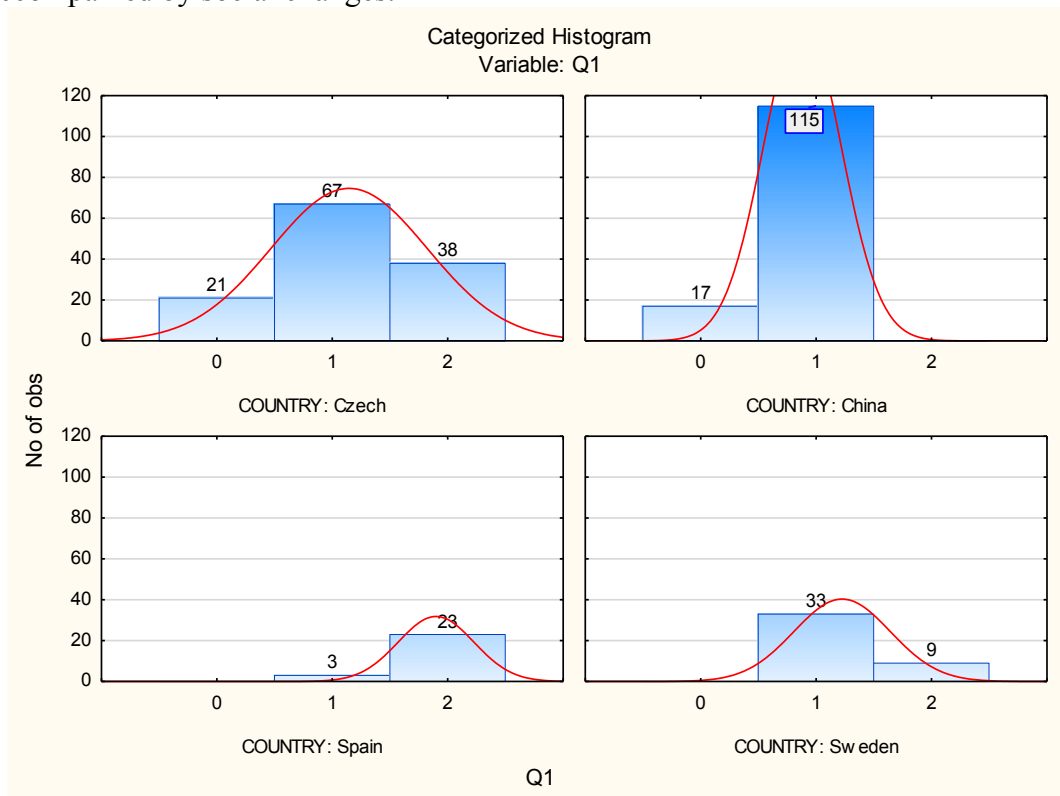


Figure 1: Comparison of pupils’ point scores in question 1 by country

Results (Q1): The most frequent answers of Spanish respondents (correct answers) confirm that they have the best knowledge concerning the identification of puberty. The most frequent answers of respondents from other countries suggested partial knowledge. Partial knowledge of Czech respondents suggest that they do not understand puberty in a comprehensive way. They do not associate the achievement of reproduction ability, full sexual maturity and completion of physical growth with psychological and social changes.

**Onset of end of puberty in boys and girls:**

Q2, Q3 – Onset of puberty in boys and girls; Q4, Q5 – End of puberty in boys and girls: According to Czech professionals, the period of puberty is most frequently marked by the age of 13 to 15 years. This period comes after pre-puberty, which is defined as a transition from childhood to adulthood. Professionals believe that in terms of gender differences, pre-puberty in girls takes place between 11 and 13 years of age, while in boys, physical development is delayed by 1 or 2 years.

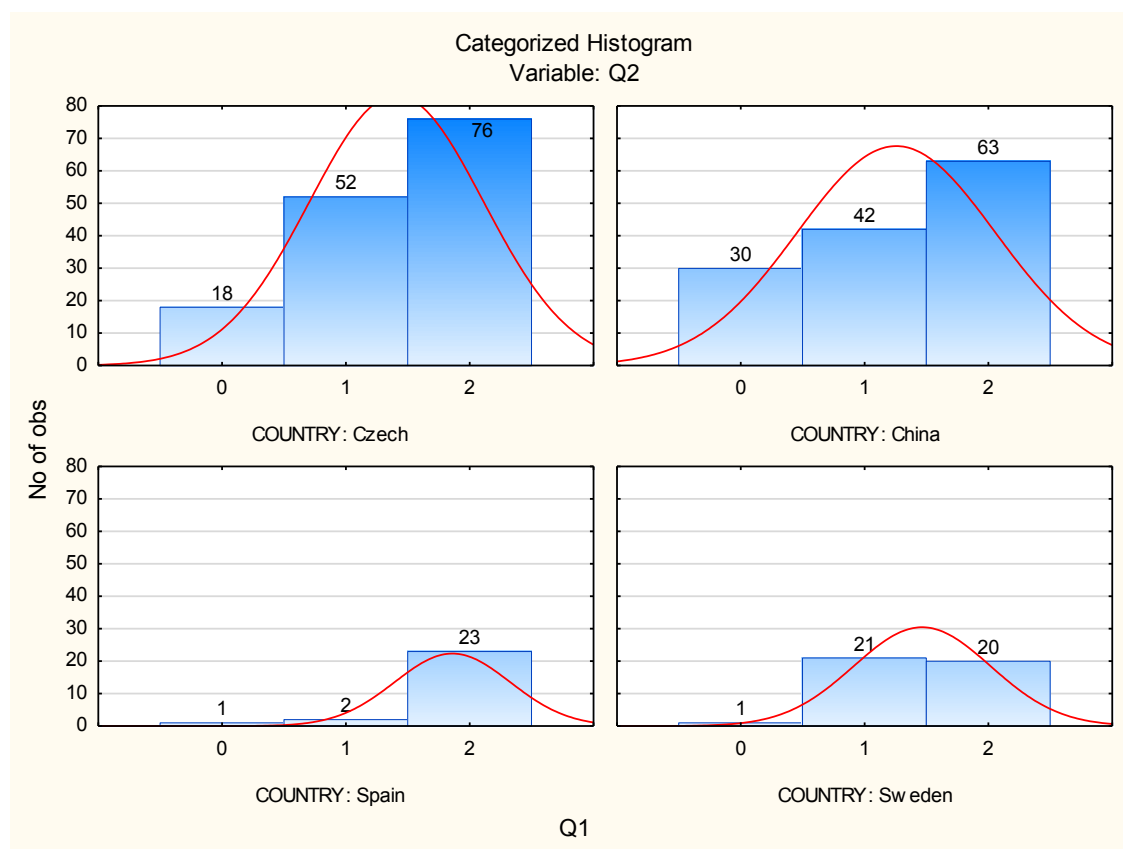


Figure 2: Comparison of pupils’ point scores in question 2 by country

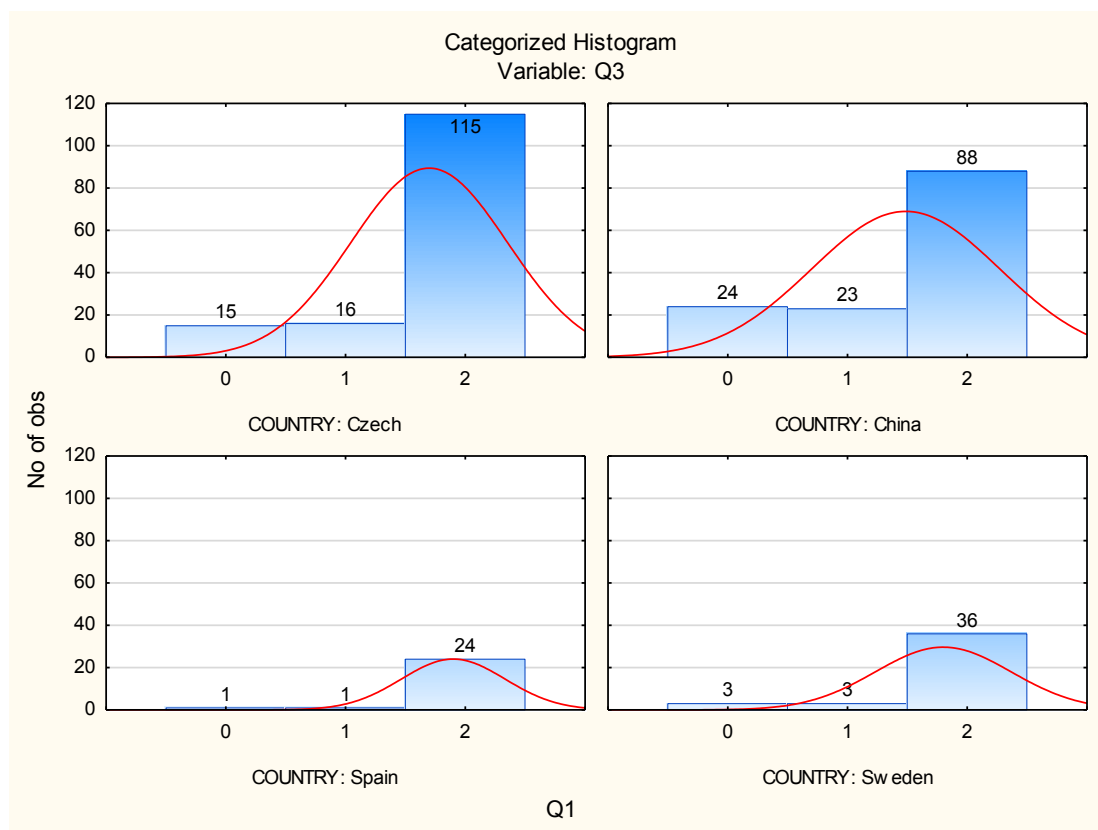


Figure 3: Comparison of pupils' point scores in question 3 by country

Results (Q2 – Q3): Most responses were in the category of correct answer, which suggests that the respondents are knowledgeable about the onset of puberty in boys and girls. The proportion of partially correct answers (or incorrect answers) indicated by respondents from Sweden, Czech Republic and China suggests that pupils' knowledge about the onset of puberty in both genders needs to be enhanced.

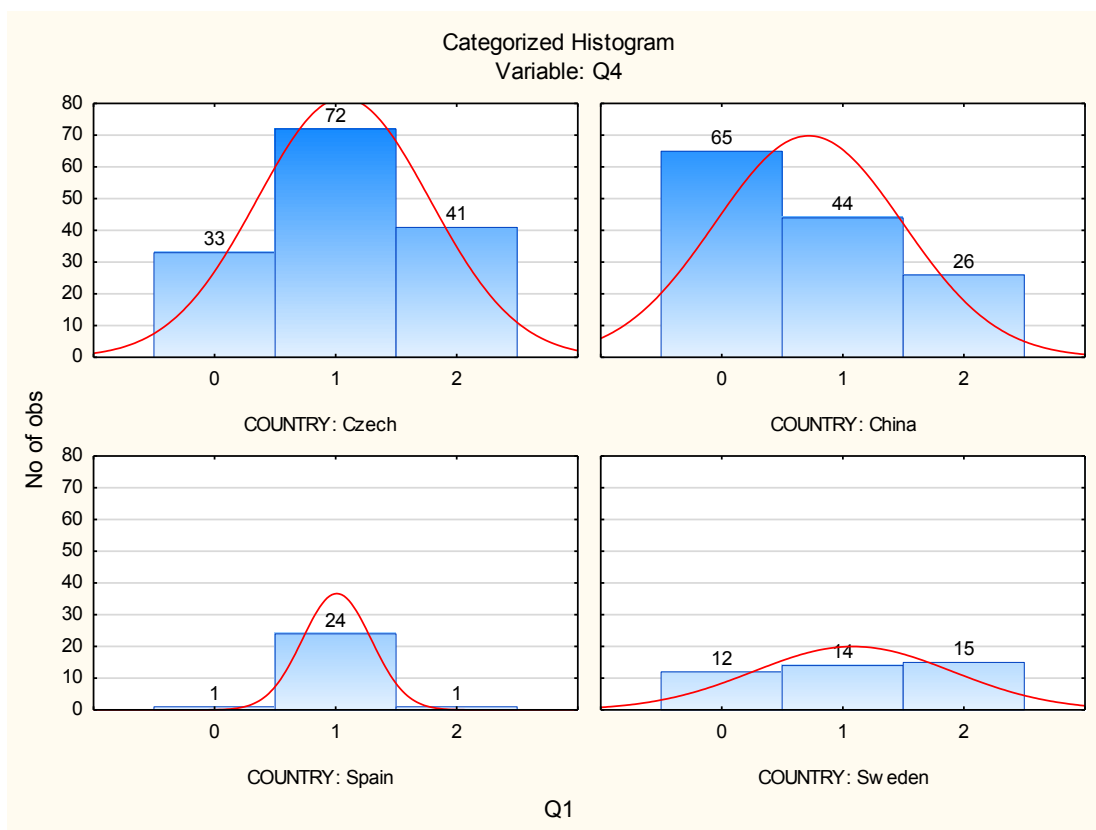


Figure 4: Comparison of pupils' point scores in question 4 by country

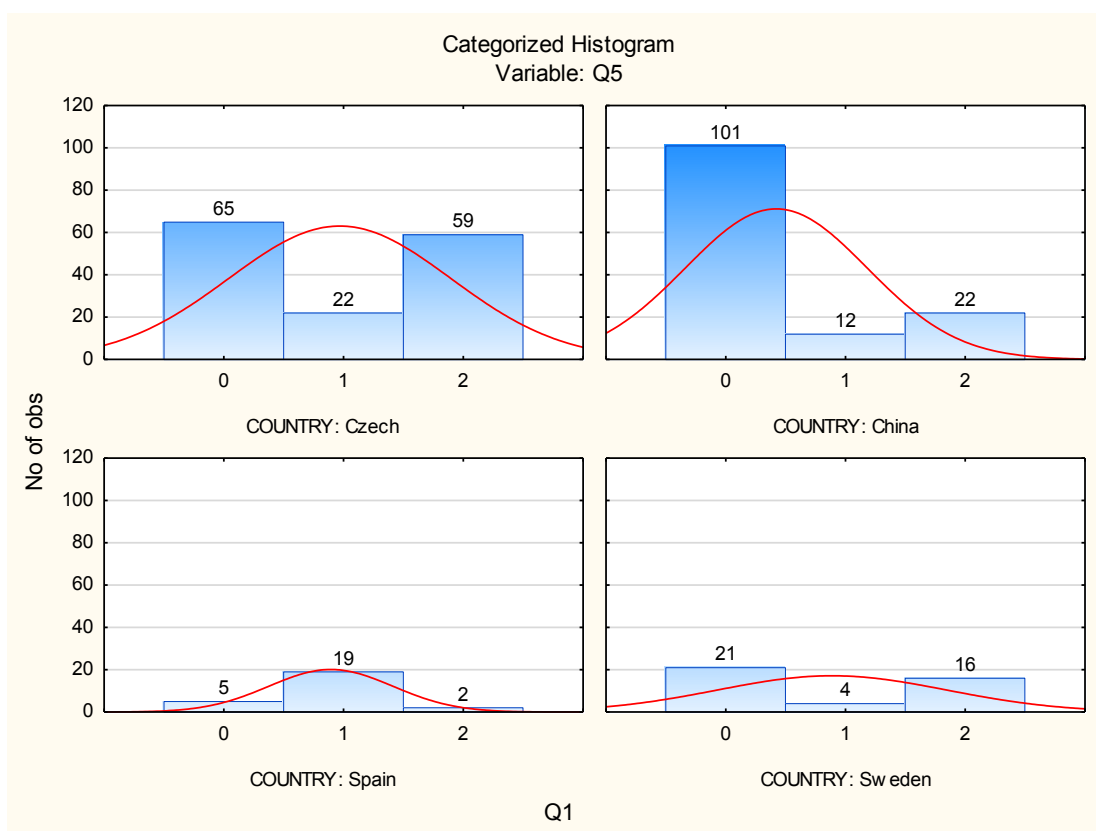


Figure 5: Comparison of pupils' point scores in question 5 by country

Results (Q4 – Q5): Unlike the area concerning the onset of puberty in both genders, where the responses confirmed pupils’ full or partial knowledge in this area (see text above), their awareness about the end of puberty in both genders is worse. This area is dominated by partially correct or incorrect responses, which confirms insufficient knowledge about the end of puberty in both genders.

**Physical changes in puberty in girls**

Q6, Q7 – Physical changes in puberty in girls: During puberty, the signals concerning the required hormonal changes are sent from the brain to the reproductive organs, which stimulate growth, development of functions and other changes in the brain and other organs. In line with the hormonal process of physical changes in both genders, during which the reproductive organs mature and start to produce sex hormones (sperms or ova), changes in the physical structure take place. During puberty, growth slows down and eventually stops in both genders. There are also changes in the physical structure, secondary sex characteristics appear in both genders including pubic hair in the armpit, skin changes and the development of acne. Changes in boys further include thickening of the body and muscle growth, pubic hair on the scrotum, hair on the face and voice change. Changes in girls include hair in the pubic area, gaining a female shape of the body, and growth of breasts.

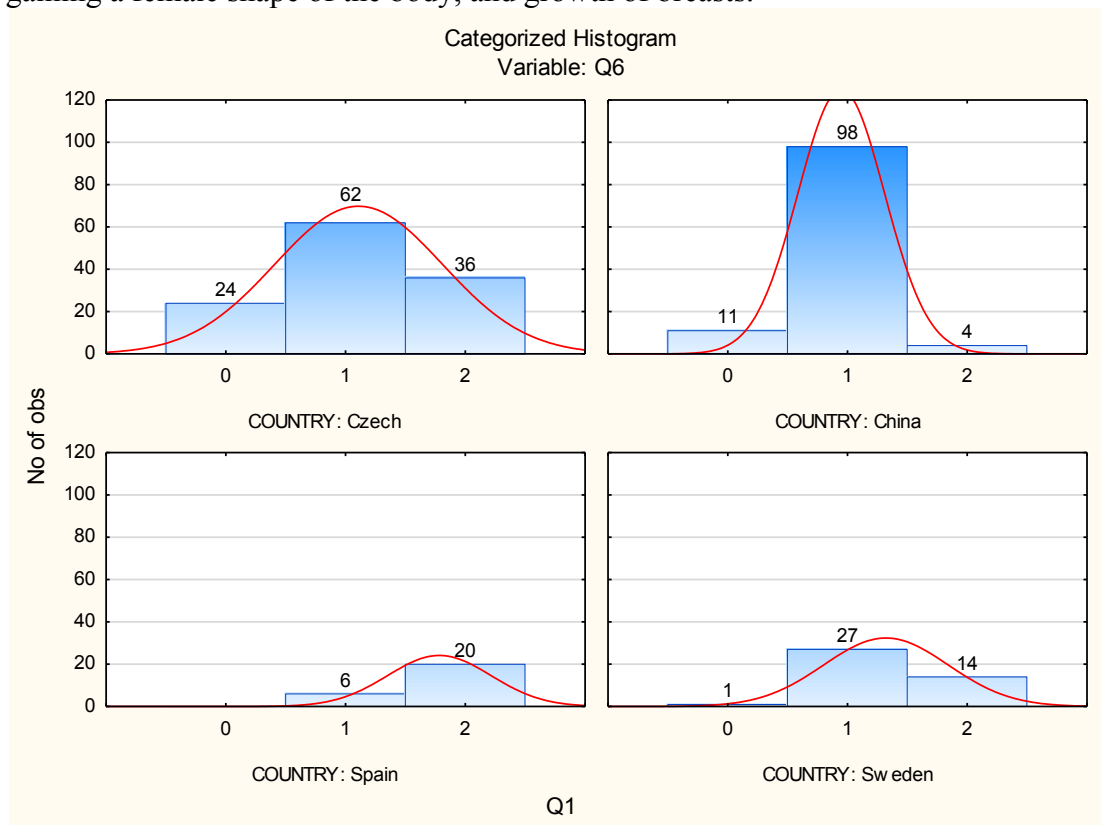


Figure 6: Comparison of pupils’ point scores in question 6 by country

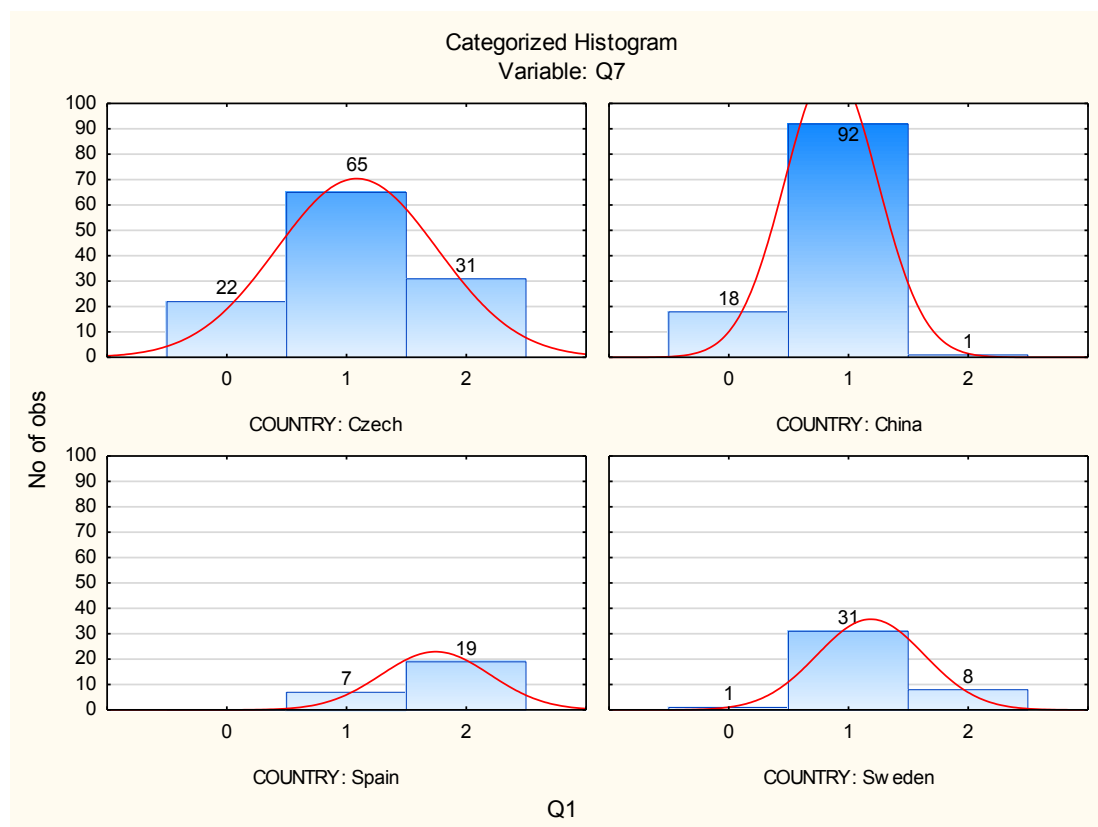


Figure 7: Comparison of pupils' point scores in question 7 by country

Results (Q6, Q7): Most answers of Swedish, Czech and Chinese respondents were in the category of partially correct answers, which suggests basic awareness in the area of physical changes during the period of puberty in both genders. These respondents suggested only various incomplete combinations of changes, which means that they do not have appropriate knowledge from a comprehensive perspective. The most frequent answers of Spanish respondents confirmed their knowledge about the issue.

### Other changes in puberty

Q8 – Other changes in puberty: The period of puberty is marked not only by physical changes but also significant psychological changes including becoming aware of one's personality. The social role of an individual changes and manifests as attacks against authority. Further changes affect the attitude to school and the teacher, self-evaluation and way of thinking. Pubescent individuals want to participate in decision making about matters that relate to them, they start to assess adults in a critical way. They want to spend time doing various activities with their peers. Their emotional relationships start to evolve including love and affection. According to psychologists, emotional instability is primarily a consequence of hormonal changes. Secondly, instability may be supported by psychological changes and changes in interpersonal relationships.

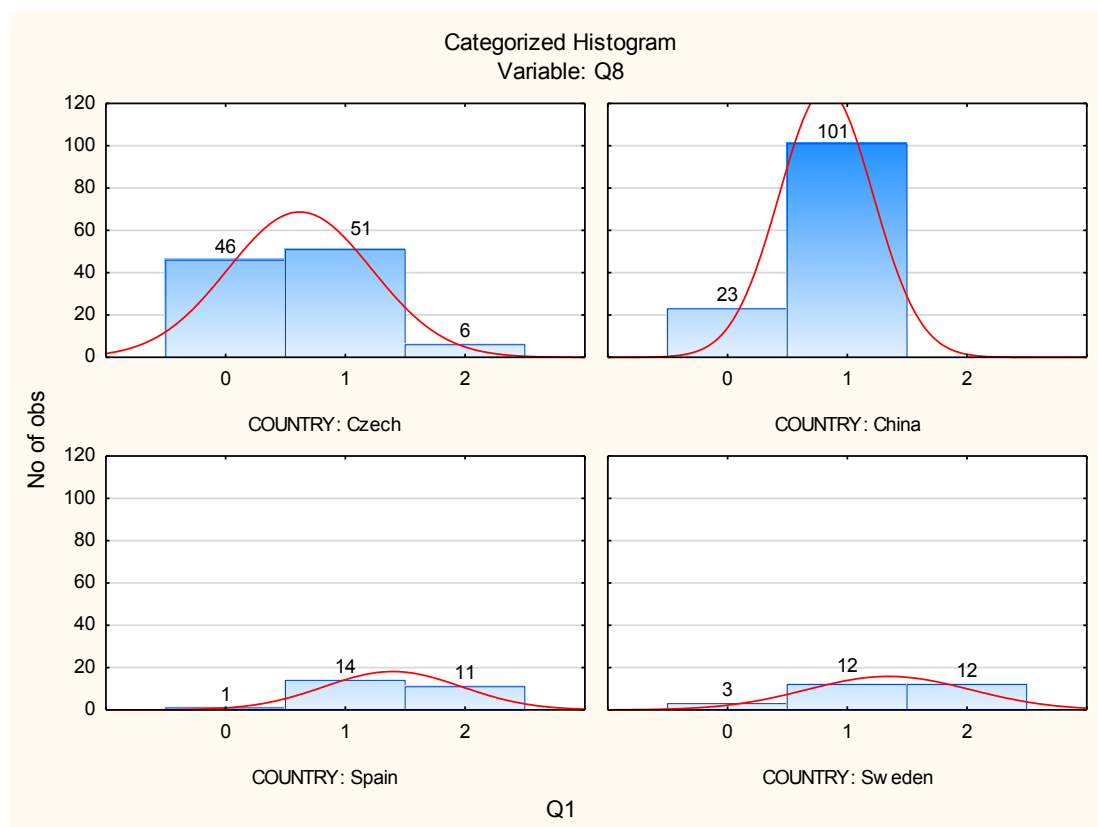


Figure 8: Comparison of pupils' point scores in question 8 by country

Results (Q8): The answers also suggest the respondents' awareness of other changes than biological. Most responses were in the category of partially correct answer. The respondents indicated only various incomplete combinations of other changes. The most frequent responses included the need to spend leisure time with peers, aspects associated with emotional instability, love and affection, and the need to participate in decision making on matters that relate to them. In this question, the least knowledge was shown by the respondents from the Czech Republic.

### Significance of puberty in life

Q9 – Significance of puberty: The whole period of maturing is a broadly defined stage of life. On the one hand, this stage of life is marked by the so-called first signs of sexual maturing including physical growth, on the other hand by achieving the reproduction ability, full sexual maturity and completion of physical growth. However, the process of maturing must not be assessed only from a biological perspective but also from the perspective of psychological changes that take place along biological changes. Biological and psychological changes are also accompanied by social changes, i.e. gaining a new social status.



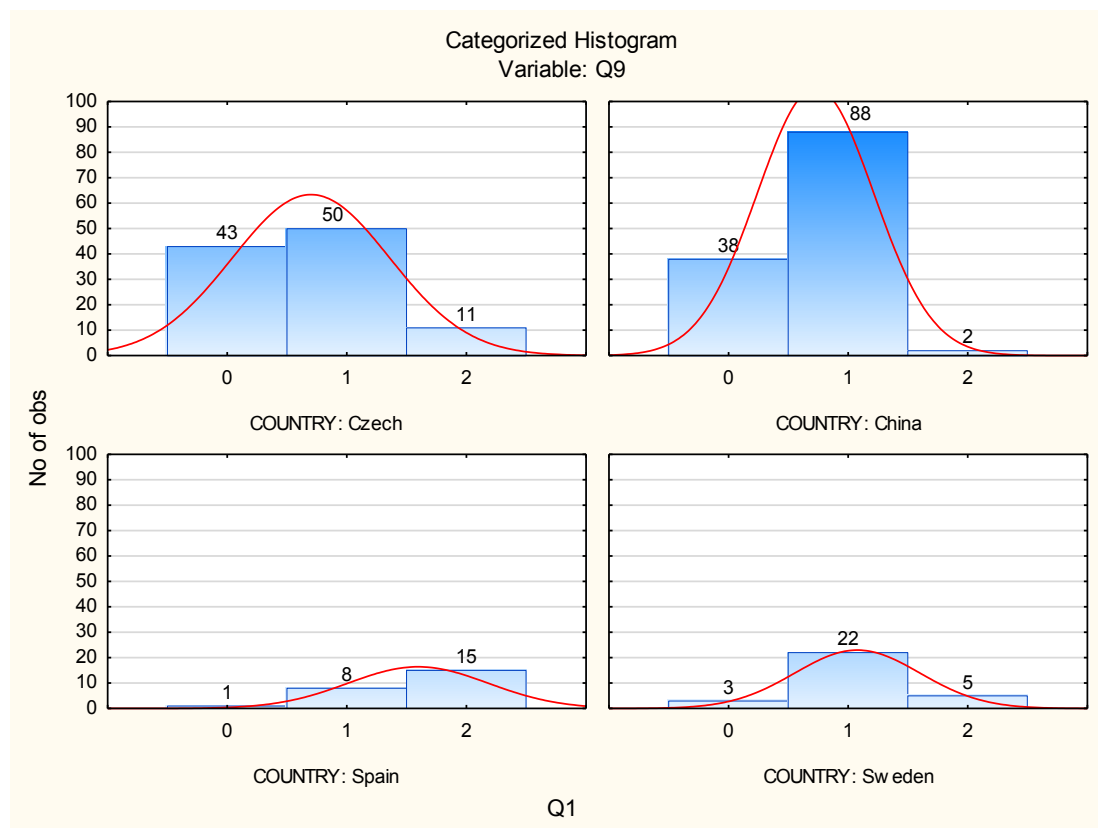


Figure 9: Comparison of pupils' point scores in question 9 by country

Results (Q9): The respondents understand the significance of puberty, which is confirmed by most responses in the category of correct answer among the respondents from Spain. Partially correct answers of Swedish, Czech and Chinese respondents suggest their incomplete knowledge. This suggests that the respondents do not think about the significance of puberty in a comprehensive perspective but rather in various combinations of the biological, psychological and social areas.

### Summary of test results concerning knowledge about puberty

Summary of results (Q1 – Q9): From an educational perspective, the knowledge in the area of puberty facilitates coherent personality development. Any incomplete or missing knowledge about puberty suggests that schoolchildren do not consider the issue of puberty and relevant associations and contexts in a comprehensive way. Younger school-aged children are often unaware of the biological aspect and its importance for future reproductive life of each person in context with other changes. Children usually associate puberty only with psychosocial changes. These findings suggest that teachers should strengthen children's knowledge about puberty in terms of a comprehensive approach to all changes in the biological, psychological and social areas, taking into account the specificity of both genders.

Children should learn the required knowledge about puberty before its onset – during pre-puberty when they are in primary school. All children need to be prepared for puberty in time and in an appropriate manner; this should include all associations and contexts related to this stage. Although comprehensive sexuality education including the issue of puberty should be centred around the family, there is no guarantee that children will gain (provided that sexuality education does not become taboo)

subjectively and socially appropriate information, attitudes and behaviour in the broadest sense of sexual behaviour. Teachers and other educators should be professionally and didactically prepared for education about puberty. Communication about puberty in the school environment is the professional responsibility of the teacher (Štěrbová, Rašková, 2014). The role of the school is, through the teacher, to provide the knowledge about puberty, but also to lay the foundations of attitudes and guidelines for decision making, including prevention of risk sexual behaviour. Curricular or extracurricular education of this issue must be delivered in schools in a qualified way, taking into account various educational and psychological particularities of pupils and respecting humane approaches and ethical principles.

Sweden was the first country to include sexuality education in the curriculum. Currently, sexuality education is comprehensive in character and spread throughout the entire educational programme in schools. Both Czech and Chinese educational systems have the issue of puberty embedded in their curricula. In the Czech system of primary education, puberty is defined as part of sexuality education in the national curricular document in the area of Health education. Recently, Chinese education has been subject to a considerable change as a result of the introduction of a new subject – sexuality education. Sexuality education, including the issue of puberty, has become a compulsory subject in some Chinese schools, primarily in Beijing and Shanghai; compulsory courses on this topic have even been introduced in some Chinese universities. Sexuality education in Spain is not included in the national curriculum, but in many schools has become integral part of the school curriculum. The implementation of sexuality education into the school curriculum is purely within the competence of schools. The good results concerning the knowledge about puberty among Czech and Spanish respondents (see text above) confirm the significance of consistent implementation of sexuality education in schools, irrespective of whether the topic is included in national curricula.

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***The Comparative Study for Professional Competencies of the Elementary Teachers  
Between Professional Teachers and Unprofessional Teachers Under the Office of  
the Basic Education Commission***

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Official Conference Proceedings

**Abstract**

This research objectives: 1) to study teacher professional competencies at elementary level under the Office of the Basic Education Commission (OBEC) 2) to compare teachers' professional competencies between professional and unprofessional teachers. Respondents were 135 elementary teachers under OBEC in Bangkok by purposive sampling and select cases for qualitative interview. Data analysis used descriptive statistics, compared competencies difference using t-test independent. Qualitative analysis was used to conclude policy suggestion.

Research Findings:

1. The professional competencies level of elementary teachers under OBEC were at moderate level.
2. The professional competencies comparison between professional and unprofessional teachers under OBEC were found significantly different all sub competencies at level .05 while professional teachers had a higher competencies than unprofessional teachers. There were significant differences at the level of .05 when compared core competencies and functional competencies between group.
3. Suggestions guide for developing competencies of both professional and unprofessional teachers to cope with dynamic change and technology advancement affecting human learning in the 21st century. Teacher education institutes and faculties have to set the standards for preparing competencies readiness before graduation, be modernized, serve country developing strategies, learning in disruptive digital world. Teachers production and development agents have to implement both knowledge and competencies, raise up values, ideology, spirit, emphasized on quality manpower, intelligence, morality, competitiveness, innovation-driven, modern and international curriculum-courses, applying new instructional media for digital environment, encourage management skills to administrate curriculum, prepare qualified professional teachers with competent characteristics as desire.

Keywords: Comparative Study, Teachers' Professional Competencies, Educational Administration, Basic Education

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## Origin and Background (Importance of Research Problem)

Education plays the important role in developing country when consider its importance, education and learning raise aspirations, set values, and ultimately enrich lives (World Bank Group, 2018: Preface) and elementary education is also 4<sup>th</sup> pillar index component for country development which World Economic Forum identifies as one of Global Competitiveness Index (The Global Competitiveness Report 2017–2018: P.39). The core curriculum of basic education (2008) aimed at developing all learners' physical component, knowledge, morality and both Thai and world citizenship. Development of moral processes in the context of the characteristics and competencies of administrators and teachers which is considered as weakness in the education system because some teachers still adheres to academic content (curriculum) rather than managing learning for students through activities that enhance learners' consciousness, characteristics and skills for future in 21<sup>st</sup> century. So that the teachers training institutions should be instilled teacher professional students to learn not only the theories, modern concept of being a professional teacher and good performance in the teacher profession but also nurture desire competencies, along with real-life practice. Professional teachers will capable to build up the qualified students to have a good behavior upon sharp intelligence which able to work and live happily in society. Preparation students to be good adults in the future is one important basis for development in society and communities (Bureau of Academic and Educational Standards, Office of the Basic Education Commission, 2011: 1)



Figure1 Technical and political factors divert schools, teachers, and families from a focus on learning (Source: World Development Report, P.13)

Teacher professional development in the education system is the heart of the nation. But there are still some significant problems for teachers who are not encouraged to teach, inefficient teaching, couldn't cope with the evolution of the dynamic world (Office of the Education Council. 2015: 2) which is considered a quality crisis of education and educational administrators have to focus on teacher production to develop good learners who are similitude as “seeds of the country and the whole world”.

The teacher profession is considered a high professional profession which is important for raising the quality of education. Teacher profession has its own wisdom way, filled with souls, and has a unique characteristic of providing services to society that is different from other professions. Teacher professional development is also important mechanism for driving quality of education, it's notified as “front door” to

go to the quality of the national population. Qualified people lead to country competitiveness, the ability to compete on the international stage especially to keep pace with the changes of the world in the 21st century in terms of economy, society, politics, science and technology. Furthermore, they have to be capable to challenge from regionalization trend and movement, the ASEAN Economic Community (AEC) was opened in 2016 with the goal of economic integration as a single market and production base. The teacher profession is a profession that needs to be adapted to the global situation in the 21st century and the liberalization of the ASEAN community with dignity.

Competencies of qualified teachers are important factors that affect learners' learning changes. Especially teachers in elementary or elementary education since many research findings such as data from Muralidharan, Singh, and Ganimian (2016) cited from World Development Report (World Bank Group, 2018) showed that Students often learn little from year to year, but early learning deficits are magnified over time. Learners who stay in school should be encouraged with good teaching and steady progress in learning, whatever disadvantages learners have in the beginning and teachers affect learning ability so much as shown in figure 2. Therefore, teachers at the elementary level are very important person in the process of qualified and skillful worker in future. How to raise performance in term of the teacher professional competency of the teachers have to be focused effectively.

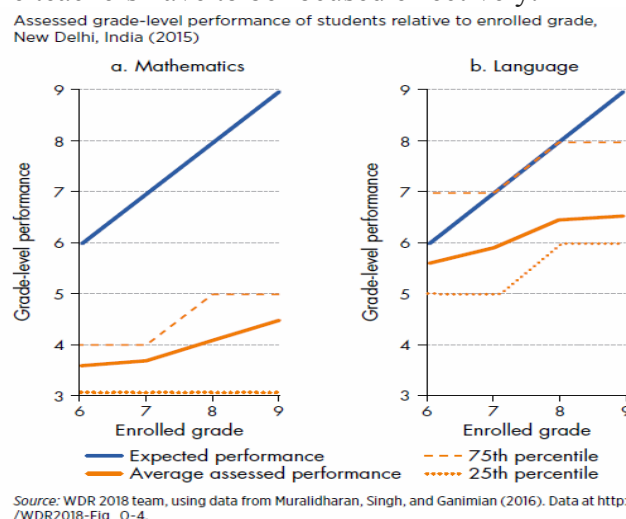


Figure 2 Students often learn little from year to year, and early learning deficits are magnified over time (Source: World Development Report, P.7)

There are rational and linkage between process to make expected consequence, the result of improving the quality of education and the quality of the teachers till to the quality of the creation of the people in the teacher profession, have to link to desire characteristics and skills in learners respectively through academic management which relying on learner support and development, teaching providing and development than curriculum implementing (Theeraphab Phetmalaikul, 2017: 120).

<b>academic management affair</b>	<b><math>\bar{x}</math></b>	<b>SD.</b>	<b>Level</b>	<b>rank</b>
Curriculum implement and development	4.08	.726	high	3
Teaching Providing and development	4.11	.710	high	2
Media and innovation	3.85	.779	moderate to high	7
Measurement and evaluation	3.90	.771	moderate to high	5
Resource providing and development	3.89	.756	moderate to high	6
Quality assurance	3.99	.706	high	4
Learner support and development	4.17	.698	high	1
Research	3.74	.792	moderate to high	8
Document and printing center	3.30	1.135	moderate	10
Academic service	3.29	1.101	moderate	11
Educational psychology and guidance	3.65	1.054	moderate to high	9

Figure 3 Academic administration and management affair to enhance learners' skills in 21<sup>st</sup> century by Administrations (Theerphab Phetmalaikul, International Journal of Educational Science and Research 7(3): 113-124.)

Research to know about teachers' professional competency and comparison the competency between teachers who graduate in teacher professional institutes and teachers who didn't graduate in non professional institutes could be done to provide fruitful research-based information to all stakeholders such as policy makers, educational administrators, teachers, etc. So the researchers team which are member of the Faculty of Education at Srinakharinwirot University realized and recognized the importance and the need to develop the quality of the teacher profession in relation to the teacher professional competencies in good elementary level. Then conducted research project to study and compare teacher professional competencies of elementary school teachers who completed the teacher profession and who did not finish the teacher profession under the Office of the Basic Education Commission with the hope that result will be able to apply the principles, concepts and knowledge in the study to improve the quality of the teaching profession and lead to qualified learners as desire.

### Research Objectives

1. to study the professional competencies level of elementary teachers under the Office of the Basic Education Commission.
2. To compare teachers' professional competencies of elementary school teachers who completed the teacher profession and who did not finish the teacher profession under the Office of the Basic Education Commission.

### Research Importance

1. the comparison could be applied to enhance competency for both professional teachers and nonprofessional teachers.
2. research result and information would be used for policy making, educational administration to develop knowledge, skills, characteristics which are desire professional competencies of qualified teachers for the Office of the Basic Education Commission.



## **Population and Samples**

**Respondents were** 135 elementary teachers in schools under The Office of Basic Education Commission for questionnaire responding and selected cases for indepth-interviewing to conclude and suggest about quantitative result.

## **Research Instruments**

In this research the researcher has developed tools for collecting data as follows.

1. Teacher competency assessment form of elementary school level.
2. Structured interview form.

## **Research methodology**

This research is aimed to analyze and compare the professional competencies of teachers under the Office of the Basic Education Commission. The main purposes of the research project is 1) to compare the teacher professional competencies of teachers at the elementary level Under the Office of the Basic Education Commission, and 2) to prepare suggestions for developing competencies of elementary school teachers under the Office of the Basic Education Commission. The research team has determined the scope of research which is divided according to the research objectives, data collection methods and data analysis then identified the methodology of research into 3 phases:

Phase 1: Literatures review and assessment form development, instrument quality check for next step collection.

Phase 2: Data collection.

Phase 3: Analysis and comparison of professional competencies of teachers at the elementary level under the Office of the Basic Education Commission and making suggestions for developing competencies of elementary school teachers under the Office of the Basic Education Commission.

Phase 4: Results dissemination and Report Writing.

## **Data Analysis and Statistics**

1. Statistics used to test instrument quality was the index of congruency (IOC) and Reliability using Cronbach's alpha coefficient.
2. analyze the teachers' professional competency level of teachers at the elementary level under the Office of the Basic Education Commission by content analysis, mean and standard deviation.
3. compare teachers' professional competencies of elementary school teachers between Teachers who graduated and who did not graduate the teacher professional institutes by using t-test for independent group.
4. analysis the results to generate recommendations for developing competencies of elementary school teachers under the Office of the Basic Education Commission using content analysis

## Results

Table 1 Professional competencies comparison between teachers who graduated the teacher profession and who did not graduate the teacher profession under the Office of the Basic Education Commission

Professional Competencies	professional graduation (n = 95)		non professional graduation (n = 40)		mean difference	t
	$\bar{x}$	S.D.	$\bar{x}$	S.D.		
<b>Core Competencies</b>						
1. Achievement Oriented	3.98	0.617	2.71	0.781	1.27	9.205*
2. Good Service	4.17	0.626	3.06	0.767	1.11	7.938*
3. Self Development	3.86	0.651	2.85	0.744	1.01	7.611*
4. Teamwork	4.19	0.632	2.731	0.81	1.46	10.431*
5. Moral and professional ethics of teachers	4.39	0.654	2.98	0.806	1.41	10.436*
<b>Functional Competency</b>						
1. Curriculum Administration and Learning Management	3.99	0.646	3.12	0.819	0.87	6.121*
2. Learners Development	4.14	0.661	2.77	0.764	1.37	10.145*
3. Classroom Management	4.15	0.643	2.53	0.889	1.62	10.585*
4. Analysis, Synthesis and Research for Learners Development	3.75	0.675	2.63	0.748	1.12	8.580*
5. Teacher Leadership	4.05	0.611	2.53	0.831	1.52	10.498*
6. Cooperation and Collaboration with community for Learning	3.90	0.681	2.54	0.684	1.36	10.582*

\* $p < .05$ , \*\* $p < .01$

From Table1; the professional competency analysis by using mean, standard deviation, it was found that

### 1. Core Competencies

1.1) Moral and professional ethics competencies of elementary school teachers who graduated the teacher profession, had highest value at a high level ( $\bar{x} = 4.39$ , S.D. = .654) while Teamwork and Good service performance had second and third highest mean ( $\bar{x} = 4.19$ , S.D. = .632) and ( $\bar{x} = 4.17$ , S.D. = .626) respectively.

1.2) while non professional graduated teacher had highest core competencies value at Good Service competencies ( $\bar{x} = 3.06$ , S.D. = .767), followed by Moral and professional ethics competencies ( $\bar{x} = 2.98$ , SD = .806) and Self development ( $\bar{x} = 2.85$ , SD = .744) respectively.

### 2. Functional Competencies

2.1) teachers who graduated the teacher profession had highest functional competencies at Classroom Management ( $\bar{x} = 4.15$ , SD = .643) nearly to Learners Development ( $\bar{x} = 4.14$ , SD = .661), followed by Teacher Leadership ( $\bar{x} = 4.05$ , SD = .611) respectively.

2.2) while non professional graduated teacher had highest functional competencies value at Curriculum Administration and Learning Management ( $\bar{x} = 3.12$ , S.D. = .819), followed by Learners Development ( $\bar{x} = 2.77$ , SD = .764) and Analysis, Synthesis and Research for Learners Development ( $\bar{x} = 2.63$ , SD = .748) respectively.

3. The t-test test to compare functional competencies mean between between teachers who graduated the teacher profession and who did not graduate the teacher profession, it was found quite difference between group, the comparative results of teacher professional competencies of elementary school teachers who graduated the teacher profession and who did not graduate the teacher profession under the Office of the Basic Education Commission were significantly different at .05 all competencies, and the teachers who graduated the teacher professional field had a

higher average value than the teacher and who did not graduate the teacher profession (mean differences are between 0.87-1.62).

4. conclusion from qualitative analysis suggests that the government should accelerate the development of teacher professional competencies of elementary teachers for both ones who graduated and did not graduate the teacher profession to cope with changing environment in the digital age. Governmental Administrators should set policy to support teacher production institute to implement according to standard that identified fit to enhance learning in the 21st century. Therefore, policy must emphasis on increasing the performance of teachers responding to the national development strategy and learning in the digital world, to prepare and develop teachers and educational personnel to have appropriate knowledge and professional competency. Modern strategies and modern courses also needed with outcome-based teaching and learning while using innovative technology which teachers could adapt in disruption era.

### **Summary and Discussion**

1. The comparative results of teacher professional competencies of elementary school teachers who graduated the teacher profession and who did not graduate the teacher profession under the Office of the Basic Education Commission, it was found significantly different. While the professional competency of the elementary school teachers who completed the teacher professional field is higher than the teacher and who did not finish the teacher profession, this due to policy implement in the past to put effort to teacher quality production that set standard and process for new coming resources who enter the teacher profession, prospects must have target to be a teacher then following with professional competency enhancing-focused development. This result is consistent with the research of the Ministry of Education by the independent committee for educational reform (Office of the Education Council. 2561: 32-36).

After conducted research, establish framework for basic education curriculum for developing learner competencies that are suitable for the needs of the era and future trends including helping to solve or reduce problems could increase the quality of teaching and learning in basic education courses. Basic education and teachers at the elementary level must understand the "competency" that is the ability of the person to apply knowledge, understanding, skills, attitudes and features with work or various situations which expresses behavior in practice that can be measured and evaluated. Competency is the sum of knowledge, skills, attitudes, attributes and various internal potentials that makes a person or group succeed in their work.

Teacher have to understand competencies which are important and necessary for work and developing learners. Teachers develop learners focus to competencies-based, the target learners' competencies who have completed basic education, divided into 10 functions: 1) Thai language for communication 2) Mathematics in daily life 3) Scientific and mental science examination 4) English for communication 5) Life skills and self-development 6) Professional skills and entrepreneurship 7) Advanced thinking skills and innovation 8) Media and digital literacy knowledge 9) Combined team work and leadership 10) Citizenship, awareness and universal consciousness. These 10 competencies frameworks will help Thai children qualify as Thai people, be wise, be well-informed, happy, highly capable. And pay attention to society which all

competencies will occur. Competent learners would know how to pull knowledge, use their skills that existed in themselves, so teachers at the elementary level must add their own performance to raise up these competencies as well. Teachers in present modern world manage teaching and learning by arranging the situation, real experiences, various contexts so that the learners can practice until they can draw out their own knowledge and skills and achieve the desired performance.

2. Suggestions for developing competencies of elementary school teachers under the Office of the Basic Education Commission, it was found that the government should accelerate the development of teacher professional competencies of elementary teachers for teachers both graduated and who did not graduated the teacher profession to know how to change society in the disruption era. Now days, the society lay high expectation on teachers' shoulders who are responsible for human resources which are of great importance. Moreover, the Teachers Council of Thailand has established the Teachers Council of Thailand regulations regarding professional standards BE 2556 (No. 4, 2013) BE 2562 (2019), teachers should have competencies to enable to summarize and apply in developing their own professional competencies. In terms of knowledge and professional experience standards, Teachers must develop themselves to have relevant knowledge and useful experience in learning management or education management. In the performance standard, teachers must develop themselves to perform showing in characteristics and work behavior, could achieve the objectives and learning goals or educational management for learners. Including train to develop themselves to have higher skills or expertise continuously. And in the standard of conduct, teachers must develop themselves to have a set of professional ethics, maintain and promote reputation and the status of educational professionals to be trustworthy, trusting to service recipients and society which will bring honor and dignity to the profession.

In addition, teachers Must have a minimum of a bachelor's degree in education or equivalent or have other teachers certified by the Teachers Council of Thailand with the following standards of professional knowledge and experience.

**1. Knowledge standards:** teachers are person who sensible to know and understand about dynamic, diversity of the world, society and the concept of sustainable development, educational psychology and children care psychology, counseling ability, learners understanding and analysis according to their potential. Teachers must have knowledge and experience in the subject matter that teach, skills for learning management, measurement and evaluate skill, and research skills to solve problems to develop learners, know and realize the importance of Thai language and English for communication, and the application of digital technology for education design and implementation for educational quality assurance work.

**2. Professional experience standards:** Teachers must pass the teaching practice in educational institutions according to the degree program of education for not less than one year and pass the evaluation criteria for teaching practice according to the rules, procedures and conditions prescribed by the Teachers Council of Thailand Board that is to say, professional practice during the course and practice teaching in educational institutions.

3. Teachers must have a **standard of performance in teacher duties**. By having a commitment to develop learners With the spirit of being a teacher, behave as a good example with morality, ethics and strong citizenship. Promote learning, caring and accepting differences among individual learners. Inspire students to become learners and innovators, also develop themselves to be knowledgeable, modern and up to date. In terms of learning management Teachers must develop school curriculum, learning media management, learning measurement and evaluation Integrating knowledge and teaching science in planning and learning management that can develop learners to be intellectual, thoughtful and has the capacity to be able to take care, help and develop individual learners according to their potential systematically report the results of student quality development, organize activities and create innovations And applying digital technology to benefit learners' learning Work with others creatively and participate in professional development activities.

In relation to parents and communities, teachers at the elementary level must be able to create cooperation with parents in developing and solving students' problems with desirable characteristics. They are expect to be competent person to create network with parents and communities to support quality learning of learners, access to community context and can live together based on cultural differences (Teachers Council Rules. 2019).

In the development of teacher professional competencies in the digital technology era, it's inevitable to abandon from technology so education management with the use of information technology is important. Therefore, administrators have to support to increase knowledge, competency and experience for elementary teachers, must change the new development process to strengthen teachers to know how to manage with new disruptive technologies, prepare learning resources that will help support learning in a new educational environment, criticize for future learners' skills which are essential to the lives as citizens of the world efficiently.

Which all of the above, it should be an urgent proposal that the government have to give priority to develop competencies of elementary school teachers who have graduated in the field of teacher education and who do not graduate in the professional field to have competencies in the teacher profession in accordance with standards. And beware of policy about permission teaching tasks for those who do not have experience and do not learn in the teacher profession to act as teachers at the elementary level because it will cause damage to the learner which hard to be recovered that was mentioned before, early learning deficits are magnified over time. How to invest worthy, invest in education because performance workers come rom qualified learners who are mainly nurture and encouraged with competent teachers who can teach well and provide steady progress in learning.

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***Using Eye Tracking Systems to Assess the Impact of a Hybrid Problem-based Distance-learning Environment on Chemistry Students' Problem-solving Skills***

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**Abstract**

Blended learning is used as a teaching strategy to improve students' chemistry performance. It reverses the traditional learning environment delivering instructional content, often online, outside of the classroom. How blended learning improves performance has not yet been examined using objective measurements. Eye-tracking is a useful tool to objectively study and measure learners' visual attention. This study measured chemistry students' visual attention while solving word problems in an online environment before and after participating in a blended learning environment, effectively answering the research question: *What is the impact of blended instruction on students' chemistry problem-solving skills?* Data were collected from nine students in a General Chemistry course where two conditions were measured: time and group type. Mixed ANOVA using SPSS analysis was conducted. Results show that on average, students spent slightly longer fixated on the periodic table (targeted as the area of interest) during the post-test ( $M = 19.81$ ,  $S.D. = 17.96$ ) than in the pre-test ( $M = 9.34$ ,  $S.D. = 10.63$ ). There was a significant interaction between time and condition. The experimental group (blended learning) spent longer looking at the periodic table online during the post-test ( $M = 28.26$ ,  $S.D. = 21.88$ ) than during the pre-test ( $M = 0.02$ ,  $S.D. = 0.00$ ). Performance on the nomenclature test revealed that the experimental group scored higher on the post-test than the control group (traditional lecture), reflecting fixation behaviors recorded on the eye-tracking system. These research findings have implications for chemistry education and software development to improve chemistry education.

Keywords: (eye-tracking, distance learning, online learning, historically black colleges and universities, HBCU, chemistry education, chemistry problem solving)

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## Introduction

Blended learning is a teaching strategy suggested to improve students' performance in chemistry. Currently, chemistry educators use pedagogical strategies like blended classrooms to increase students' engagement and focus. The working hypothesis is that with increased engagement comes increased interest and focus. Subsequently, students' concept understanding increases and ultimately, their performance on exams with multiple-choice word problems improves.

How do we increase engagement? Well, our eyes don't lie. Which is why researchers are using eye-tracking technology during distant online learning. By evaluating students' focus and attention, particularly while solving nomenclature word problems, we can help them maximize their time and perform better during exams. How? Eye-tracking is a tool used to study visual attention in a variety of science, biology, chemistry and mathematics educational settings. Objective measurements of eye movements provide vital insight into the cognitive strategy students use while solving chemistry word problems.

Why is knowing where students focus their attention during online learning so important? Throughout undergraduate chemistry courses, students are required to take timed exams to assess their knowledge of chemistry concepts. Knowing where to focus their attention can be the difference between a pass or fail. To elaborate, if students are inexperienced at focusing on the right part of a problem their eyes may wander and cost them valuable seconds. Furthermore, focusing on the wrong area of a problem hinders students from detecting embedded clues that aid in problem solving.

Consequently, the likeliness that they will complete exams or perform well is low. Furthermore, eye wandering may be an indication of word problem difficulty, conceptual difficulty or deficiency. With Eye-Tracking technology, we can better equip our students with the strategies necessary to efficiently solve chemistry problems in online learning settings.

## Statement of the Problem

Chemistry educators have attempted to increase students' engagement and focus in chemistry for years. However, researchers have not discussed the aspects within blended learning classrooms that increase students' focus. The discourse is often about using these pedagogical strategies to improve students' performance in chemistry classrooms. Therefore, the question not yet examined with objective measurement resources is, *how do blend instructional strategies to improve chemistry performance?* It is not common for educational researchers to use eye-tracking glasses. However, this tool objectively measures students' real-time cognitive engagement, specifically focused attention, second to second, while completing chemistry word problems in an online environment. Unobtrusive measures of students' engagement and attentional focus in online environments has not been thoroughly explored as a method to improve online learning and engagement, even though universities spend billions of dollars for online or e-learning experiences. Few universities use objective eye-tracking data to improve online learning management systems, learners' online experiences, and engagement with difficult to grasp subject matter or concepts.

## Literature

Eye tracking is a window into the science and mathematics learner's cognitive processes. While it has gained popularity in the last decade, eye tracking is gaining traction as a useful tool to study visual attention in a variety of science and mathematics learning settings; mathematics (Chesney, McNeil, Brockmole & Kelley, 2013; Merkley & Ansari, 2010; Moeller, Klein, Nuerk & Willmes, 2011); and biology (Cook, Wiebe & Carter, 2008). In chemistry, several researchers have conducted studies to measure chemistry learners' cognitive processes while solving complex chemistry word problems (Tang & Pienta, 2012; Williamson, Hegarty, Deslongchamps, Williamson & Shultz, 2013). Eye tracking is also used for exploring problem solving (Liu & Shen, 2011) and problem difficulty (Tang & Pienta, 2012). Other studies discovered that perceptual properties can guide attention and eye movements in ways that assist in developing the problem-solving insights which lead to improved reasoning (Grant & Spivey, 2003; Thomas & Lleras, 2007).

Objective measurement of eye movements gives new insights into students' strategies used for solving multiple-choice science problems, showing that visual attention plays an important role in successful problem solving (Tai, Loehr & Brigham, 2006; Tsai, Hou, Lai, Liu & Yang, 2012). By understanding how different aspects of the knowledge process shape educational outcomes, researchers can effectively design, evaluate, and improve teaching and learning specifically in gatekeeping science and mathematics courses like general chemistry. Furthermore, eye tracking helps educational researchers interested in cognitive development and learning discover a) differences in information gathering; b) differences in problem-solving skills; c) differences in learning strategies and d) how different educational materials work. In this study, researchers use the eye-tracking system to discover students' chemistry word problem-solving processes in an online learning environment.

Eye movements are indices of cognition; eye-tracking data typically include the location, duration, and sequence of subjects' fixations on visual representations. Eye-tracking data serve as a proxy for learning attention, cognitive load and cognitive processing. Eye-tracking data has been beneficial in understanding the development of chemistry students' cognitive processing or problem difficulty. To better understand underlying cognitive processes, researchers can observe how students' focus their attention while completing online chemistry word problems in real time with eye-tracking glasses. The Tobii Pro eye-tracking system allows researchers to better understand students' behavioral responses to instructional assignments in an online environment. Researchers typically analyze eye movements in terms of fixations (pauses over informative regions of interest) and saccades (rapid movements between fixations).

Eye movements are typically the result of cognitive activities. Specifically, the duration of eye fixation indicates the cognitive complexity of the material visually considered. The total number of fixations in an area of interest (AOI) can be considered an indicator of how important the information in that region is and how efficiently it is transferred to long-term memory. Fixation duration and total number of fixations in certain areas of interest, reveals strategies of processing information or solving problems including the final organization of information in long-term memory.

## Research Methodology

This study was designed to answer the following research question: *What is the impact of blended instruction on students' chemistry problem-solving skills?* Students responded to chemistry nomenclature word problems. Researchers used eye-tracking hardware and software to observe students' cognitive processes when solving chemistry nomenclature word problems in an online environment.

## Research Participants

Nine students enrolled in a general chemistry course at an open access historically black college and university (HBCU) participated in this study. Students were divided into two groups. They were randomly assigned to two treatment groups—experimental (blended learning class) and control (traditional lecture-based course). There were four students in the experimental group and five students in the control group.

All students, prior to the teaching of chemistry nomenclature, were asked to respond to a nomenclature pre-test. At the end of the unit, students were asked to respond to the same questions. All students responded to test questions while wearing eye-tracking glasses.

## Data Analysis

A Tobii T120 eye tracker was used to collect eye movement data while students completed online word problems. The eye-tracking variables analyzed were fixation duration and total time spent in specific areas of interest. Fixation count and duration are important metrics for revealing the cognitive load and attention of users and the perceived importance of interface elements. Total fixation duration reports the total time spent in an appropriate area of interest. A fixation occurs when the fovea centralis (located in the retina) is stable on an object and was defined as an eye movement with less than 30 degrees/second of movement.

The area of interest (AOI) analyzed in this study included the entire periodic table. This AOI was hypothesized as important for understanding students' visual interaction and learning behavior patterns during the problem-solving task.

Pre- and post-test eye-tracking data were analyzed for statistical significance. SPSS was used to analyze data. A time (pre vs. post)-by-condition (experiment vs. control) mixed measures ANOVA was conducted on students' average fixation duration. Data were analyzed to determine whether there was a difference in the average fixation duration between the pre-test and post-test; a difference in average fixation duration between experiment and control condition and difference in average fixation duration were different for those in experiment condition and those in control condition. Descriptive and inferential statistical data of each student's response to the pre-and post-test (matched paired analysis) are reported. Tobii Pro lab software was used to analyze students' eye-movement. Data visuals in the form of heat maps and gaze plots were generated.

## Results

Students in the experimental group scored higher on the post-test than those in the control group. Table 1 below shows the average scores, based on the percent of correct responses for students in each condition. Students in the experimental condition scored higher on the nomenclature post-test ( $M=72.2$ ) than on the pre-test ( $M=43.3$ ). Students in the control condition scored higher on the post-test ( $M=33.0$ ) than on the pre-test ( $22.2$ ). The post-test scores for students in the experimental group were higher than the post-test scores for students in the control group. There was a 39.2 percent difference in the mean score between the experimental and control group on the post-test.

Table 1: Average test scores (percent correct) by Condition and Time

Condition	Pre-test		Post-test	
	<i>M</i>	<i>N</i>	<i>M</i>	<i>N</i>
Experimental	43.3	4	72.2	4
Control	22.3	5	33.0	5

Table 2 shows that there was a significant interaction between time and condition on the time, in seconds, students spent looking at the periodic table,  $F(1,7)=7.97$ ,  $p=0.03$ . Students in the experimental condition spent longer looking at the periodic table in the post-test ( $M=28.26$ ,  $S.D. = 21.88$ ) than in the pre-test ( $M=0.02$ ,  $S.D. = 0.00$ ), but students in the control condition spent the same amount of time looking at the periodic table in the post-test ( $M = 13.04$ ,  $S.D. = 12.55$ ) and the pre-test ( $M=16.80$ ,  $S.D. = 8.35$ ).

Table 2: Fixation duration on periodic table (in seconds) by Condition and Time

Condition	Pre-test			Post-test		
	<i>M</i>	<i>S.D.</i>	<i>N</i>	<i>M</i>	<i>S.D.</i>	<i>N</i>
Experiment	0.02	0.00	4	28.26	21.88	4
Control	16.80	8.35	5	13.04	12.55	5

Figure 1 is a graph showing the fixation duration, in seconds, on the periodic table by condition and time.

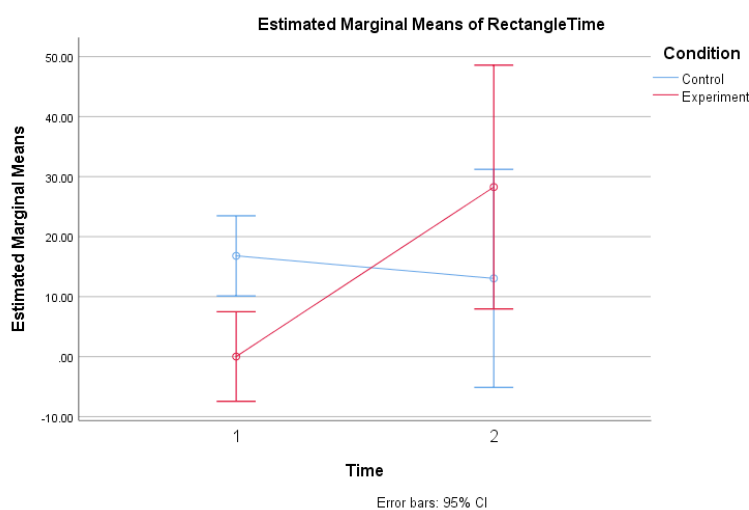


Figure 1: Fixation duration on periodic table by condition and time

Figure 2 shows the heat maps showing the students visual attention to the periodic table during the posttest. In naming ionic compounds, students should use the periodic table to see if an element is a metal, transition metal or non-metal. Students should use the periodic table to determine whether an element as a metal, transition metal or non-metal. Next, they use the element determination to determine the charge on the element based on the location of the element on the periodic table.

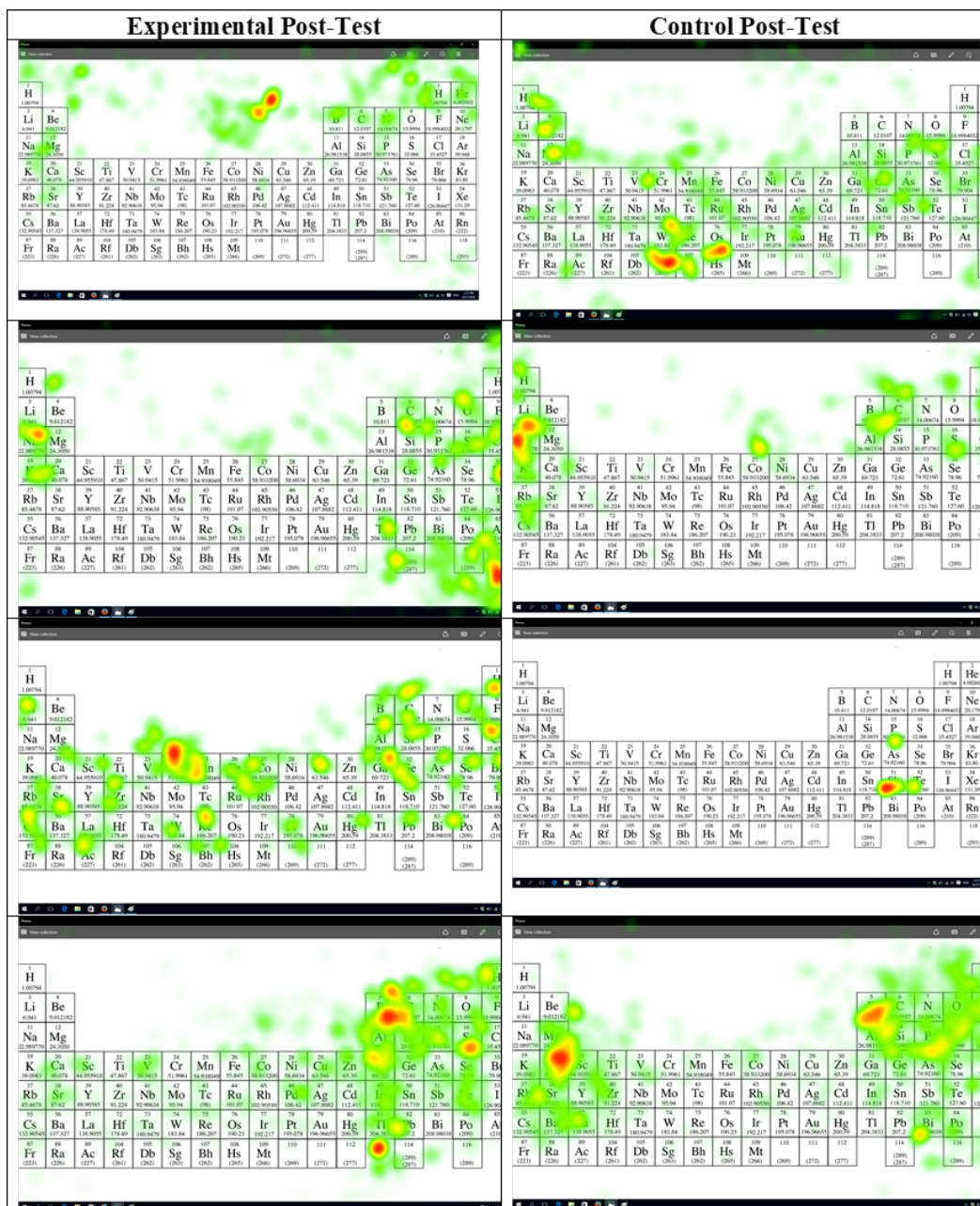


Figure 2: Heat maps on posttest by condition

**Conclusion**

Data from this research study suggest that students in the experimental group spent more time looking at the periodic table during the post-test than students in the control group. Students in the experimental group received instruction that included small peer led groups where students more familiar with nomenclature concepts

provided instructional support to students who were struggling. Additionally, in the blended learning environment, the instructor moved around the classroom working with small groups and providing feedback on concepts.

Conversely, students in the control group were taught using a traditional lecture based instructional approach. The professor primarily stood in front of the class and lectured. The instructor wrote formulas on the board to demonstrate how to solve nomenclature word problems.

Findings reveal objective measures of students' attentional focus in an online environment and on test performance based on certain instructional conditions. This research revealed that students in the blended learning environment were more focused and engaged and demonstrated an ability to use what was learned to solve chemistry word problems. Students in the blended learning environment scored better on the post quiz and spent more time during the post-test looking at the periodic table.

These findings have implications. This study demonstrates with objective data that increases in learning occurs in the ability to help students increase their focus in specific areas of interest. An analysis of eye-tracking data revealed that on average, students in the control group did not focus on the periodic table to solve nomenclature word problems. An analysis of fixation duration confirmed students' cognitive behavior recorded with the eye-tracking system. Their post-test scores were reflective of their fixation behavior.

These findings inform chemistry faculty on the importance of introducing instructional strategies that increase students' engagement, thus increasing their ability to focus on important instructional resources necessary to answer chemistry word problems.

Future analysis includes an assessment of students' focus in targeted areas of interest (AOIs) to include three sections of the periodic table; metals, transition metals and non-metals. These AOIs are hypothesized as important for understanding students' visual interaction and learning behavior patterns during the problem-solving task. As such, if we can increase students' focus immediately in the appropriate area of interest while learning chemistry nomenclature, we can increase their performance on chemistry nomenclature word problems. It is likely that this type of small incremental focus is applicable to helping students perform better on more difficult and challenging chemistry concepts like rates of reactions, stoichiometry, and oxidation reduction concepts to name a few.

There are several inferences from this study. Data from this study could be used in designing online courses that are adaptive to students' learning, specifically related to cognitive focusing and problem solving. This research provides high school and university chemistry faculty with an understanding of how blended learning environments increase students' cognitive focus while learning to name chemicals. This increased focus improves performance on chemistry assessments.

In the future, researchers anticipate using data from this study and others to enhance and scaffold students' online or distance learning experiences to improve their critical

thinking and chemistry word problem solving skills through embedded online auditory strategies that increase students' focus in appropriate areas of interest.

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## *Students' Perceptions of Team-based Learning in an Undergraduate Optics Module*

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### **Abstract**

Team based learning (TBL) uses collaborative learning to engage students with course material and has been adopted in various health-related courses. This new pedagogy offers many advantages including an improvement in marks and positive student perceptions. In addition, it offers the right environment to develop communication skills and teamwork. Although TBL is increasingly being used in medical and nurse education, to date very few studies have reported on the preferred teaching methods in optics courses. This study, evaluated students' experiences with TBL in an optics undergraduate module using a questionnaire developed in 2012 by Heidi Mennenga (Team-based Learning Student Assessment Instrument). The questionnaire contains 33 items in 3 subscales: accountability, preference for TBL and student satisfaction with TBL. When responding, students were reminded that TBL was only included in the tutorials of this module as lectures included active learning but did not include a TBL approach. During tutorials students worked in small groups and the same structure was followed for each session: individual Readiness Assessment Test (iRAT), team RAT (tRAT) and application exercises (optics calculations based on the theory covered during lectures). Two-consecutive cohorts (2017/18 and 2018/19) taking this module were invited to complete the questionnaire anonymously. In both cohorts, students reported a more favourable experience with TBL compared to traditional lectures. The satisfaction subscale showed the highest score compared to the other two subscales within the questionnaire. Based on these findings, a TBL approach should be promoted in optics related courses to increase student satisfaction with the courses.

Keywords: active learning, team-based learning, questionnaire

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## Introduction

Team-based learning (TBL) is an active learning methodology suitable for a range of disciplines. Originally developed by Larry Michaelsen for use in business school it has now gained popularity in a variety of health-related disciplines including medical schools (Burgess et al, 2017; Kazory and Zaidi, 2018), nursing (Branney and Priego-Hernández, 2018) and pharmacy (Ofstad and Brunner, 2013; Tweddell et al, 2016). Despite its benefits, TBL is still a relatively new pedagogy in optometric education and limited information is available regarding students' preferences in optics related modules (Hrynychak and Spafford, 2015).

Active learning approaches are often contrasted with traditional methods that are teacher-centered and result in passively transfer of information from teachers to students. Essentially, active learning approaches require students to do meaningful learning activities and think about what they are doing (Bonwell and Eison, 1991). Typically, TBL sessions take part in a small-group class activities consisting of three phases (Sibley et al, 2015). During the first phase students are given a series of activities to individually revise specific learning objectives. This first phase occurs before the actual TBL class and mimics a flipped classroom approach. The second phase includes the readiness assessment test using multiple-choice questions to assess concepts. These questions are first answered individually and then as part of a team. The final phase includes application exercises to apply the theoretical concepts into practice.

When considering the implementation of new pedagogical approaches to learning it is important to assess students' learning preferences. Hrynychak and Spafford (2015) evaluated optometry students' attitudes towards TBL, and found that students' satisfaction with TBL was favorable and improved with additional experience. In contrast, Herse and Lee (2005) surveyed the usefulness of a variety of learning tools by optometry students in an optometry department in Australia. The preferred learning style of this group of students was passive learning of content. It was postulated that perhaps this was because they were taught using traditional passive teaching methods. Similarly, in a systematic review of TBL in health-related education a mixed learner reaction was found (Fatmi et al, 2013). It was proposed that this could be as a result of an increase in the workload and the accountability associated with TBL. In 2012, Heidi Mennenga developed a valid and reliable questionnaire to assess the effectiveness of TBL. Since then, the Team-based Learning Student Assessment Instrument (TBL-SAI) has been used in a variety of academic fields to determine the impact that TBL has on learners (Branney and Priego-Hernández, 2018; Kazory and Zaidi, 2018; Livingston et al, 2014). The aim of this study was to assess the students' views of TBL and traditional lectures in an optics module using the TBL-SAI questionnaire.

## Methods

### Structure of the Module

Refractive Management and Methods of Ocular Examination is a 2-semester (30 credits) module in the second year of the BSc (Hons) Ophthalmic Dispensing. It consists of traditional lectures, laboratory sessions and tutorials. Since 2017/18, tutorials include a TBL approach. This study took part in Semester 1 where the

following topics are covered: schematic eye, spherical ametropia, astigmatism, retinal image formation and magnification, ophthalmic drugs, ophthalmoscopy, keratometry, slit-lamp and visual acuity. During tutorials, students need to solve optics calculations based on the theoretical context described in lectures.

### Structure of the TBL tutorials

Recommended pre-reading materials and optics calculations were uploaded to the virtual learning environment system (Canvas) at least one week before the TBL session. During the TBL tutorial, students were divided into groups (4-5 students each). The session started with an individual readiness assessment test (iRAT) followed by the team readiness assessment test (tRAT). These were presented using Poll Everywhere, an audience response system that takes anonymous responses from students via mobile phones. The responses were displayed on charts using PowerPoint. The RAT consisted of 10 short multiple-choice questions with five possible answers (see example in Figure 1).

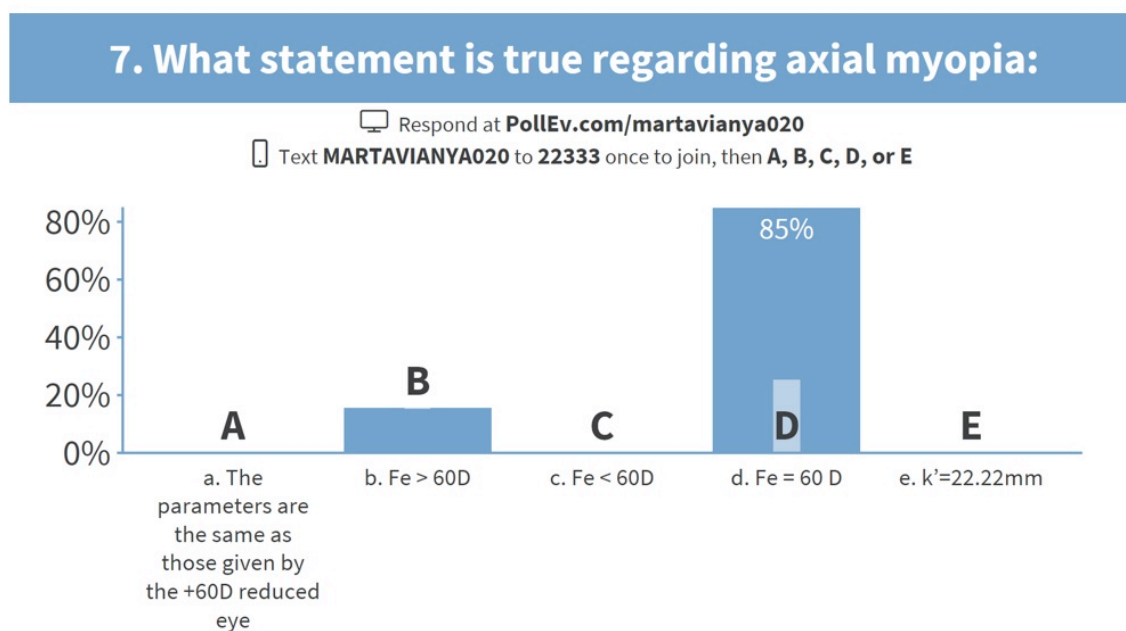


Figure 1: Example of a Readiness Assessment Test question presented via Poll Everywhere

The instructor (MV-E) facilitated the sessions and provided some feedback to the entire class when appropriate. The application exercise consisted mainly of optics calculations required as part of this course.

### Participants

Second-year ophthalmic dispensing students (Anglia Ruskin University, United Kingdom) that had attended at least one tutorial in this module were invited to complete the TBL-SAI questionnaire. The study received ethical approval by the Vision and Hearing Departmental Research Ethics Panel at Anglia Ruskin University and followed the principles of the Declaration of Helsinki. Written informed consent was obtained from all students after receiving a full briefing of the nature of the study. Two consecutive cohorts were invited to participate following the introduction of

TBL in this module (cohorts 17/18 and 18/19). Participation in this study was optional and responses were anonymous.

### **TBL-SAI instrument and data collection**

TBL-SAI instrument was developed by Mennenga (2012). Permission for use was granted from the author at the start of this study. The instrument consist of 33-items including three subscales measuring accountability (8 questions), preference for TBL (16 questions) and student satisfaction with TBL (9 questions). Each item is scored using a 5-point Likert scale (1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree and 5-Strongly Agree). The scale was reversed for negatively worded items (#4, #11, #13, #14, #16, #18, #21, #22, #28 and #30) as described by Mennenga (2012).

To score the questionnaire, both individual subscales as well as a total score was calculated. The subscale scoring ranges as follows: accountability (range 8-40, neutral= 24), preference for TBL (range 16 -80, neutral=48) and satisfaction with TBL (range 9-45, neutral=27). A higher score indicates a higher level of the trait under measurement: higher level of accountability, higher preference for TBL and higher level of satisfaction with TBL.

The accountability subscale assesses students' preparation before class and accountability to the teams' learning. The preference subscale evaluates attention level and engagement with lectures and TBL sessions. Finally, the satisfaction subscale assesses students' satisfaction with TBL. The questionnaire has a space for free text comments at the end. Data collection took place in class at the end of a tutorial session in week 10 and before a summative exam in week 11 (November 2017 and November 2018 for each cohort).

### **Data Analysis**

Questionnaire data were analysed using MedCalc statistical software 18.10 (MedCalc Software bvba, Ostend, Belgium). Mean  $\pm$  SD (for each subscale and total scale) were calculated. One-way analysis of variance (ANOVA) was conducted to evaluate differences between the two cohorts for each of the three subscales and the total score. Statistical significance was set at 0.05. All questionnaire items were kept for analysis.

### **Results**

A total of 35 and 38 students were enrolled in this module in the 2017/18 and 2018/19 cohorts respectively. Participation to this study was voluntary. In the 17/18 cohort, 66% (23/35 students) agreed to take part whereas the response rate for the 18/19 cohort was 58% (22/38 students). Table 1 provides descriptive statistics (mean and SD) for each subscale as well as total score for each student cohort. The means of the subscale and total score were higher than the neutral scores (Table 1). The total instrument score showed a preference towards TBL. A neutral score (ie. no preference for TBL or lectures) for the total instrument is 99 and scores higher than 102 indicate preference for TBL. The total instrument scores for the 17/18 and 18/19 cohorts were  $118 \pm 9.0$  and  $122 \pm 7.6$  respectively.

Table 1: TBL-SAI scores (mean, SD) for each subscale and total instrument score (cohorts 17/18 and 18/19)

<b>Subscale (n)</b>	<b>Accountability</b>	<b>Preference for TBL</b>	<b>Satisfaction with TBL</b>	<b>Total score</b>
<b>Range</b>	8-40	16-80	9-45	33-165
<b>Neutral</b>	24	48	27	99
<b>Cohort 17/18 (22)</b>	28 (2.7)	53 (5.0)	38 (4.8)	118 (9.0)
<b>Cohort 18/19 (23)</b>	30 (2.6)	56 (4.7)	37 (3.7)	122 (7.6)

One-way ANOVA showed a statistical significant difference among the two cohorts of students (17/18 and 18/19) for the student accountability subscale ( $F_{1,43}=7.03$ ,  $p=0.01$ ). Post-doc analysis using the Scheffe test indicated a significant difference existed between both cohorts ( $p<0.05$ ). Both cohorts, showed an accountability subscale above the neutral score of 24 and the second delivery of this course showed the highest accountability subscale (mean  $\pm$  SD,  $30 \pm 2.7$  vs  $28 \pm 2.8$ ). No statistical significant differences among the two cohorts were found for the preference for TBL subscale ( $F_{1,43}=3.30$ ,  $p=0.08$ ), satisfaction with TBL subscale ( $F_{1,43}=0.48$ ,  $p=0.49$ ) and total score ( $F_{1,43}=2.77$ ,  $p=0.10$ ).

#### **Accountability subscale**

Table 2 indicates that 53% and 62% of the students in cohorts 17/18 and 18/19 reported high level of accountability (responded 5-Strongly Agree or 4-Agree to these items). The majority of students (82% of students in the 17/18 and 100% in the 18/19 cohort) disagreed or strongly disagreed with the negatively worded item #4 “My contribution to the team is not important”. However, only 18% and 22% respectively agreed or strongly agreed with item #6 “I am accountable for my team’s learning”.

Table 2: Proportion of scores for each TBL-SAI subscale

TBL-SAI subscales	Proportion of scores > neutral		Proportion of scores = neutral		Proportion of scores < neutral	
	17/18 cohort	18/19 cohort	17/18 cohort	18/19 cohort	17/18 cohort	18/19 cohort
<b>Accountability</b>	53%	62%	33%	30%	14%	8%
<b>Preference for TBL</b>	50%	57%	25%	24%	25%	19%
<b>Satisfaction with TBL</b>	85%	83%	14%	17%	1%	0%

### Preference for TBL subscale

The preference subscale indicated that students favoured TBL in both cohorts and was found to be 53% and 56% in the 17/18 and 18/19 cohorts respectively (Table 1). Approximately half of the students agreed or strongly agreed with items in this subscale, indicating a preference for TBL as compared with 25% and 19% (17/18 and 18/19 cohorts) that preferred traditional lectures (Table 2). The majority of students in both cohorts (90% and 95% in 17/18 and 18/19 respectively) agreed or strongly agreed with item #20 “I remember material better after the application exercises used in Tutorials”. In contrast, both cohorts showed the lowest agreement for item #16 “I remember material better when the instructor lectures about it” and item #18 “It is easier to study for tests when the instructor has lectured over the material”.

### Satisfaction subscale

Most students (85% in the 17/18 cohort and 83% in the 18/19 cohort) reported a higher level of satisfaction with TBL compared to traditional lectures (Table 2). Only one student in each cohort reported neutrality to item #30 “Team-based learning activities are a waste of time” whereas all the others disagreed or strongly disagreed with this item. The majority of students also agreed with item #27 “I think team-based learning activities are an effective approach to learning” and disagreed with the negatively worded item #28 “I do not like to work in teams”.

### Open comments

A total of 9 students provided open comments at the end of the questionnaire. Six comments related to the benefits experienced with TBL such as:

“I really liked tutorials this semester, it helps me to remember information more easily” cohort 17/18

“We help each other and can ask questions without being afraid of judgement. Also I feel the answers are explained in a simpler way” cohort 17/18

“Working in groups we don’t usually sit with is also more useful” cohort 18/19



The remaining three comments related to the pace of delivery of the sessions as illustrated with the following quote:

“It is a good way to consolidate class work but sometimes it does take more time than is needed when working with students with different abilities” cohort 17/18

## **Conclusion**

Using the TBL-SAI instrument, this study showed how embedding TBL in an optics module had significant positive benefits. The total instrument score showed a preference for TBL and this preference increased in the second delivery of this module (scores for the 17/18 and 18/19 cohorts were 118 and 122 respectively, neutral score = 99). In addition, all the subscales within this instrument also indicated a higher accountability and/or preference for TBL. The satisfaction subscale showed the highest score compared to the other two subscales within the questionnaire. Similar findings have been reported by Kazory and Zaidi (2018) in a cohort of first-year medical students (total overall score 118). Branney and Priego-Hernández (2018) also reported preference for TBL in a second year undergraduate nursing course (total overall score 110). This is the first report using TBL-SAI within the context of a UK-based undergraduate optics related module. These findings suggest that TBL approach can increase student satisfaction and should be promoted in optics related courses.

Analysis of the individual items within the TBL-SAI highlighted several areas of interest. First, regarding the accountability subscale most of the students in these cohorts disagreed or strongly disagreed with item #4 “My contribution to the team is not important”. This highlights one of the positive benefits of using this new approach as students enjoy been able to contribute with their skills to the learning of others in their teams. Abdelkhalek et al (2010) indicated that TBL helps developing professional skills such as communication and teamwork. This is particularly relevant to students in optometric courses, as they will be expected to work in teams during their careers. As one might expect, it is less likely that students will be given opportunities to contribute to the teamwork during traditional lectures. Secondly, the majority of students in both cohorts agreed or strongly agreed with item #20 “I remember material better after the application exercises used in Tutorials”. On the other hand, both cohorts showed the lowest agreement for item #16 “I remember material better when the instructor lectures about it”. This clearly indicates the value of using structured TBL sessions (RAT and application exercises) to complement material previously covered in lectures. Finally, when questioned about satisfaction with TBL the majority of students also agreed with item #27 “I think team-based learning activities are an effective approach to learning”. It is worth noting that the TBL sessions were formative in nature and students did not receive any summative mark as part of these sessions. This could have influenced items within the student satisfaction subscale as students might feel differently when working with others in a team that carries summative weight towards the overall module mark.

Although this questionnaire offers the opportunity for open comments, the information gained was limited. In this module, Poll Everywhere was used during the RAT. If such a strategy is used, educators might consider using a timer to limit the time participants have to respond. This will ensure RAT runs smoothly and no time is lost waiting for answers to be submitted. Instead, time should be spend clarifying

misconceptions to the whole group and/or facilitating discussion among groups. Alternatively, immediate feedback assessment test cards (IF-AF) have successfully been used in this context as they transform multiple-choice questions into an interactive learning experience.

This study does not capture the lecturer views regarding the preparation involved when introducing this new approach but Tweddell et al (2016) reported extensively on the faculty experience of introducing TBL in a pharmacy course. Clearly, introducing any type of active learning is time consuming but the structured approach offered with TBL made the preparation less onerous. During the implementation phase, educators should also consider the impact of TBL related activities on the overall course workload. In addition, those considering this approach may also want to consider space requirements as the layout of the room need to be changed to create the right learning environment. The rooms used in this study allowed for tables to be arranged into groups rather than rows. Finally, educators considering this approach are encouraged to find suitable ways to explore the students' perceptions to ensure comments feed forward in future revisions of their modules.

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## *Can Active Collaborative Learning Improve Equality?*

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The European Conference on Education 2019  
Official Conference Proceedings

### **Abstract**

Across UK Higher Education, there is a strong drive to improve equality for students from diverse backgrounds reflected in government and university strategies and policies. One priority is the attainment gap, where students from some ethnic minorities and other disadvantaged backgrounds experience worse outcomes than expected. The national regulator, the Office for Students, allocated funding for projects to improve equality for all students. Anglia Ruskin University (ARU) is a modern university in the East of England. It serves a diverse group of students, including above sector average numbers of BME students, students from regions with low participation in HE, and students from low income families. ARU partnered with two other UK universities on one of the Office for Students 'Addressing Barriers' projects. In keeping with ARU's strategic commitment to active learning, we aimed to scale up adoption of an Active Collaborative Learning approach, Team-Based Learning (TBL). TBL is a structured approach where students collaborate in permanent teams, and uses a mix of flipped learning, team work on authentic problems and feedback to ensure accountability. TBL has been demonstrated to improve engagement, participation and outcomes, with particular benefits for low performing students. We will present the evidence for impact on improved student outcomes, and narrowed gaps for disadvantaged groups of students as part of scaling up TBL across the institution. We will conclude with an outlook on how active collaborative learning together with other strategic measures can improve equality and student success in HE.

Keywords: Learning Experiences, Student Learning, Learner Diversity, Attainment, Retention, Higher Education, Educational Research

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## Introduction

The paper presents the findings of a project which considered the impact of active collaborative learning (ACL) on students' engagement and attainment in Higher Education (HE). The project was funded by the Office for Students (OfS) as part of the "Addressing barriers to student success (ABSS)" initiative (Office for Students, 2019a) and involved three UK universities – Nottingham Trent University (NTU) (lead institution), University of Bradford (UoB) and Anglia Ruskin University (ARU) (Office for Students, 2019b). A specific focus of the project was whether active collaborative learning approaches support the narrowing of attainment and other gaps.

At ARU the active collaborative learning approach adopted is team-based learning (TBL). The project aimed to scale-up TBL from successful early adopters, who worked mainly at module level in specific subject areas, to adoption in more modules as well as at degree programme-level across disciplines. The paper presents the findings regarding the impact of TBL on improved student outcomes, and narrowed gaps for disadvantaged groups of students.

After the introduction, the paper considers the wider national and institutional context and drivers for ARU's adoption of active collaborative learning pedagogies, in particular TBL, followed by a discussion of the project research methodologies and findings. We will conclude with lessons learned and an outlook on how we may take active collaborative learning forward strategically to improve equality and student success.

## National Context

The UK HE sector is highly competitive while also being highly regulated based on a number of metrics which define an institution's national standing in league tables and the Teaching Excellence Framework (TEF) (Office for Students, 2019c). Amongst these metrics are

"how many students continue their course from one year to the next, graduate-level employment outcomes, and students' views about their experience (gathered in the annual National Student Survey). The TEF takes into account the mix of student characteristics, entry qualifications and subjects at each higher education provider. Assessment is based on what a provider has achieved within this context." (Office for Students, 2019d).

While retention and student experience (National Student Survey (NSS)) have been previous focuses of higher education policy, attainment and graduate employment outcomes have been strengthened in more recent HE policies by the Office for Students, the national HE regulator. This shift reflects their objectives to provide "value for money" in education (Office for Students, 2018) as well as introducing differentiated student fees via the TEF to bring about a more competitive HE market.

One aim of the OfS is to improve equality for students from diverse backgrounds (Office for Students, 2018). The attainment gap relates to students from some ethnic minorities and other disadvantaged backgrounds experiencing worse outcomes than expected. Improving attainment has been an objective at primary and secondary

school for a number of years and has now become part of further and higher education's strategic objective to "level the playing field". There is an impetus to achieve a fairer society and to ensure students from all social backgrounds, upbringings, ethnicities and (dis)abilities have an equal chance to succeed.

In 2018 ARU, together with NTU and UoB, were successful in securing funding from the OfS for a project focusing on improving equality for all students through active collaborative learning.

### **Institutional Context**

ARU is a modern university in the East of England. It serves a diverse group of students, including above sector average numbers of BAME students, students from regions with low participation in HE, and students from low income families. According to ARU's student data (ARU, 2017a) up to 85% of ARU students may have one or more characteristics of disadvantage. As part of ARU's vision, values, and strategies, ARU is

"committed to valuing diversity and promoting equality. We seek to develop our people to be responsive, and equip our students for life in a multicultural and diverse society. Our aim is to provide a supportive environment in which to work and study, where treating others with dignity, courtesy and respect is standard." (ARU, 2019a)

Being inclusive, addressing attainment gaps as well as employability are key objectives of the current University (ARU, 2017b) and Education strategy (ARU, 2018).

### **The Team-Based Learning Project**

#### ***Background***

ARU introduced TBL in the academic year 2015/16 after staff training by Professor Larry Michaelson (2014) and Dr Simon Tweddell (2015) with the aim of improving attendance, retention and student satisfaction and as part of introducing more active collaborative learning approaches.

Initially TBL was piloted by enthusiastic staff in three out of the five faculties mainly in individual modules with a more strategic approach in one faculty. The evaluation of the pilots showed promising results and supported our successful bid for OfS funding.

Sweet (2010) defined TBL as

"a special form of small group learning using a specific sequence of individual work, group work, and immediate feedback to create a motivational framework in which students increasingly hold each other accountable for coming to class prepared and contributing to discussion." (Quoted in Sibley and Ostafichuk, 2014)

TBL supports a number of objectives identified in ARU's University and Education strategies and is an active collaborative teaching approach which can be applied across different disciplines. TBL is a structured, three-phase approach of pre-learning tasks before learners come to class (Phase 1), which are then assessed individually and as a team (Readiness Assurance Process or RAP) using a multiple-choice format (Phase 2). This phase of flipped learning is intended to replace the mostly theoretical and factual content delivered through lectures. The third phase involves the application of the pre-learning to authentic and real-world problems (application exercises) where teams engage in decision-making, discussion, inquiry and problem-solving.

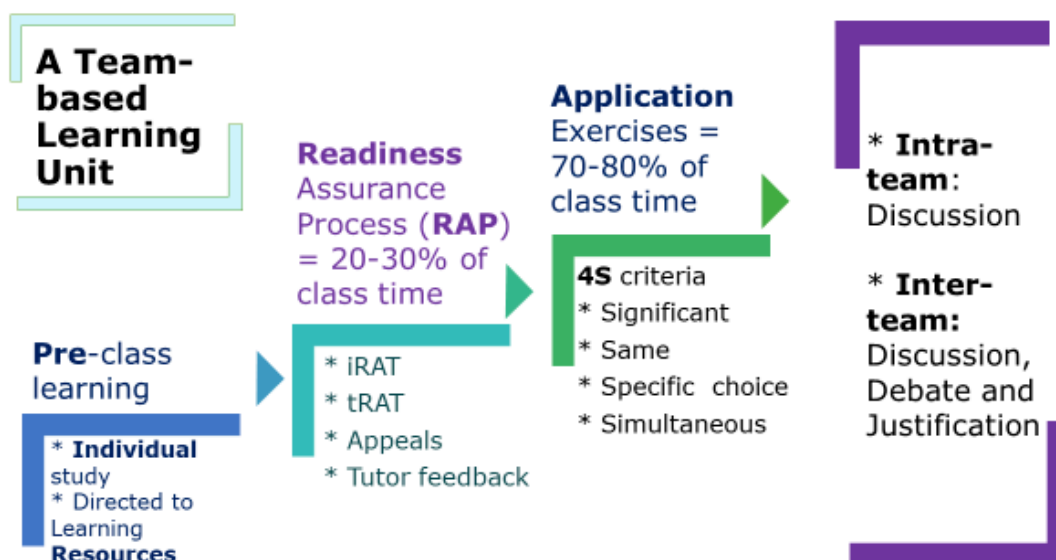


Figure 1: A TBL Unit

Students collaborate in permanent teams throughout a module, providing feedback, support and being accountable to each other. (Parmelee, et al, 2012, Whitley, et al, 2015).

TBL has been demonstrated to improve engagement, participation and outcomes, with particular benefits for low performing students. (Burgess, et al, 2014, Dearnley, et al, 2018, Fatmi, et al, 2013, Haidet, et al, 2014, Koles, et al, 2010, Sisk, 2011). Most TBL research is based on case studies of educational interventions,, but there is little research on institution-wide and routine implementation of TBL. This study discusses the impact of implementing and scaling up TBL across disciplines at institutional level.

We present the research methodology we used and the evidence we found for impact on improved student outcomes, and narrowed gaps for disadvantaged groups of students as part of scaling up TBL across ARU between 2015 and 2018.

### **Methodology**

TBL was introduced at ARU through staff development events in 2014 and piloted in 2015-16. The pilot was evaluated using a mixed methods approach of student and staff surveys, a student questionnaire and semi-structured staff interviews. The



student questionnaire subsequently informed the design of the student questionnaire in the OfS project.

The OfS project also applied a mixed methods approach. The research instruments were coordinated between the project partners to ensure results were comparable.

The quantitative research was based on data from the university data systems which hold data on student performance (marks), attendance (since 2016-17 based on a swipe card system), student engagement (a combination of attendance (60%), library (20%) and virtual learning environment (20%) data) and student satisfaction (based on module evaluation surveys). We looked at taught undergraduate modules and used the data to compare TBL with non-TBL modules on related courses over 3 years (2015-8). Related courses refers to courses which had at least one TBL module over the duration of the 3 year study. The data allowed us to cross reference results with specific student groups e.g. male versus female, different socio-economic groups, BAME versus white.

The qualitative research involved defining the variation in TBL practice using a staff survey based on a TBL typology we had developed, staff experience using interviews and questionnaires, and student experience using an online questionnaire. The surveys and questionnaires were conducted using Jisc Online Surveys (Jisc, 2019a). The staff interviews were undertaken by the academic developer and the quantitative data was processed by a researcher both employed on the project. Excel, SPSS and NVIVO were used for the various analyses.

## ***Findings***

### *General findings*

Over the three years of the project, adoption of TBL increased from 25 modules (2015) to 38 modules (2018) and from originally three to all faculties. While TBL adoption at module level increased successfully, course level adoption has been more of a challenge.

TBL substantially improved attendance and engagement scores. Engagement scores are calculated for each student for all the modules they take in a given year, and attendance (across the whole course) comprises 60% of the Engagement score (the rest being library use and interaction with the VLE).

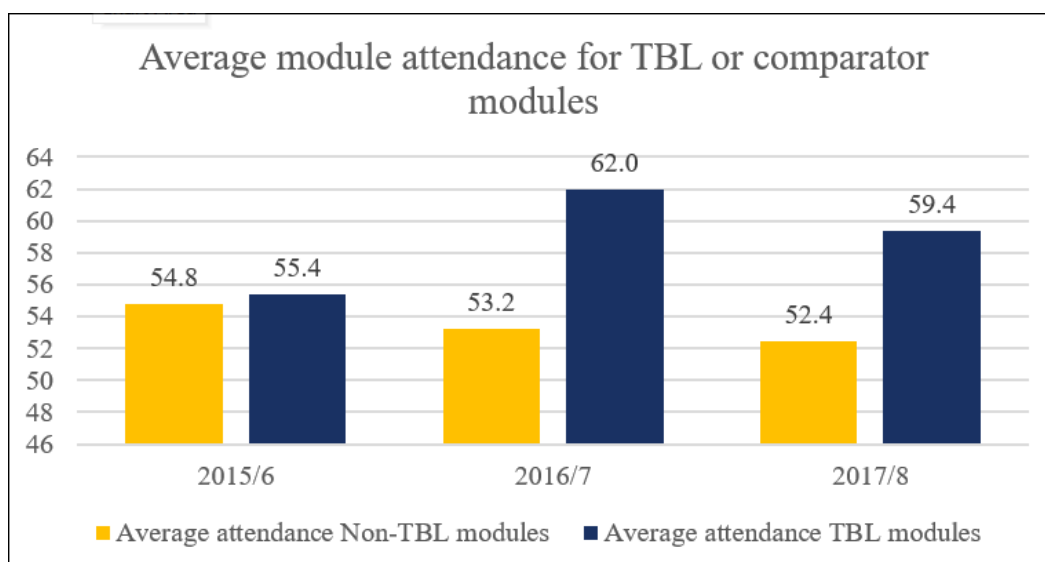


Figure 2: Average module attendance

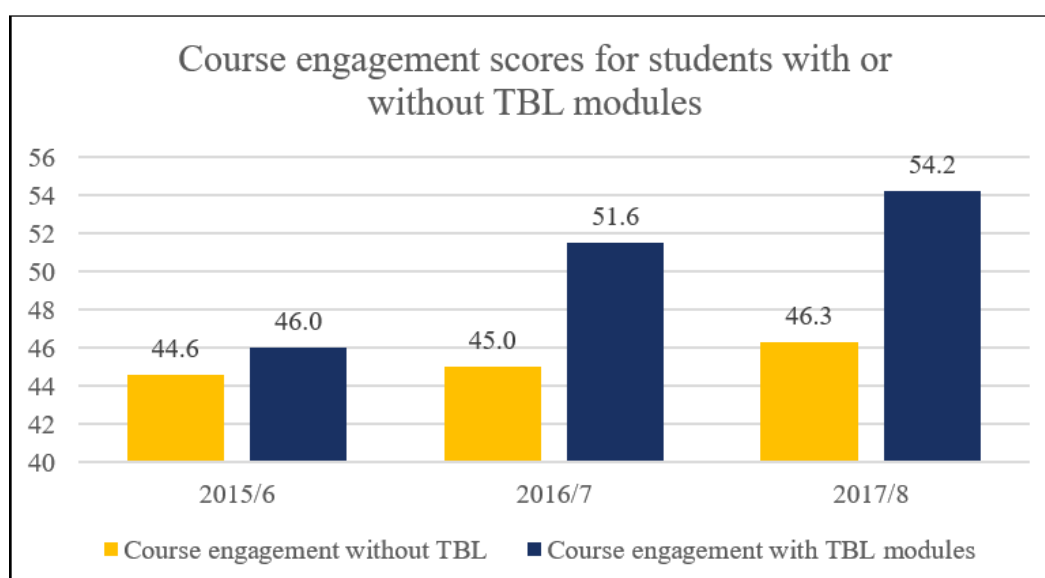


Figure 3: Course engagement scores

The 2015/6 attendance and therefore the engagement are based on partial data as the automated systems were being piloted in this year.

TBL also slightly improved module marks and pass rate. The improvement in pass rate was often greater than the improvement in average marks for the cohort, indicating that lower performing students benefitted most from TBL.

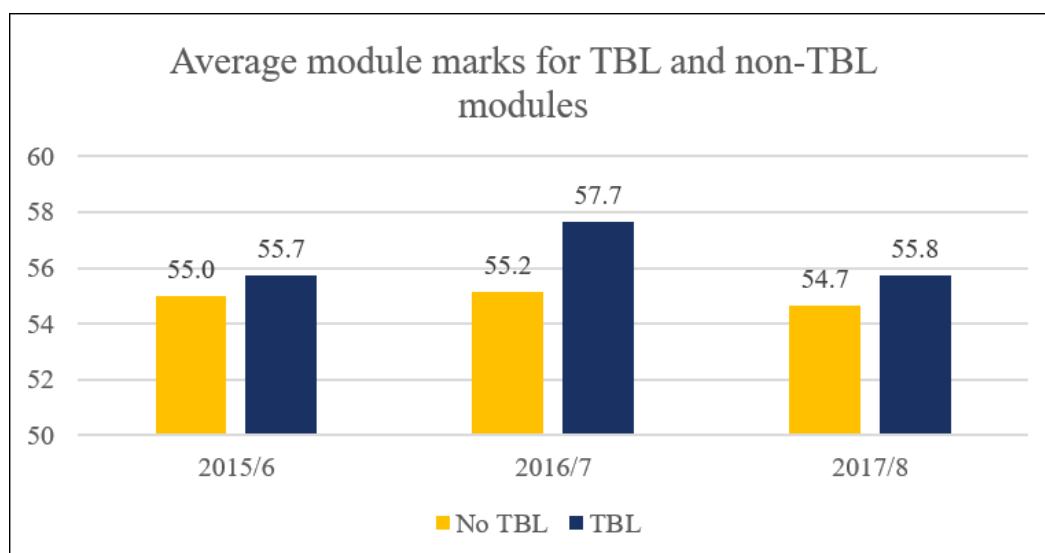


Figure 4: Average module marks

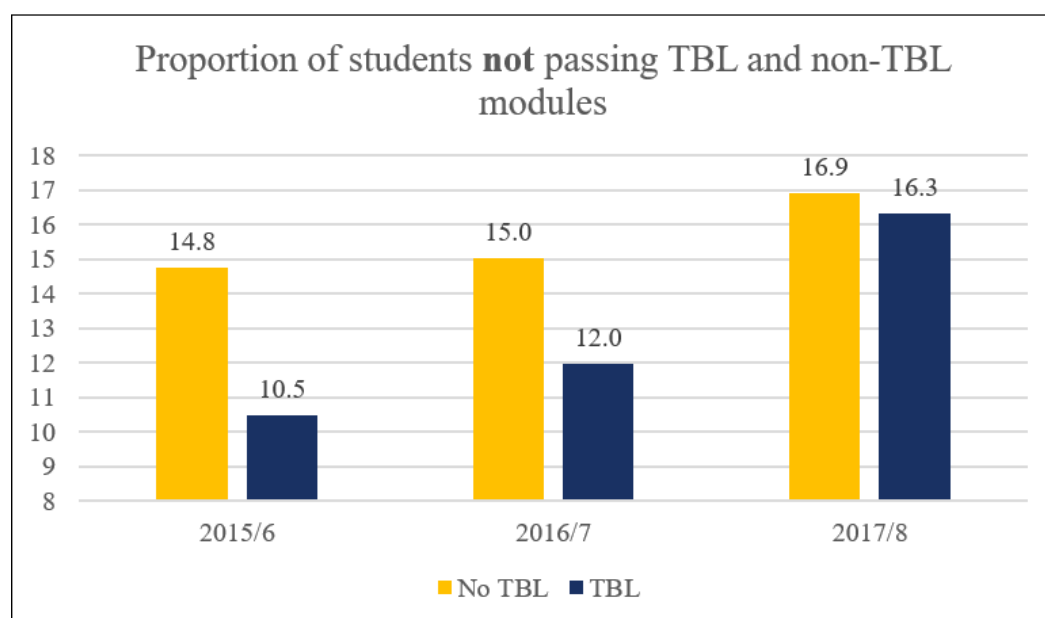


Figure 5: TBL improved module pass rates

After three years, we found a tendency for students having experienced one or more TBL module during their studies to have improved degree outcomes. Good degrees refer to students achieving a 1<sup>st</sup> or 2.1 in their degree.

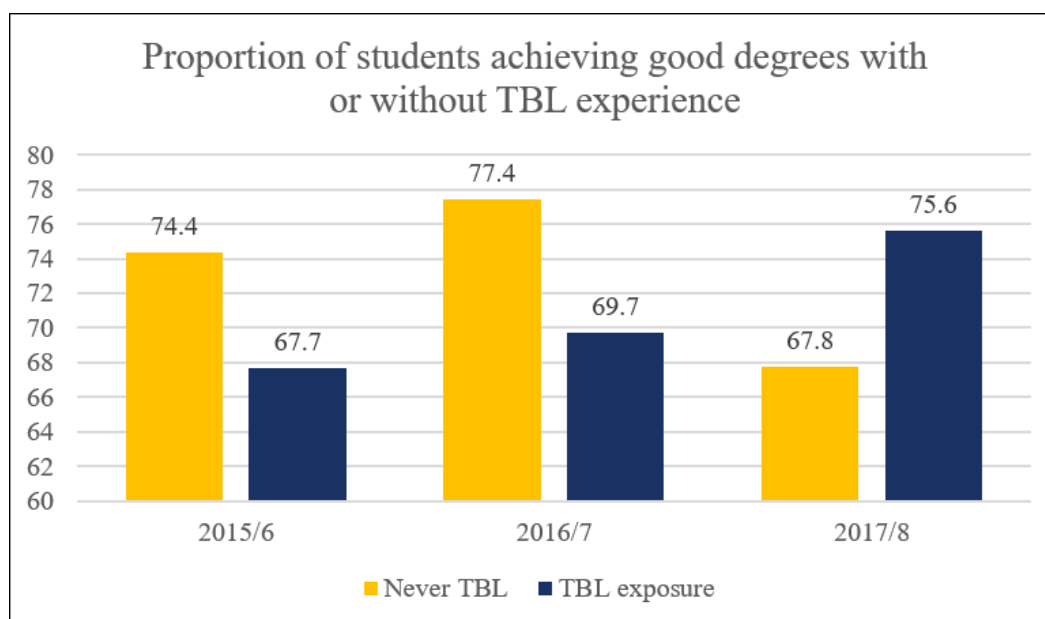


Figure 6: Good degrees

Overall students and staff were satisfied with TBL. In the student questionnaire, a two thirds majority of respondents were satisfied with their TBL experience and agreed that the different aspects of TBL have a number of benefits and advantages over other learning approaches. A majority of students also felt that TBL promotes employability and is a more inclusive way of learning. Some student quotes highlight why:

“Working with people I wouldn’t have worked with otherwise.”

“Using each other’s knowledge to help you”

“Sharing of different skills and ideas”

These quotes emphasise the value of team work in helping students to experience a diverse team which is supportive and inclusive.

However, between one fifth and one quarter (depending on the question) were either neutral or critical about TBL. The following quotes provide an insight to students’ critical stance towards TBL:

“We were treated as a group not individuals. I felt that I was wasting my money and time.”

“It made me think that working alone would have reflected my own abilities more effectively.”

More than half the students, responding to the question “I prefer to work on my own”, agreed or strongly agreed, around a third were neutral and another third disagreed. This clearly indicates that, while students appreciate the value and benefits of TBL, which has working in a team at its heart, more than half of the students have to be convinced at the outset that TBL is to their benefit.

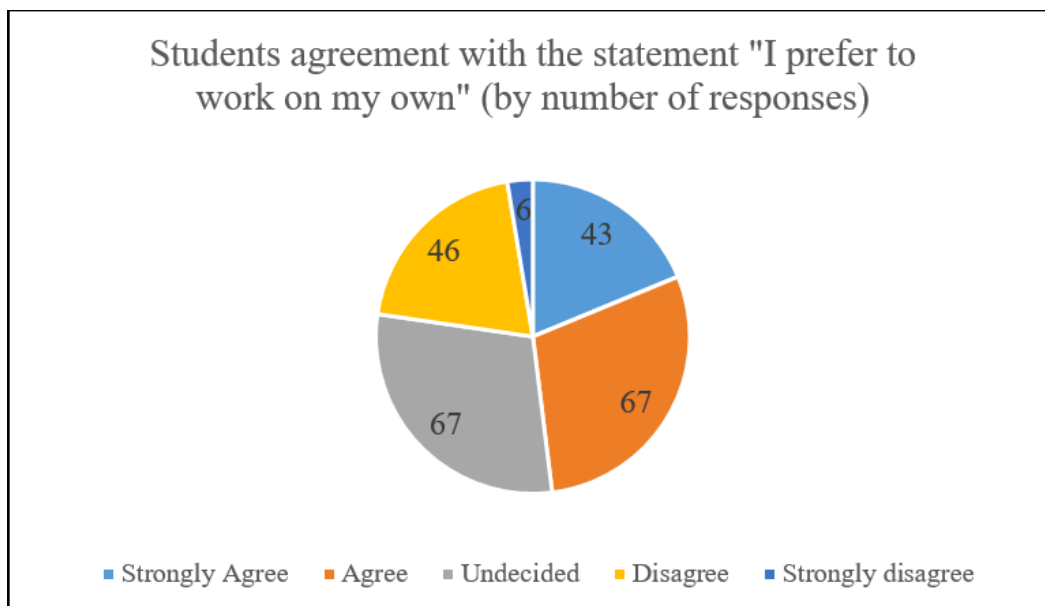


Figure 7: Student working preferences

*Impact on disparities*

In general we found that all groups of students improved to a similar extent when they learned with TBL. As a result, gaps in outcomes remained at a similar level. For example, we found that BAME students generally had slightly lower module marks than white students in the same modules, and this was the case in both TBL and non-TBL modules. However, both groups of students achieved higher average module marks in TBL than non-TBL modules.

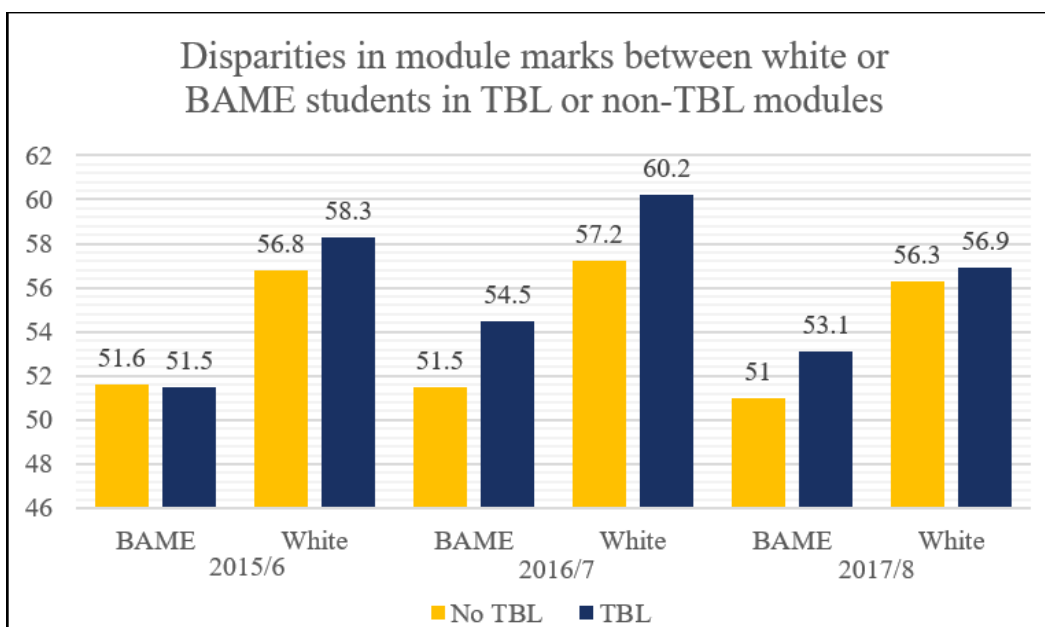


Figure 8: Disparities in module marks for white or BAME students

Similar patterns were seen for other disparities: in both TBL and non-TBL modules, female students had slightly higher module marks than male; students without declared disabilities had slightly higher module marks than students who declared

disabilities; students from POLAR regions with high HE participation had slightly higher marks than students from low participation POLAR regions; and students who had previously achieved A-Levels had slightly higher marks than students who had taken BTECs (specialist work-related qualifications at Level 3) before starting university (Office for Students, 2018).

Partner institutions found more positive effects on some gaps when students learned with active collaborative learning. At Bradford many gaps narrowed or disappeared, while at NTU gaps narrowed (except for gender) when students took multiple ACL modules (Active Collaborative Learning Project p23-6 and 31-33)

When we further subdivided the ‘BAME’ group into black, Asian and other non-white students, we found that the biggest disparity in module marks was between white and specifically black students, with the other two groups falling somewhere in between. This black / white gap narrowed in TBL modules compared to non-TBL modules, with all groups showing some improvement in marks for TBL modules.

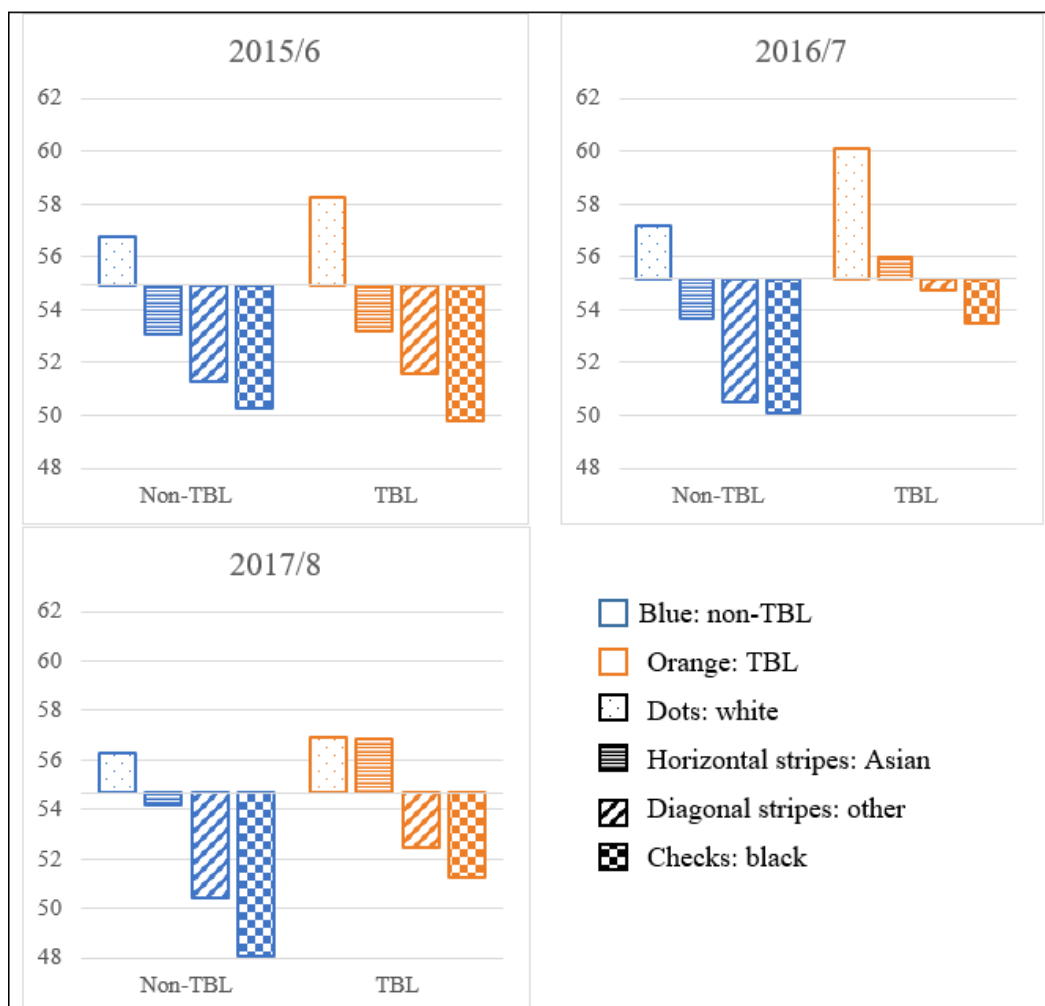


Figure 9: Module marks in TBL modules for students from different ethnic backgrounds

After three years, good degree attainment gaps narrowed for gender and ethnicity. In our data, 2017/8 was the only year where students could potentially have experienced TBL throughout their course. While at ARU we only had data for one cohort tracked

longitudinally over the whole three years of their degree, improvements in degree outcomes were evidenced by both project partners in their data. Both partners had data for several cohorts who had experienced active collaborative learning approaches throughout their degree learning journey. (Active Collaborative Learning Project, 2019, p21-33)

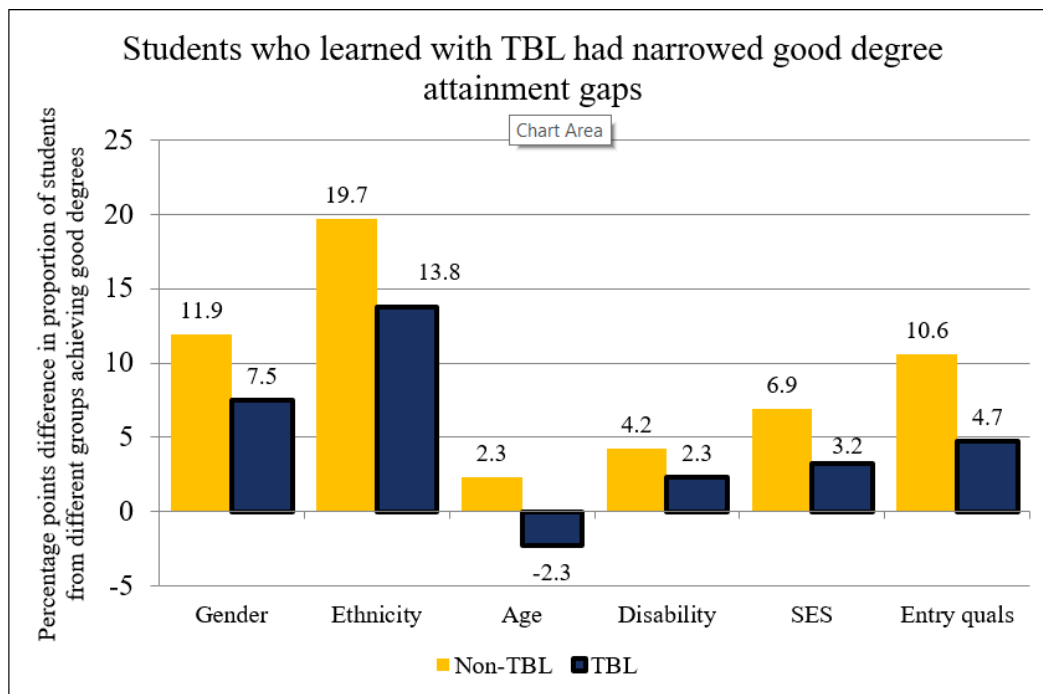


Figure 10: Good degree attainment gaps for several disadvantaged groups

## Conclusion

The project demonstrated significant benefits of collaboration across three UK HE institutions. The shared research methodology and instruments allowed comparison of quantitative and qualitative research findings between three very different universities. The large number of students involved in this study across all three institutions underpins robust research findings, and is unique in its scale. At ARU alone we obtained data on around 7000 students, with around 3000 studying on TBL modules.

We found that TBL improves outcomes for all students, while the module pass rate improved more than the average module mark, indicating that the lowest performers benefit the most. We also found that while we had clear improvements in attendance the marks did not improve as much at ARU. This might be partially due to the module rather than course-based approach and that the study at ARU only included one cohort which went through a whole degree cycle. Results at NTU and UoB demonstrated greater improvements in performance, indicating that a higher number of modules taught with an active collaborative learning approach over the course of a degree (e.g. NTU) and a course level approach (e.g. UoB) improves performance and attainment. The findings demonstrate that TBL can successfully be scaled up across an institution, but some of the barriers such as aligning assessments to TBL (e.g. summative RATs, peer assessment) and the initially higher workload required to convert to an active

collaborative learning approach need to be addressed at institutional level (Active Collaborative Learning Project, 2019).

Attendance showed the most promising improvements, and increased attendance can be expected to have a positive impact on retention. TBL is specifically designed to create a learning community, where individual team members are accountable to their team. The diversity of teams is seen by learners and teachers as more inclusive and representing authentic experiences of working in a professional context. In fact, emphasising the link between professional behaviour, employability and team work is one way to create a learning culture and address the reluctance of some students regarding working in teams. Further studies on how learners with learning difficulties and disabilities may be affected by group- and team activities are forthcoming in order to recommend adjustments to avoid exclusion of some students.

The project also makes a case for the use of “big” data to inform decisions on pedagogic interventions. At ARU this was the first time that we evaluated a pedagogic intervention and evidenced its impact using complex sets of student data at scale. At national level intensive data work is currently being undertaken at many institutions and by a Jisc initiative on data and analytics (Jisc, 2019b). In future using this kind of data will provide us with the means to address areas of concern at different levels from single modules to courses to institutional approaches, similar to approaches already used at UK schools (Department for Education, 2018; Ofsted, 2008).

We report the impact of active collaborative learning at institutional and national level on students from broadly defined disadvantaged groups, such as BAME students or students from low participation POLAR areas. In order to identify and effectively address HE disparities, it will be valuable to consider individual programmes and modules, and to look at more fine-grained categories, such as different ethnicities, more complex measures of socio-economic disadvantage, and the impact of intersectional identities. Ultimately, any use of data and analytics must centre on individual learners. . As teachers having a good understanding of our individual learners and cohorts is essential to adapt our teaching and learning environment to create an inclusive and effective learning experience for all learners.

### **Acknowledgement**

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***Transdisciplinary and Trans-sector Knowledge Ecosystems Leverage  
Interdependencies, Promote Agency and Advance Knowledge Democracies***

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**Abstract**

The paper predicts significant future expansion and differentiation in knowledge production and management practices across seven dimensions: novelty, connectivity, continuity, customization, access, unit of production, and discourse composition. Knowledge practitioners who leverage the interdependencies of highly differentiated experiences across these seven dimensions can support the development of knowledge democracies producing outcomes that are highly impactful but currently unrealized. We analyze challenges faced by cross-disciplinary discourse in United States academia to propose that the higher education sector in its current instantiation cannot independently foresee or ultimately support the full scope of such a knowledge democracy. Quintuple Helix transdisciplinary knowledge ecosystems integrating industry, academia, government, civil society and socio-ecological environments may be better positioned to explore the pluralistic knowledge needs of 21<sup>st</sup> century society. The richness, openness, and interdependencies of these ecosystems can enhance creativity, increase the agency of knowledge practitioners, promote multi-perspective reflective practice and advance socioeconomic sustainability. At the same time, the complexity of Quintuple Helix experiments may hinder the full-scale achievement of these aspirations. However, our underlying contention is that these experiments should result in groundbreaking perspectives driving further experimentation.

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## 1. Introduction and Motivation

The rapid and significant socioeconomic changes of the 21<sup>st</sup> century are affecting all major structures and institutions of our society, including academia. Recent public surveys (Brown, 2018; Jones, 2018) indicate that American higher education is not handling the ongoing disruption successfully and may even be heading in the wrong direction. Key reasons for the negative public opinions about higher education include rising costs, access policies that are not inclusive and inadequately address rising demand, and mismatch between learning outcomes produced by higher education and the skills demanded by employers (Banerji, 2007; Hart, 2016) and required by our complex societal needs (Madrigal, 2017). In this paper, we argue that these issues cannot be addressed individually through change-in-management structures or a series of one-off, piecemeal solutions, such as market driven budgeting. Universities are above all else institutions designed for the express purpose of creating and disseminating knowledge. Therefore, we believe that in order to address the perceived mismatch between academic practices and societal needs, we need first to explore a key question: what are the emerging and future knowledge needs of 21<sup>st</sup> century society?

The growing global knowledge economy is continuously increasing and diversifying the number of people that are involved in knowledge discovery, dissemination and application (Lucas, 2012; Morrar, 2017). The reasons for, and ways in which people engage in knowledge production and management are also rapidly diversifying (Meige, 2015). This continuous growth and diversification will result in a significant expansion of knowledge practices along several dimensions. The expansion may be thought of as a simple random walk process along each dimension the outcomes of which at any step are binomial. The outcomes of a large number of such steps taken can, under fairly general conditions, be shown to be approximately Gaussian as a result of the Central Limit Theorem (Hermans, 2013). Although knowledge features used on each dimension will span a broad scope, over time the overall distribution of feature usage will behave in a manner consistent with a normal distribution, with a larger number of experienced features accumulating near the center (Gnedenko, 1954). For the purposes of this paper, we focus on seven key predicted dimensions that we believe will dominate discussions on 21<sup>st</sup> century changes in knowledge production and management.

1. **Novelty:** The fast pace of technology and socioeconomic innovation (Morrar, 2017) will consistently add new knowledge and evolve existing knowledge (Adler, 2015), resulting in a normal distribution of knowledge practices extending from established and static practices to emergent and rapidly changing practices (S. S. R. Council, 2018; Hagel, 2014).

2. **Connectivity:** the increase in global connectivity will decrease the percentage of knowledge that is siloed or isolated (Castells, 2009), and will normally distribute knowledge over a continuum extending from compartmentalized knowledge to fully connected knowledge (Katz, 2014; Lucas, 2012).

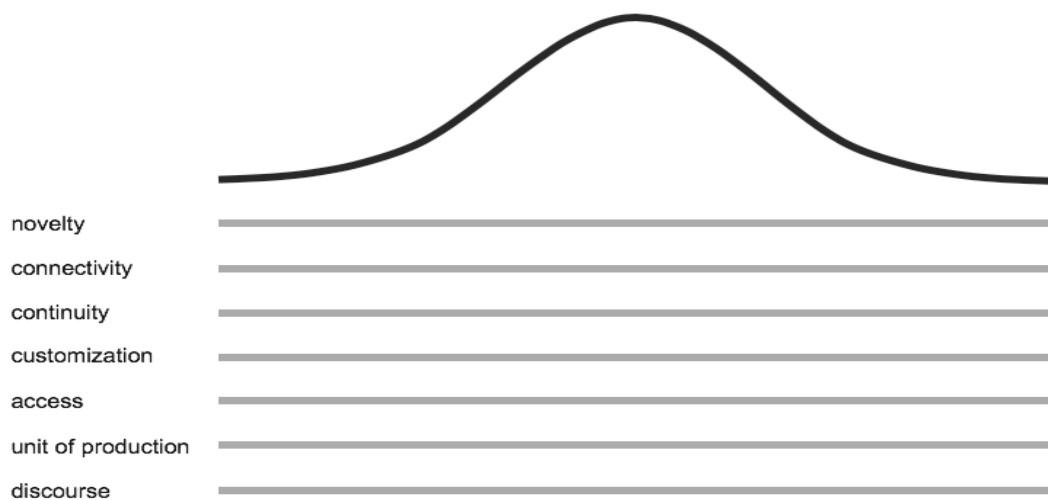
3. **Continuity:** The rate of change and interconnected complexity of knowledge will result in a normal distribution of impactful knowledge discovery extending from well-established paradigms of smoothly continuous discovery (discovery well connected to the canon and gradual) to discontinuous and disruptive discovery (Cohen, 2001; Mukherjee, 2015; Rooney, 2005; Schilling, 2011).

4. **Customization:** The rise of asynchronous knowledge delivery, smart tutors, and learning analytics (Koedinger, 2014) along with the growing realization of the effectiveness of individualized tutoring (Selingo, 2019) will distribute knowledge dissemination practices on a continuum extending from fully standardized paradigms (that dominated the previous century) to fully adaptive (Davidson, 2017; Murray, 2015; Senge, 2000).

5. **Access:** Social imperatives and the fast growth of the knowledge economy will increase and diversify access to knowledge production and management (Education, 2016; Greenstein, 2017). Access will extend from restricted or filtered to unrestricted, with the majority of practices being varied combinations in the middle of this continuum (Altbach, 2007; Crow, 2015; Education, 2016; Greenstein, 2017).

6. **Unit of production:** The growing realization on the importance of teams in tackling complexity (Fam, 2018; Page, 2007), coupled with the understanding of the challenges of team work (Mannix, 2005) and the importance of individual agency and creativity (Csikszentmihalyi, 1990) will create a normally distributed continuum of knowledge production units extending from individuals to large teams (Kania, 2011; Leahey, 2017; Uzzi, 2013).

7. **Discourse composition:** Discourse that spans knowledge areas (e.g. sciences and arts) (Darbellay, 2015; Page, 2007), knowledge sectors (e.g. academia and industry) (Katz, 2014) and knowledge domains (e.g. cognitive, psychomotor, affective) (Anderson & Bloom, 2001; Hutchins, 1995) is correlated with innovation and social sustainability. At the same time homogeneous cohorts can be more effective in advancing specialization (Abbott, 2001; Mannix, 2005). These realizations are maturing in parallel and will redistribute knowledge discourse on a continuum spanning fully homogeneous to fully heterogeneous (De Weck, 2011; Fazey, 2014; Klein, 2015; Tegarden, 2009).



*Figure 1; seven dimensions of knowledge change in the 21<sup>st</sup> century*

Figure 1 places a normal distribution over these seven predicted dimensions. It is important to note that even though we present these dimensions separately to facilitate discussion, the dimensions are of course interacting (Davis, 2006; Watts, 2003). We propose that as the heterogeneity, connectivity, and discontinuity increase from left to right so does the entropy (Watts, 2003). Therefore, a meta dimension that can characterize these interactions is knowledge entropy, extending from predictable and controllable to unpredictable and hard to manage. Using the Perez model of cycles of

major socioeconomic change, we suggest that every 40 years smaller changes will accumulate into more significant shifts in knowledge production and management (Perez, 2002). Some novel elements from the previous period will become more established (thus shifting to the left in our representation), some established ones will fade away, and some previously unknown elements will be introduced. For example, computer science as a knowledge area was a novel element in the 1970s but is now an area that combines both new and established knowledge. However, some current predictions propose that the Perez model will be replaced by constant innovation, in which case the time bracket for re-averaging elements will be shorter than 40 years (Adler, 2015). Regardless of the exact pace of innovation in the 21<sup>st</sup> century, we can be fairly certain that knowledge practices will change significantly from the time an individual enters the knowledge economy as a trainee, to the time they retire. Life-long learning, embracing of unpredictable career paths, and dynamic knowledge production and management platforms (Swearer, 2015) will be essential components of 21<sup>st</sup> century knowledge ecosystems.

Knowledge is well understood to be embodied, experiential and contextual (Dourish, 2001; Hollan, 2000). Although the overall average of knowledge experiences within the 21<sup>st</sup> century knowledge economy may approximate a normal distribution, individual experiences may show different average distributions or utilize customized permutations of elements across the seven dimensions (Cohen, 2001). For example, a heterogeneous team experience could be combined with restricted access and moderate connectivity, while an individual experience could be highly adaptive. A knowledge ecosystem with a large number of available experiences that are customizable based on context will be inclusive to people and practices (Hagel, 2014). Differentiated individual participants that are sensitive to the interdependence of varied individual experiences within a complex ecosystem (Hutchins, 1995) and have agency to creatively explore and expand the ecosystem (Sawyer, 2007) can develop 21<sup>st</sup> century knowledge democracies (Carayannis, 2014) that combine a rich common core of knowledge attributes with expansive arrays of differentiated features. Or put differently, a knowledge ecosystem that exhibits the Gaussian distribution properties described in this introduction. Since the integral combinations of common and differentiated features will be embodied by the individual members of these democracies, these ecosystems can support high network density across both homogeneous and heterogeneous practices which can be transformational in terms of knowledge organization and socioeconomic outcomes (Eagle, 2010; Grabher, 1997; Reagans, 2001).

The realization of such pluralistic systems is challenging. It may necessitate that knowledge communities combine existing knowledge practices with more novel ones that can promote an inclusive statistical comprehension of individual and complex societal knowledge. For example, Ianis Xenakis tried to model this problem in sound (Xenakis, 1971). He composed music using stochastic processes that promoted a shift from deterministic to statistical interpretations of complex experiences. He proposed that this shift facilitated the appreciation of the full spectrum of available features on each dimension of an experience and the perception of each dimension as a continuum with the edges of the continuum (i.e. order to entropy) being only two of the many available instances. This type of statistical interpretation (Gallistel, 2014; Vul, 2009) avoids hierarchization between available instances of an experience



continuum (i.e. ordered instances are not better than less ordered ones) and opens limitless possibilities of combinations of features across dimensions.

Similarly, Chatterjee suggests that experiential learning that embraces inclusive exposure to the full dimensionality and complexity of societal challenges such as human rights (Chatterjee, 2019; Consortium, 2019) results in impartially-partial knowledge practitioners who embody the philosophical concept of the View from Nowhere (Nagel, 1986). These knowledge practitioners are passionate (partial) about their experiences and points of view but also impartial in that they are aware of the wide spectrum of possible experiences, the limitations of individual points of view, and the richness that results from the co-existence of different experiences. These practitioners can form global democracies where traditional polarities (such as statism and globalism) can coexist within individual members as synergistic points of view (Chatterjee, 2009). The Chatterjee concepts can be seen as one characteristic instance of a greater category of transdisciplinary and trans-sector knowledge practices that are based on deconstructionist philosophy (Darbellay, 2015; Osborne, 2015). These practices aim to promote acceptance of multiple realities by members of a knowledge ecosystem (Nicolescu, 2002). Such collective acceptance advances multi-perspective reflective practice which in turn has the ability to produce new types of transformative solutions to 21<sup>st</sup> century problems. Already, cross-field and cross-sector transdisciplinary methodologies integrating an expanded and inclusive approach to expertise are gaining prominence in exploring complex problems such as sustainability (Carayannis, 2013; Evans, 2015; Vincent, 2015).

In the following sections we aim to address the following question: Is the current higher education sector able to support a pluralistic exploration of the expanding knowledge production and management space and generate knowledge democracies that advance a 21<sup>st</sup> century sustainable and inclusive society? We focus our interrogation of this question primarily on the socioeconomic context of American higher education, but we believe that many of the concepts discussed may also apply more globally. During our exploration we use the term transdisciplinarity to denote an inclusive discourse process that transcends disciplines and sectors (i.e. industry, academia) (Klein, 2015) and aims to shape reflective practitioners that leverage multiple perspectives (Darbellay, 2015). We use the term interdisciplinarity to denote a process that integrates insights from two or more academic disciplines “to solve problems whose solutions are beyond the scope of a single discipline” (Sciences, 2005), (Klein, 2015).

## **2. Great Universities as Anchors of Transdisciplinary and Trans-sector Knowledge Ecosystems**

### **2.1 The current set up of higher education and 21<sup>st</sup> century knowledge needs**

The disciplinary department based structure that remains dominant in American higher education was optimized to support knowledge practices relevant to the society that emerged from the second industrial revolution (Crow, 2015; Davidson, 2017; Senge, 2000). This educational structure fulfilled, and continues to fulfil, its knowledge goals very successfully. The concept of the “Great American University” has been a key factor in the growth and development of the United States in the 20<sup>th</sup> century (Cole, 2009). However, this educational structure primarily supports the left part of the distribution of 21<sup>st</sup> century knowledge presented in our introduction.

Disciplinary education focuses on the efficient and reliable production of standardized knowledge at scale (Buanes, 2009). The disciplines achieve this efficiency and reliability by maintaining homogeneity of knowledge practice (e.g. participants specializing in the same areas of knowledge and using similar methodologies) and avoiding radical discontinuities (e.g. insights that don't have a direct or linear connection to the existing disciplinary canon) (Krishnan, 2009; Menand, 2010). Furthermore, the disciplines stay focused so as to allow for individual disciplinary expertise; one person being able to keep up with the full scope of the discipline (Abbott, 2001). The disciplines rely on strong gatekeeping mechanisms (standardized testing, accreditation, consistent peer review) to maintain the desired homogeneity, continuity and focused perspectives (Abbott, 2001; Jacobs, 2013). Fixed disciplinary curricula assume that universities educate students for a sole known purpose that remains fixed for the significant duration of a person's professional career (De Weck, 2011). Knowledge dissemination that is standardized and has fixed goals tends to promote restricted access (Crow, 2015). The mechanistic origin of the current system also emphasizes determinism and hierarchization in knowledge outcomes. It is assumed that there is one best solution to any problem and that it can be found by breaking a problem into specialized components. These components will naturally come together in the one and only way allowed by that solution (Senge, 2000).

The increasingly partial coverage of 21<sup>st</sup> century knowledge needs by the existing university structure is well documented over the past ten years (Banerji, 2007; Engineering, 2005; Flowers, 2009), and indeed first predicted over thirty years ago (d'Hainaut, 1986; Jantsch, 1972). These initial predictions served to motivate the significant growth of interdisciplinarity, aimed at embedding more collaborative and heterogeneous innovation processes across the academic enterprise to gradually create a more dynamic university, better fitted to the more unpredictable parts of 21<sup>st</sup> knowledge (Knight, 2013; Sa, 2008; Sciences, 2005). After twenty-five years of working on this integration, the academic enterprise shows a growing list of successes that range from mildly continuous to moderately discontinuous in their relation to previous knowledge and are developed by small teams that balance homogeneous and heterogeneous perspectives (Donovan, 2015; Magnusson, 2018; Uzzi, 2013). These impactful outcomes are in great demand by our society (S. S. R. Council, 2018; Hart, 2016; Madrigal, 2017) but still form a minority, rather than the central peak, of the distribution of current academic knowledge production (Leahey, 2017; Mukherjee, 2015; Schilling, 2011).

A more detailed look at the growth of interdisciplinary education in US academia provides some of the reasons for which interdisciplinary education has not been able to create a bigger shift in overall academic practices and outcomes. The implementation of many interdisciplinary initiatives rely on some variant of a matrix structure, with interdisciplinarity represented on the horizontal axis and disciplinarity on the vertical axis (Sa, 2008; Sciences, 2005). The vertical is usually served by disciplinary departments and the horizontal by thematic faculty clusters, research centers/institutes or education programs (or some combination of the three) that bring together faculty and students from different disciplines. This structure (also known as the T-shaped model) illustrates the productive coexistence of interdisciplinary and disciplinary knowledge practices and is key in helping interdisciplinarity grow (Sciences, 2005). However, it also serves to frustrate the evolution of the university towards 21<sup>st</sup> century knowledge needs as the model treats interdisciplinary and

disciplinary knowledge as different dimensions rather than variants of the homogeneous to heterogeneous knowledge continuum. The opportunity to train a large number of practitioners that embody various combinations of disciplinary and interdisciplinary knowledge is thus missed. Furthermore, in the T-shaped model the depth is assigned to the discipline and hybrid knowledge is treated as breadth which formalizes an artificial hierarchy where disciplinarity is by default “the” core knowledge; “the” point of view against which any new knowledge structures need to be assessed.

A recurring point of frustration for faculty and students participating in interdisciplinary work in American universities is that the disciplinary departments do not uniformly support or incorporate the knowledge practices that emerge from interdisciplinary activity because they are found to be too applied or too distant from the disciplinary core (Hein, 2018; McLeish, 2016; Pfirman, 2011; Samuels, 2015; Stern, 2010). Faculty members describe being advised by disciplinary colleagues that new insights belong to the knowledge space of the interdisciplinary program, rather than the discipline. They are further advised to stage their involvement; first achieve solid status and tenure within the discipline before engaging in “distant” interdisciplinary activities.

The philosophical resistance of the disciplines towards interdisciplinarity is strengthened by organizational or bureaucratic structures (Abbott, 2001; Menand, 2010). In the American university model of the last two centuries, the disciplinary department is at once the fundamental unit of knowledge organization and of operations. It controls the key features of the university: hiring, promotion and tenure, structuring of the educational majors, university funding based on enrollment, and gatekeeping of research. This gatekeeping of research goes beyond any particular university as universities have similar departmental structures which guarantees that disciplinary peer review globally has similar expectations (McLeish, 2016). The traditional academic department is the only context in which one can pursue a stable and focused area of investigation throughout a 40-year professional career (Abbott, 2001). The structure of disciplinary promotion and tenure is a powerful binary moment (you either get a job for life or you are fired) and there is scant adaptation. Tenure track faculty must seek promotion after six years, even though it is well understood that some fields (for example those requiring the collection of complex data in the wild or broad collaborations) may have higher transaction costs and may require more time to demonstrate results (Samuels, 2015).

Many US interdisciplinary initiatives try to solve the problem of the discipline resistance by giving independent status to successful interdisciplinary programs and centers. These units have a permanent budget from the university, the ability to host partial faculty lines or even give tenure to faculty in the program using interdisciplinary criteria, and they can offer new interdisciplinary majors (Brint, 2005; Crow, 2015; Knight, 2013; Sa, 2008). However, this approach further separates interdisciplinary programs or institutes from the disciplinary programs they are expected to synergize and collaborate with and in some cases places the interdisciplinary programs in competition with their related disciplines in terms of people, resources, and knowledge practices (Sa, 2008; Stern, 2010). This approach also makes it hard to sunset interdisciplinary units when the problem space they are

organized around changes or it subsumed by newer problem spaces or grand challenges (Hartesveldt, 2008; Popowitz, 2018).

The growth of interdisciplinarity in parallel with the disciplines, with limited effect on innovating the disciplines themselves, does not meet the original motivations for the growth of cross-disciplinary discourse (Klein, 2008, 2015). Such discourse was supposed to create new insights to be incorporated into the disciplines and in the process continuously change the disciplines (d'Hainaut, 1986; Derrida, 2004; Foucault, 1969, 1971). This process of contextualization, de-contextualization, and recontextualization would continuously deconstruct knowledge production and management, allowing it to keep pace with the needs of a fast-evolving society (Osborne, 2015). The coexistence of the established and the new would support knowledge practitioners that can embody multiple perspectives (i.e. disciplinarity, inter and transdisciplinarity) and are comfortable moving between different levels of order and entropy (Darbellay, 2015). For example, the stochastic music of Iannis Xenakis, John Cage and other pioneers in the second part of the 20<sup>th</sup> century placed probabilistic events, like the song of crickets at night, on the same order to entropy continuum as deterministic music (like rhythmic and tonal songs). The resulting expansive conceptual space allowed artists and scientists to work together in an open-ended manner that leveraged the growth of media computation and the creativity that emerged from the collision of different ideas. Their work promoted the emergence of the meta-concept of music as organized sound that could have applications everywhere (from concerts halls, to education, health, information and communications) and was modular, mobile and accessible to everyone as a listening and making experience (Roads, 2015). However, much of this work happened in new cross-discipline and cross-sector centers and programs rather than through expansions of traditional music programs, which in many cases remained skeptical about the musical value of this revolution (Makch, 2015; Wisnioski, 2013). Many traditional classical musicians who opposed Xenakis approach to music maintained that when people have a choice, they will choose to listen to deterministic and ordered classical music over the chaotic noise of statistical composition. Xenakis counter proposed that people are equally happy to listen to the stochastic sounds of crickets, wind in the forest, and sea waves as they are to listen to Mozart or Debussy. When all these experiences are accepted as a continuum of organized sound, then new music possibilities open up, such as the revolution of digital sound described above (Xenakis, 1971).

We similarly propose that a dramatic expansion of organized knowledge production and management supporting radically different but interconnected experiences that combine features across the full spectrum of key dimensions of 21<sup>st</sup> century knowledge (see Fig 1) could result in an inclusive global knowledge democracy that generates socioeconomic outcomes that are highly impactful but currently unimaginable. However, individuals or institutions that limit their experiences to one part of the possible spectrum of 21<sup>st</sup> century knowledge practices, or create hard-wired separations between different parts of the spectrum, will be challenged to imagine and eventually support the full scope of such a knowledge democracy. After a while, their limited experience becomes “the” point of view and constrains their imagination. The uneven effect of interdisciplinarity on American higher education because of the optimization of higher education towards the more ordered (deterministic) part of knowledge production is a clear illustration of this problem.

At the same time, some key transformative initiatives in American academia in the past 20 years crossing knowledge sectors (industry, government, community and academia) have created collective experiences that leverage the full spectrum of some of the proposed knowledge dimensions of our 21<sup>st</sup> century knowledge model. In the process, these initiatives have provided impactful recontextualization of traditional academic practices. The commitment of American universities such as Arizona State, Georgia State, and the University of Maryland at Baltimore County to advance in tandem with their surrounding communities in an inclusive manner brought into the conversation community experts (from K-12 and community college teachers to local government and community organizations representatives) who had significant experience with increased heterogeneity and adaptation. A new concept of access and excellence was created, where excellence was not associated only with established hierarchical assessment rubrics and rankings, but also with the ability of a knowledge ecosystem to support as many people as possible in reaching their potential and, in the process, create significant societal innovation (Crow, 2015; State, 2019; UMBC, 2016). The co-conceptualization of the NYC Applied Sciences Initiative by government, industry and academia brought industry experts into the conversation who had significant daily experience with discontinuity, disruption, and unpredictability (Corporation, 2010). The Initiative advanced the concept of professional education as a cross-sector, life-long learning endeavor supporting continuous socioeconomic innovation (Mulas, 2016). Many elements of the Applied Sciences Initiative are also found in other successful, cross-sector innovation districts (Katz, 2014) in cities like Boston (Project, 2015), Atlanta (G. Tech, 2019) or in initiatives under development like the Virginia Tech Innovation Campus in Alexandria (V. Tech, 2019). International forums relating to the future of work and future of talent (i.e. the Future Talent Council) are now deliberately structured as cross-sector efforts and are proposing transformational concepts including collaborative credentialing across industry and academia (F. T. Council, 2019). The recently announced additive manufacturing alliance led by the Robotics Institute at Carnegie Mellon University (Walters, 2017) achieves a level of connectivity that was unimaginable even 10 years ago. The alliance spans many stages and types of learning across multiple learning institutions (K-12, community colleges, research universities) and integrates these institutions with diverse industry and government efforts for inclusive socioeconomic development for the 21<sup>st</sup> century. The alliance takes entities that are considered to be competitors, like different universities, or entities that are siloed, like community colleges and universities, and allows them to instead be collaborators in very large team efforts.

## 2.2 Quintuple Helix Knowledge Ecosystems

The above examples propose that Quintuple Helix transdisciplinary/trans-sector knowledge ecosystems can potentially cover the full spectrum of 21<sup>st</sup> century knowledge needs presented in our introduction. Such ecosystems integrate industry, academia and government perspectives (the three sectors of the original triple helix (Etzkowitz, 2000)) with the contexts of civil society and socio-ecological environments (Carayannis, 2012, 2014, 2019). These knowledge ecosystems have the diverse expertise and experience necessary to compile, propose and experiment with highly differentiated and interrelated knowledge production and management practices. The notion of diverse knowledge ecosystems being responsible for transformative knowledge advancement is of course not new. It spans cosmopolis (universe-city) examples such as Babylon in 2000 BC, Athens around 500 BC, Rome

and Alexandria in Roman times, Florence and Rotterdam in the Renaissance, Vienna in the 18<sup>th</sup> century, Paris and Berlin at the turn of the 20<sup>th</sup> century and Silicon Valley in our current times. Although many of these ecosystems were and are place-based (i.e. current innovation districts taking advantage of the density and connectivity of an urban metropolis), it is possible that in the future they may also take the form of distributed alliances (i.e. the additive manufacturing alliance mentioned above or the UN Climate Change Partnerships (Nations, 2019)). Some of the current cross-sector paradigms are technology and science centric (Mulas, 2016). However, future knowledge ecosystems advancing innovation in tandem with socioeconomic and ecological sustainability will require “pluralism, diversity, and heterogeneity of knowledge” (Carayannis, 2014). The complex societal discourse of these ecosystems will rely significantly on humanistic and artistic experiences that cultivate multi-perspective reflective practice.

Quintuple Helix knowledge ecosystems anchored by comprehensive universities will have a significant part of knowledge production and management needs covered, but will need to rely on contributions from other sectors to cover the full spectrum of 21<sup>st</sup> century knowledge needs. These cross-sector influences may actually help innovate the universities themselves and the relation of universities with society. For example, in the late 1800s, a government/academia collaboration in the US resulted in the innovation of the land-grant universities which embraced a utilitarian role with access and opportunity for the working and middle class. This innovation required knowledge discovery and dissemination practices with key differences from the British Oxford/Cambridge model inherited by some of the first set of American Universities (e.g. Harvard, Yale etc.). However, the interplay of these different institutions, and their differing knowledge practices, enriched the evolution of American universities and promoted productive cross-influences (Cole, 2009; Graham, 1997). Similarly, the embedding of some modern universities in the cross-sector influences of Quintuple Helix knowledge ecosystems can result in the emergence of permanently dynamic institutions that can expand their knowledge practices while also maintaining many of the existing successful attributes (Thrift, 2016).

The cross-sector and cross-discipline interdependences of the proposed knowledge ecosystems can however give rise to concerns. Academics may worry that they will lose their independence, or that the academic agenda will be dictated by external forces such as industry or market demand (Gumpport, 2000). We agree that these interdependencies may indeed blur distinctions between disciplines, institutions and sectors of knowledge and reduce the dominance of any one implementation structures (disciplinary departments, standardized curricula and tests etc.). However, these ecosystems will also increase independence for the individual knowledge practitioner.

Imagine a future Quintuple Helix ecosystem using small knowledge units (i.e. 1 credit course modules) with outcomes ranging from established (i.e. mathematical integration) to exploratory (i.e. iterative improvement). Stronger links connect proximal knowledge units (i.e. math modules with each other and with computer science modules) while weaker links connect units that may be more distant but potentially innovative in their combination (i.e. computer science and design) (Watts, 2003). These modular experiences are complemented by longitudinal studio based and/or apprenticeship experiences (C. D. P. Faculty, 2019). Learners approach content

through modes of delivery, order, and at a pace that makes sense to them. They can combine learning experiences across all types of institutions participating in the ecosystem: K-12, community college, 4-year universities and colleges, graduate study, or professional study combined with work experience. The connection of knowledge experiences into learning pathways prioritizes the discovery of individual strengths and interests while allowing the student to acquire missing knowledge components in a just-in-time manner across their lifespan. Learners may not need to first acquire a whole gamut of standardized proficiencies before focusing on their specialized strengths. Thus, education moves away from the negative notion of standardized deficiencies and focuses instead on the positive notion of personalized efficiencies (Davidson, 2017). Learning is assessed at the level of each knowledge experience but also at the level of the pathway. The pathway assessment integrates higher-level knowledge outcomes that are transferable (i.e. communication, collaboration, creativity) (Universities, 2015). Allowing individuals to explore the full spectrum of pathways (from fully standardized to fully adaptive) advances agency and active learning and gradually promotes a rich space of standardized/adaptive hybrids in the middle of the spectrum. Data resulting from this inclusive approach to learning across a Quintuple Helix ecosystem can be used to train computational tutors and advisors with reduced biases which can then facilitate the scaling of adaptive learning to meet the needs of a diversified knowledge economy (Rikakis, 2018; Selingo, 2019). Although the above scenario may appear futuristic, some of these approaches are already being implemented. For example, the undergraduate curricula at Brown University in the US and at Waterloo University in Canada offer flexible, adaptive and cross-sector education pathways advancing student agency in tandem with standardized learning.

Academic professionals would also have increased agency. One of the main challenges in current academic structures relates to limited resources that cannot adequately address the increasing costs for high quality knowledge discovery and dissemination (Marcus, 2017). The sense of a zero-sum game (a limited pie that will primarily go to the winners) increases bruising institutional politics within academia (Harris, 2016). As discussed earlier, the dominance of traditional bureaucracies, such as disciplinary departments, in all rewards and incentive structures further enhances this problem. In contrast, the proposed Quintuple Helix ecosystems can create a wealth of available and evolving resources, as well as knowledge development and management pathways for participating knowledge practitioners. These ecosystems will not hierarchize science over humanities or arts and will not give priority to legacy structures over emerging structures or to homogeneity over heterogeneity. This egalitarian approach will hold true for all attributes of 21<sup>st</sup> century knowledge and penetrate all relevant incentive and reward structures; from financial support to appointments, awards, and review of publications and grants. The only constraint for the knowledge practitioner will be their imagination and their ability to form and /or participate in cross-sector partnerships supporting existing and new ventures.

Quintuple helix transdisciplinary knowledge ecosystems can also result in partial liberation from dominant administrative structures and bureaucracies such as the disciplinary department. For example, the Olin College of Engineering emerged from an industry, philanthropy and academic partnership that eradicated departments while remaining a high quality, highly ranked college continuously gaining in innovation stature (Miller, 2010). The Olin model advances a diverse community of engineering

practice responsible for all aspects of engineering; from the disciplinary to the transdisciplinary, the established to the novel and the theoretical to the applied. Faculty members can inhabit any part of these continua at any given time, based on their evolving knowledge interests. The identity of the academic practitioner emerges from their practice rather than their fit with established categories (e.g. disciplinary department or industry sector) (De Weck, 2011).

Dynamic organizational approaches can raise fears of employment security. The open-mindedness and the embrace of intellectual risk required from a transdisciplinary knowledge practitioner can be undermined by the uncertainty of an annual or other short-term contract. Aware of these challenges, professional organizations combining industry and academic perspectives, are already advancing solutions combining job security with support of dynamicity and agency. For example, the Emory University School of Medicine gives its junior faculty members 11 years to choose between research, teaching, or research and teaching tracks and decide if they want to be considered for continuing appointments. Faculty can switch tracks at any time (S. o. M. Faculty, 2017). Carnegie Mellon and Stanford Universities have policies allowing faculty to structure contracts spanning industry, government and academic employment. A 2008 NSF report on transformative change in academia, proposes the notion of faculty “free agents” with continuing contracts and the ability to switch organizational units (Hartseveldt, 2008). Allowing knowledge practitioners to easily move and redistribute their efforts across different tracks, different knowledge cohorts and different sectors (industry, academia, government, society); increases agency, creates multiple paths for job security, expands the notion of “expert” in an inclusive manner (Guattari, 1972), resists artificial hierarchies (i.e. teaching vs research or tenure vs non-tenured) and avoids competition or talent grabs (Gibney, 2016) across ecosystem sectors.

The actualized multi-perspective practitioners of Quintuple Helix Ecosystems will be able to form diverse and inclusive cross-sector grand partnerships around complex societal issues. The rich discourse resulting from these partnerships will evolve gradually and support pluralistic societal wisdom. The knowledge and practices of the individual participants will evolve faster so as to keep up with the changing pace of socioeconomic structures and technological tools. Mid-level organizational structures (i.e. learning pathways, expert cohorts, assessment structures) will emerge as knowledge practitioners focus on connecting dynamic individual practice to gradually evolving large-scale transdisciplinary explorations of societal significance. Building on relevant prior work (Swearer, 2015), we define these organizational structures as knowledge platforms: conceptual models built to deliver particular knowledge practices (including values, goals, and processes) with as little attention to, or interference from, the platform as possible.

### **3. Conclusion**

There is a growing mismatch between the knowledge outcomes of traditional universities and the knowledge needs of 21<sup>st</sup> century society. We propose that dynamic, transdisciplinary/trans-sector grand partnerships in the form of Quintuple Helix knowledge ecosystems have the diverse expertise needed to develop knowledge production and management structures covering the full spectrum of these needs. The interdependencies of these ecosystems can enhance creativity, promote sustainability



and increase the agency of knowledge practitioners. Anchoring these partnerships with comprehensive universities can provide a solid foundation for the ecosystems and facilitate the progress of universities towards more dynamic institutions. We acknowledge that the realization of these ecosystems faces significant challenges. Successful existing practices need to be integrated with novel, experimental practices. A sustainable inclusive discourse is needed that trains knowledge practitioners who can leverage the interactions of radical differentiation rather than let differentiation lead to fragmentation. We therefore propose experimentations with Quintuple Helix ecosystems as only one of many possible avenues for exploring the complexity of 21<sup>st</sup> century knowledge. The results of these experimentations, although potentially different from the predictions proposed in this paper, will advance the imagination of the involved communities and open new perspectives driving further experimentation.

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## *Educators' Perceptions of the Support Needed for New Teachers*

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### **Abstract**

One of the principals' roles is to help new teachers become successful veteran teachers. Unfortunately, new teachers have been exiting the teaching profession by increasing numbers. The purpose of the present study was to determine what teachers and principals perceive to be the components needed in an induction program for new teachers. The findings indicated that in the domain of orientation, the major needs included knowledge of school/district procedures and policies followed by classroom behavior management. In the domain of mentoring, the major needs were instructional coaching, routines, and classroom behavior management. In the domain of professional development, the major needs were observation and feedback, one-on-one training, and workshops. There were no significant differences among the three groups (all educators, administrators, and new teachers), although their order of importance sometimes differed. The preferred environments expressed were collaborative and respectful, and the preferred structures were common planning time and professional learning communities. The conclusions were that the administration should concentrate on three areas to provide guidance and support for new teachers: (1) classroom behavior management; (2) common planning time; and (3) professional learning communities.

Keywords: Induction, instructional leadership, new teacher attrition

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## **Introduction**

New teachers have been leaving the profession at high rates, by as much as one-third within three years and almost half within five years (Ingersoll, Merrill, & May, 2014). This high rate of attrition has a negative impact on the school and on student achievement (Carver-Thomas & Darling-Hammer, 2019). Numerous studies explored the reasons for new teacher attrition with lack of administrative support, extracurricular assignments, student behavior, lack of parental support, inadequate preparation, poor working conditions, and salary among the top reasons (Bolich, 2001; Carver-Thomas and Darling-Hammer, 2017; Darling-Hammer, 2003; Fredricks, 2001; Podolsky et al, 2016). Other research has determined that strong induction programs were successful in retaining new teachers (California County Superintendents Educational Services Association, 2016; Ingersoll & Strong, 2011; Martin, 2012; Podolsky et al, 2016). The most frequently mentioned necessary components of induction were orientation, mentoring, and professional development. The purpose of this study was to determine what teachers and principals perceive to be the needed support to help new teachers become successful. A survey was administered to teachers and principals in one school district in Louisiana regarding their perceptions of what should be included in a new teacher induction program in the domains of orientation, mentoring, and professional development.

## **Conclusions**

Findings indicated that in the domain of orientation, the most frequently cited needs were school/district procedures and policies followed by classroom behavior management. In the domain of mentoring, the most frequently cited needs were instructional coaching, routines, and classroom behavior management. In the domain of professional development, the most frequently cited needs were observation/feedback, one-on-one training, and workshops, closely followed by classroom behavior management. There were no significant differences among the three groups (all educators, administrators, and new teachers), although their order of importance sometimes differed. The most preferred environment was collaborative, and the preferred structures were common planning time and professional learning communities. From these results, the conclusions were that the administration should provide new teacher support in three areas: classroom behavior management, common planning time, and professional learning communities.

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*Cinematherapy as Modeling Technique in Cognitive and Emotional Development  
in Educational Context of the Depressed Filipino Female Adolescents*

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**Abstract**

This study is a pioneering effort of the Psychological Section of the National Center for Mental Health. As basic research, it aimed to determine the efficacy of Cinematherapy as a modeling technique in reducing if not eliminating depressive symptoms so as to increase their competency level and improve their academic performance upon return to school of the 30 Filipino female adolescents aging from 15-18 years old admitted in Zonta, a female adolescents' pavilion. It employed quasi-experimental design involving the pre-and-post test data of the participants with depressive symptoms. Quantitative evidence was obtained from the administration of Basic Personality Inventory – Filipino Version to determine the change in the depressive level of the participants after watching selected films on self-confidence, persistence, optimistic attitude, sense of obligation and responsibility, and belief in one's own ability to accomplish/achieve one's goals for 12 sessions. This helps the participants realize the "reel" and real life experiences and that their viewing experience provides them the opportunity to have right perspective outside the experience and discover strengths in the midst of challenges thus, enhance cognitive and emotional skills. Findings showed the decrease depressive level thereby; Cinematherapy is a good therapeutic technique in enhancing competency skills and increasing achievement level of female adolescents to be prepared as they face again the challenges in education.

Keywords: child and adolescent psychology, depression, cinematherapy

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## Introduction

The challenges of adolescence lead the youth to become depressed (Fried, 2005 cited by Kail and Cavanaugh, 2016). This is the first onset of depression (Kessler, et al., 2005 cited by Waugh &Koster, 2015) and relapse may occur while on the adolescence stage as to the finding of Lewinsohn, et al., 1994 as mentioned by Waugh & Koster, 2015. It is also related to the recurrent and chronic depression in adulthood (Garber, et. al, 2009) and other mental illnesses like anxiety disorder, substance abuse and alcohol problem (Maughan, et al., 2013 & Thummathai, 2017).

Adolescent depression is common leading to distress and impairment for individuals and families (Jones, et al., 2017) on such aspects of life as academic performance; and peer and family functioning from the findings of Birmaher, et al, 1996 & Gootlib, et al, 1995 cited by Weeland, et al, 2017; loss of competency and reduced educational achievement from the studies of Garber, et al, 2009, Leahy, 2010, Smith and Smith, 2010 (Thummathai, 2017); social sphere and general well-being ( Cruz, et al., 2014); suicide prevalence (Weeland, et al, 2017, WHO, 2017 &Thummathai, 2017); and major personal, economic and societal costs (Strange, et al, 2017).

Adolescents have pervasive feelings of sadness, irritable, low self-esteem, unable to concentrate (Kail & Cavanaugh, 2016), feelings of hopelessness, changes in sleep and appetite, and suicidal ideation and such are externalized differently from adults (Cruz, et al, 2014). To deal with depressive symptoms in order not to recur in adulthood, psychotherapy involving cognitive and social skills whereby the adolescents learn social interaction by interpreting the social cues appropriately is recommended. It is then, the combination of cognitive behavioral model in which it is based on the insights of the adolescents with facilitation of the therapist; and social learning involving observational learning wherein they have to observe the modeled behavior to learn coping strategies. Cinematherapy applied these approaches for therapeutic effect on the adolescents' struggles with daily life complexities. Nowadays, the adolescents are greatly influenced by any kind of movies affirming the findings of various studies on Cinematherapy cited in Powell et al., 2006. Cinematherapy is effective for movies are a 'powerful medium' and as part of adolescents' culture (Hebert & Neumeister, 2001), link of inner life fantasy and current reality (Chethik,2000), and serves as means of preventing resistance in processing information to master the desired behaviors and connecting the knowledge gained within the therapeutic sessions to real life experience (Powell et al., 2006). As an Art Therapy, Cinematherapy is an avenue to freely express their emotions which are frightening and difficult to accept or current problems (Gramaglia, et al., 2011 & Marsick, 2010) or wide range of problems of various population involving individuals, couples and families ( Egeci & Gencoz, 2017) from different angles (Marsick, 2010). The intervention technique of watching a movie with a group of similar difficulties allow the adolescents to identify with characters in the film through analysis of the modeled behaviors and group discussion after watching providing an opportunity to share the experiences and coping styles of the characters. This process leads to gaining insight on how to resolve the issues, discover ways on dealing with the problems to avoid from having unpleasant emotions like being sad, irritable and lose hope in improving their performance or manifesting depressive symptoms. These are determined in the several researches conducted and confirmed the effectiveness of Cinematherapy as a non-directive therapeutic tool in managing depressive symptoms.



The method is a form of inquiry of adolescents' inner life in order to come into contact with their emotions by acknowledging and accepting of thoughts and behaviors to effect cognitive and affective change from the study of Gramaglia (2011) on patients with eating disorders using Cinematherapy. Egeci and Gencoz (2017) posited that movie is a functional medium for discussing interconnected issues as it is seen as a safe distance for self-exploration. By identifying with the characters, they are able to identify their blockages, present needs, and concealed or unspoken desires and expectations hence; re-signify, restructure and transformed their life scripts so as to discover new coping strategies as what found out by Dumtrache's study in 2014. This technique is utilized to improve the hope and optimism of an adult with Major Depression in the case study of Lee Powell, et al (2008) in which it is statistically and clinically effective at improving hope and clinically effective at improving optimism in individuals with depressive symptoms. Further, in the study of Egeci & Gencoz (2017) of 2 cases of depression whereby movie discussion made them aware of the causes of depressive symptoms thus; change was made possible. Similarly, the study of Abedin & Molaie in 2010 found that Cinematherapy is effective in decreasing depression through facilitating cognitive, emotive and behavioral modeling.

As a basic research and pioneering effort of the Psychological Section of the National Center for Mental Health in the field of Clinical Psychology and the area of specialization, the Child and Adolescent, the researchers aimed to determine the efficacy of Cinematherapy as a modeling technique in reducing if not eliminating depressive symptoms among thirty (30) Filipino girl adolescents aged 15-18 years old admitted in Zonta, a female adolescents pavilion. With the best knowledge and efforts of the researchers, to date, there is a limited number of studies that provided quantitative evidence (Egeci & Gencoz, 2017). In response to the scarcity of quantitative studies on Cinematherapy as therapeutic tool, this study utilized quasi-experimental design with pre-posttest using standardized test. Further, it was conducted on in-patient girls manifesting depressive symptoms proving that 5 - 15% of girls are affected than boys with depression. It is related with social challenges in adolescence that is greater for girls than boys (Kail & Cavanaugh, 2016). The researchers then would like to find out if this therapeutic technique is effective to the in-patient adolescents with depressive symptoms as with the findings in the Western countries and other Southeast Asian countries.

The objectives of this research are to determine the efficacy of Cinematherapy among the depressed girls of Zonta Pavilion of National Center for Mental Health and utilize the findings in designing the Psychological intervention program for both boys and girls of the Outpatient Section. Specifically, this study sought to confirm the efficacy of Cinematherapy as an intervention technique by determining the significant differences between the mean scores of experimental and comparison groups before and after the movie showing to the participants.

The participants are 30 girls aged 15-18, at least Grade 3 level and admitted in Zonta, a Child and Adolescent Pavilion manifesting depressive symptoms as measured by Basic Personality Inventory Filipino version and are selected through purposive sampling. They have not undergone any therapeutic intervention nor watched the movies before the study.

The participants' Information Sheet was designed by the researchers for personal information gathering including age; educational attainment; mental health status like the date and number of times of admission, and duration of manifestation of depressive symptoms; Basic Personality Inventory scores and interpretation; and therapeutic and movie experiences. Explanatory Statement for the Participants and their Significant Others; and Informed Assent and Consent for the participants of the study as well as their Significant Others were provided to the participants and their significant others.

The Basic Personality Inventory – Filipino Version consists of 240 true/false items, and may be used with both adolescents and adults. The 12 bipolar scales measure broad dimensions of personality that relate an individual's intrapsychic and interpersonal functioning. Scale names were chosen to avoid potentially inaccurate diagnostic labels include (1) Hypochondriasis, (2) Depression, (3) Denial, (4) Interpersonal Problems, (5) Alienation, (6) Persecutory Ideas, (7) Anxiety, (8) Thinking Disorder, (9) Impulse Expression, (10) Social Introversion, (11) Self Depreciation, and (12) Deviation. Several studies indicate strong support for the reliability and validity of the BPI. In this study, the researcher focused on the measure of depressive symptoms such that high scores on Depression and Self-depreciation; and low scores on Alienation and Persecutory Ideas.

Selection of movies was based on the objective of the study which is reducing the depressive symptoms thus; dealing with emotions and developing self-confidence, persistence, optimistic attitude; sense of obligation and responsibility; and belief in one's self to accomplish/achieve one's goals. These movies were reviewed by three clinical psychologists to ensure the appropriateness in meeting the objectives of the study prior to showing. The following are shown to the participants in the scheduled dates:

Inside Out is about emotions namely joy, anger, fear, disgust and sadness in adjusting to different life situations.

Moana focuses on sense of obligation to the family and community.

Mulan stresses on the acceptance of responsibility to save one's family member and to defend the community from any harm or danger.

Frozen emphasizes on giving assurance in dealing and relating with others specifically to one's family member and the community as well.

This study is of quasi-experimental design involving pre-post-test and experimental and comparison groups. The participants were asked to read and understand the Explanatory Statements and then sign the Informed Assent/Consent so with their Parents/Guardians before starting the sessions.

The 12 sessions activities for about 45 minutes began with the administration of the Basic Personality Inventory Filipino version to assess the presence of depressive symptoms. Basing from the test findings, those with depressive symptoms were assigned to either experimental and comparison group. The participants in the experimental group received Cinematherapy in 10 sessions for 45 minutes with guided viewing on selected movies followed by sharing of experiences in reel and real situations and answering the questions formulated for each movie. The comparison

group took Basic Personality Inventory Filipino version before and after the activity; and received no intervention for the duration of study.

The second session is the Introduction of Cinematherapy as a therapeutic technique and the questions about the activity by the participants.

In the third and fourth sessions, the movie *Inside Out* which depicts 5 emotions namely Joy, Sadness, Anger, Fear and Disgust experienced by an 11-year old girl named Riley as she deals with social situations with emphasized on positivity to life-changing events was shown to the participants. After watching, the following questions about the movie were asked:

1. Describe the main character of the film.
2. How does Riley feel in different situations?
3. If you are Riley, would you feel the same when you move to a new place?

The fifth and sixth sessions is the showing and processing of the movie *Moana* that is about the heroic act of an island girl who is ready to save the island from hunger by going beyond the reef though it was prohibited by her father because of enchantment but the encouragement and guidance of her grandmother she becomes confident that she will succeed with her mission of giving back the stolen heart of Te Fiti, the living mother island and restore their beautiful and fruitful island. The questions were as follow:

1. Describe the main character of the film.
2. How did Moana show her sense of obligation to their people?
3. Was there an instance that you did like that of Moana?

On the seventh and eight sessions, the participants watched *Mulan* tells a story about a brave girl who disguised as a boy to represent her family so that her ailing old father will not be forced to join the army for a special mission. For this viewing, the participants are required to answer the following:

1. Describe the characteristics of Mulan.
2. What are the ways that show Mulan accepting the responsibility of her father?
3. In what way that you accepted the responsibility like that of Mulan?

Ninth and tenth sessions are intended for the showing of *Frozen* which explores the ideas of true love toward family and strengthen siblings' relationship just as Elsa and Anna who did extraordinary things to save one from danger and to prove their love to one another. The following questions were:

1. Describe the characters of Elsa and Anna as sisters.
2. How did they assure that they truly love each other and the kingdom?
3. In your experience, how did you assure your sister/family that you really love them?

Eleventh session is the administration of the Post-test of Basic Personality Test-Filipino Version.

Twelfth session is the wrap-up activities wherein the participants are given the opportunity to ask further questions about the activity.

## Results

**Table 1 Pre-test and Post-test Mean Scores, Standard Deviation and t -Test Values of Experimental Group**

Scales	Pre-test		Post-test		t	Sig	Decision
	M	SD	M	SD			
Depression	64.33	5.31	54.13	12.11	4.203	.001	Reject
Alienation	41.27	4.67	52.60	9.17	-5.937	.000	Reject
Persecutory Ideas	47.20	8.06	54.67	8.16	-5.453	.000	Reject
Self-Depreciation	64.53	12.04	59.40	14.01	2.964	.010	Reject

To determine the efficacy of Cinematherapy as an intervention technique, the researchers subjected the pre-test and post-test mean scores of each group to a paired sample t-test.

As seen in Table 1, all scales have significant differences indicating that the Cinematherapy as an intervention is effective in lowering levels of Depression ( $t(14) = 4.203, p = .001$ ) and Self-Depreciation ( $t(14) = 2.964, p = .010$ ); and increasing the alienation ( $t(14) = -5.937, p = .000$ ) and Persecutory Idea levels ( $t(14) = -5.453, p = .000$ ). The significant t-test values of 4.203, -5.937, -5.453 and 2.964 for Depression, Alienation, Persecutory Ideas and Self-Depreciation respectively confirm the efficacy of Cinematherapy as an intervention technique.

**Table 2. Pre-test and Post-test Mean Scores, Standard Deviation and t-Test Values of the Comparison Group**

Scales	Pre-test		Post-test		t	Sig	Decision
	M	SD	M	SD			
Depression	65.87	5.07	66.00	4.66	-.152	.881	Accept
Alienation	44.60	8.01	45.33	6.11	-.416	.684	Accept
Persecutory Ideas	47.60	5.87	48.93	7.34	-.552	.590	Accept
Self-Depreciation	60.20	6.81	58.73	7.59	.987	.340	Accept

This shows the statistical computation on determining the significant differences between the pre-test and post-test mean scores of the comparison group using paired sample t-test.

The t values of 4 scales of BPI Filipino namely: depression ( $t(14) = -.152, p = .881$ ), alienation ( $t(14) = -.416, p = .684$ ), persecutory ideas ( $t(14) = -.552, p = .590$ ), and self-depreciation ( $t(14) = .987, p = .340$ ) obtained in pre-test and post-test were not significant at .05 level of significance. Therefore, the researchers accept the null hypothesis that there is no significant difference between pre-test and post-test mean scores of the comparison group. The insignificance of the obtained t values could be interpreted as there is no change in the level of depressive symptoms as they attended to their regular daily living activities in the pavilion.

To establish the homogeneity of the participants of the experimental and comparison group, significant differences were determined by using the paired sample t-test.

**Table 3. Pre-test Mean Scores, Standard Deviation, and t-Test Values of Experimental and Comparison Groups**

Scales	Experimental Comparison				t	Sig	Decision
	M	SD	M	SD			
Depression	64.33	5.31	65.87	5.07	-.492	.626	Accept
Alienation	41.27	4.67	44.60	8.01	-1.393	.175	Accept
Persecutory Ideas	47.20	8.06	47.60	5.86	-.155	.878	Accept
Self-Depreciation	64.53	12.04	60.20	6.81	1.213	.235	Accept

Table 3 presents the pre-test mean scores of participants of Experimental group (Depression M=64.33, SD = 5.31; Alienation M=41.27, SD = 4.67; Persecutory Ideas M=47.20, SD=8.06 and Self-Depreciation M= 64.53, SD =12.04) and Comparison group (Depression M=65.87, SD = 5.07; Alienation M=44.60, SD = 8.01; Persecutory Ideas M=47.60, SD = 5.86 and Self-Depreciation M= 60.20, SD = 6.81). The obtained t-test values are not significant at the .05 level of significance for Depression ( $t(28) = -.492, p = .626$ ), Alienation ( $t(28) = -1.393, p = .175$ ), Persecutory Ideas ( $t(28) = -.155, p = .878$ ), and Self-Depreciation ( $t(28) = 1.213, p = .235$ ). It can be inferred that all participants have the same level of depressive symptoms which is accounted for by the random assignment of the participants. Individual differences are equalized – values of all variables – age, grade level and level of depressive symptoms. The researchers then could avoid coming up with erroneous conclusions.

After establishing that there is no significant difference between the experimental and comparison groups before the therapy, the researchers would now like to look into the possible differences between the two groups after the conduct of Cinematherapy. The mean scores of both groups in the different scales were subjected to paired sample t-test.

**Table 4. Post-test Mean Scores, Standard Deviation and t-Test Values of Experimental and Comparison Groups**

Scales	Experimental		Control		t	Sig	Decision
	M	SD	M	SD			
Depression	54.13	12.12	66.00	4.65	-3.540	.001	Reject
Alienation	52.60	9.17	45.33	6.11	2.553	.016	Reject
Persecutory Ideas	54.67	8.16	48.93	7.34	2.023	.053	Reject
Self-Depreciation	59.40	14.01	58.73	7.59	.162	.872	Accept

Presented in Table 4 are the post –test mean scores and t values of the participants from the Experimental group (Depression M=54.13, SD = 12.12; Alienation M=52.60, SD = 9.17; Persecutory Ideas M=54.67, SD = 8.16; and Self-Depreciation M= 59.40, SD = 14.01); and Comparison group (Depression M=66.00, SD = 4.65; Alienation M=45.33, SD = 6.11; Persecutory Ideas M=48.93, SD = 7.34 and Self-Depreciation M= 58.73, SD = 7.59).The obtained t-test values of Depression ( $t(28) = -3.540$ ,  $p = .001$ ), Alienation ( $t(28) = 2.553$ ,  $p = .016$ ) and Persecutory Ideas ( $t(28) = 2.023$ ,  $p = .053$ ) were significant at the .05 level of significance. In Self-depreciation, the t-test value ( $t(28) = .162$ ,  $p = .872$ ) was found to be insignificant. The significant t values of Depression, Alienation, and Persecutory Ideas indicate a change in the level of depressive symptoms in both groups. The insignificant t-test value of Self-Depreciation means that there is no significant difference in the self-assurance level of participants who undergo Cinematherapy and those who did not.

## Conclusion

The study on determining the efficacy of Cinematherapy in reducing depressive symptoms among female adolescents admitted in a government psychiatric facility showed positive results.

The twelve (12) sessions with the girls provided them the opportunities to experience the real and reel life situations as they relate to what they had experienced to the scenes in the movies being watched. It is reflected in their responses to the questions asked during the processing part of the activity and the insights shared in every scene. This proved that truly movies are a “powerful medium” as posited by Herbert and Neumeister in their study of 2001 so with establishing linkage to their inner life fantasy and reality situations (Chetnik, 2000) in which they were able to distinguish what is really happening to them from what they are wishing for like mentioning “so sad to be transferring to a new house for we don’t have friends there but happy because we are with our families and be in a new place and house”. The sessions allowed the participants to regain confidence and enhance their positive attitude of having hope and optimism (Powell, et al, 2008) thus, the movie about emotions and that Riley in Inside Out modelled positive behaviors (Powell et al, 2006). It leads to changing their feelings/emotions and thinking which is similar to the findings of the study of Gramaglia in 2011. These are manifested by the experimental group who attentively watched every action of the characters thereby; learning ways to deal with difficulties and challenges whenever they will be out/discharge from the center and go back to their normal life just as the Dumtrache’s findings. Further, it implies lessening of depressive symptom.

The identification with the strong character/modelled behavior of the actor enabled them to accept responsibility without any fear or with courage as Mulan. The girls bravely responded that they were also “ready to protect their family, to be good in all ways”. With this realization, competence to come up with effective strategies to be more responsible in facing the tasks with courage is enhanced implying that the movie is a functional medium for self-exploration as stated by Egeci & Gencoz in their research study in 2017.

The young adolescents from the experimental group further developed their social skills - a sense of obligation toward others and the society (Alienation) after watching

and processing the movie - Moana though not so assured in dealing with others as there are doubts in their capacity to be liked by others as in Frozen but the main character is ready to make sacrifice for the love of her sister. The modelled behaviors are observed in the girls during the processing activity in which their common response was they could do everything for the love of their siblings, willingly help the family in all ways at all times, and always on guard for they are also at their side whenever they needed them". The movies then, provided them an opportunity to watch the modelled behaviors that influenced the change in their cognition, emotions and behaviors as what mentioned in the study of Abedin and Molaie, 2010 thus; improvement in their performance in daily living activities is shown.

Although the obtained post-test results of Self-depreciation of experimental group as well as with comparison group is not significant, the intervention technique is still found effective as the three (3) indicators of depressive symptoms improved at the end of the study specifically in the experimental group who were exposed with Cinematherapy. The comparison group on the other hand, who did not receive any treatment still showed depressive symptoms at the end of the study.

In relation to the findings, it is emphasized that viewing the chosen films should be processed by the therapist in order that the participants are to be in contact with their emotions by acknowledging and accepting of thoughts and behaviors to effect cognitive and affect change (Gramaglia, 2011) and to discover new coping strategies (Dumtrache, 2014) was implemented in the study. However, since this is a pilot study the researchers did not measure the prolonged effects of the intervention.

Summing up, the obtained results adhere to the efficacy of Cinematherapy as an intervention technique in terms of reducing the depressive symptoms experienced by the female adolescents of the Zonta Pavilion thus, it enhances cognitive and emotional skills. Thereby; Cinematherapy is a good therapeutic technique in enhancing competency skills and increasing achievement level of female adolescents to be prepared as they face again the challenges in education.

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## *Fundamental Foundations in Early Childhood Development*

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### **Abstract**

This paper is a commentary on the value of ethics, relational pedagogy, and how educators can foster an excellent educational environment, all in the context of early childhood development. Children are susceptible to external influences by nature. That is why ethics and values are indispensable in early childhood education programming. After all, education and the teaching profession are elements that construct a civilized society. Relationship is also a critical element in the classroom. It requires educators to focus on each child's unique learning style and background. Relational pedagogy finds ways to create real-life connections that foster confidence, self-esteem, and increased academic performance. Lastly, but equally important, is the educational environment. The educational environment is more than simply architecture and administration. It is the scholastic and relational atmosphere developed and maintained by the teacher. The paper concludes with an analogy that covers the versatile characteristics of a quality educator, drawing a comparison to the unique attribute of the bamboo.

Keywords: Early Childhood Education, ECE, Ethics, Integrity, Values, Educational Environment, Teacher Education, Bamboo Educator, Inclusion, Relational Pedagogy

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## Introduction

Learning begins at birth. Education is a process whereby the mind is developed to a higher dimension, enabling an individual to understand and deal with life experiences from an informed perspective. Early childhood programs can result in more alert minds, better school attendance, and lower dropout rates. A lack of school engagement can not only impact dropout rates, but can lead to "other problem behaviors during middle adolescence, late adolescence, and early adulthood." (Henry, Knight, & Thornberry, 2011). Provided the environments are conducive to learning and teaching, quality early childhood experiences can be fostered at home, in the traditional school setting, or at professional care centers. Educators have a massive responsibility to help shape the future and establish a healthy foundation for lifelong learning. Education is, therefore, absolutely indispensable in shaping the personality and building the character of the child. Education undoubtedly plays a pivotal role in producing the well-rounded, productive, and decent citizens of a nation. Education is, and has always been, the greatest purveyor of change. There is a complex interrelationship between home, structured education, society and culture and their influence on typical and atypical developing children. Hence, it is vital to the health of our communities to emphasize and embrace the impact of early childhood development programs.

At its core, there are three pillars critical to support this foundation. First, ethics – the development of personality and values, a vital element to helping children learn their role within society and culture. Secondly, innovative and relational pedagogy – the captivating of a child's mind through curriculum and activities built for specific learning styles, including an intentional effort to build a genuine relationship with each child. Language, sensory, and social interactions with both adults and children, along with warm, loving, and consistent care, are the keys to making it possible for children to form secure attachments to those who care for them and help them grow into curious, confident, and competent learners. Thirdly, the educational environment, providing the platform from which all aspects of development are nourished. For structured academic programs, the educational environment is maintained by the educator. At the same time, one must be sensitive to realize the education environment encompasses more than just the classroom. Unique family, socioeconomic, and cultural differences of each child's situation should be acknowledged and celebrated.

### Pillar 1 – Ethics

The term 'ethics' can be traced to the Greek root word ἦθος (êthos), it is defined as "character, moral nature" (Liddell, Scott, Jones, & McKenzie, 1992). It can be further described as one's disposition, traits, and outward expressions. Education and the teaching profession are elements that construct a civilized society. Aristotle argued that education addresses the physical, mental, social, emotional, and moral training of the child. Thus, ethics and moral principles are critical components in early childhood development. The most memorable teachers are the ones that make a child feel genuinely liked, the teacher that truly cares about their welfare. Supportive and caring teachers do their best to help students be successful in class throughout the school year and beyond. Scholars in Early Childhood Education agree that a primary goal with young children is helping them replace conflict with prosocial behaviors like

sharing, cooperating, empathizing, and helping one another (Siu, Shek, & Law, 2012). Teaching young children to take the perspective of another child, such that blame can be diffused and credit can be shared, is essential and achievable with most toddlers.

*These norms often include “reciprocity” which suggests that people should help those who help them and the norm of “social responsibility” which suggests that we should assist people who need help or who depend on us. By being responsible, a person accepts moral and social responsibility and has the ability to make a prosocial decision and a corresponding action that concern issues of justice, rights, and the welfare of others. The concepts of reciprocity and social responsibility can be extended to the citizenship and social contract in some countries—one has the obligation to take care of their own people. (Siu, Shek, & Law, 2012)*

Examples of ethics are indispensable in the formative years of a child’s life. A focus on ethics in the classroom requires the teacher to set an example and adhere to unwavering standards of inclusion and respect.

Children are susceptible, impressionable, unresisting to any stimulus. Since children are hero worshippers, they are prone to be influenced by the adults, teachers, or caregivers who spend a large amount of time with them, leaving a vital impact on the personality of the child. The child unconsciously or sub-consciously picks up the teacher’s personality traits, and thus the teacher must be a good role model (Siu, Shek, & Law, 2012). Since the child trusts almost every adult, one should never betray the confidence of the child. The younger the children are, the more honest they are. One should always respect the child’s spirit of honesty and sincerity. Also, the child is forgiving. They are quick to forgive. Again, the younger the children are, the quicker they forgive. Keeping in mind the uniqueness of each personality, teachers should deal with them on individual basis. An educator cannot use one and the same method for all children indiscriminately. One must use discernment and empathy in order to focus on the complexity of diversity, including the influence of individual, cultural, linguistic, ethnic, social and cognitive differences, as well as abilities and disabilities. A culture is a way of life of a group of people - the behaviors, beliefs, values, and symbols that they accept, generally without thinking about them, and that are passed along by communication and imitation from one generation to the next. Hence, there is a great responsibility for educators to conduct themselves with courtesy and professionalism; and interact with children by expressing love and respect.

Ethics and morals relate right and wrong conduct. While they are sometimes used interchangeably, they are different. Ethics refers to rules provided by an external source – e.g., code of conduct in workplaces or principles in religions. Morals refer to individual’s own principles regarding right and wrong. An educator’s ethics can be divided into two primary categories, values and integrity. Values are the standards or qualities regarded as worthwhile and desirable. They are the moral ethic codes, rights and wrongs that we find in personal ideals. Values have a major influence on a person’s behavior, serving as a broad guideline in all situations. Socrates, the Greek philosopher connected morality and education, “the purpose of education is not only to make the people smart but also to make the people good.” Next, but no less important, is the concept of integrity. Integrity is the firm adherence to a standard of values. It is demonstrated through honesty, decency, fairness, sincerity, and

commitment to truthfulness. Corruption is the opposite of integrity. Integrity must be constantly watched, guarded, and protected from corruption.

This topic is closely related with the ancient proverb “Train up a child in the way he should go, And when he is old he will not depart from it.” Thus, we find why the ethics are critical to early childhood development. This is a pivotal point in formulating ones understanding of social norms:

*Based on cognitive dissonance theory, the foot-in-the-door technique postulates that there is a strong tendency for us to adjust our attitude in order to make it consistent with what we have done; that is, we justify our choices of prosocial actions after we are required to “put our foot” into it. Parents, schools, or (and) youth centers can require adolescents to fulfill prosocial tasks and responsibilities, which will gradually help to modify their attitudes (become more positive) toward prosocial norms and behavior. (Siu, Shek, & Law, 2012)*

While many prosocial actions are learned through cultural norms and foot-in-the-door experiences, it is important to consider some of the in-born characteristics of a child:

Forgiving	→	Quick to forgive / slow to anger
Susceptible	→	Impressionable / capable of being affected emotionally
Teachable	→	Capable of being taught/instructed
Trusting	→	Quick to trusting someone
Truthful	→	Honest / expressing the truth

These five characteristics are important for early childhood educators to contemplate. One must remain cognizant of the susceptibility and influence they can have during these formative years. Whether intentional or not, one’s action can have great impact on a child’s development and understanding of prosocial norms. Any action committed irresponsibly will not be inconsequential. Educators should always remain pleasant, positive, and productive. In the case of early childhood education, the word “productive” is synonymous with “patience.” The caregiver must exude these traits in order to help demonstrate an example of well-balanced and productive citizenship in the classroom.

## **Pillar 2 - Relational Pedagogy**

It is widely accepted that any program of academic rigor should include the three R's; reading, writing, and arithmetic; these are critical to a well-rounded pedagogy. While not discussed as frequently, but equally important, is the fourth “R”, which stands for relationship. The lack of students' relationship among themselves and/or between teachers can be a cause of discipline issues. Developing deeper connections with students is a significant way teachers contribute to students’ academic and social development:

*Relational pedagogy opens up the possibilities of educating the whole child in every aspect, not simply academic content. This approach holds that academic content should only be approached from a solid relational base—that when students feel empowered and safe, the pathway to academic success becomes possible and enjoyable. When such a base is not constructed, academic success is not only made*

*more difficult, it becomes irrelevant. A relational approach to schooling can become the catalyst that causes students to restructure how they view difference and otherness because relational pedagogy insists on empathy, a requirement for combating bullying. Relational pedagogy can dismantle the hierarchical structures that dictate how beliefs about difference are formed and understood; thus, relational pedagogy can engender more accepting schools, and by extension, a more accepting society. (Crowover & Jones, 2018)*

Relational pedagogy is multifaceted, it includes more than technique, it involves the exercise of empathy and sensitivity to help increase a child's self-esteem. Healthy relationships should always include respect, responsibility, and restraint. Conversely, one must avoid revenge, reprisal, and retribution. A mutual respect between the teacher and pupil must be maintained. There is a two-way component in respect, it involves both sides sharing responsibility. It is the responsibility of the educator to set expectations, and the responsibility of the pupil to respond through the learning process. Restraint is also needed in all relationships – restraint can be difficult when dealing with classroom management, but as outlined earlier, children are susceptible to influence. A pleasant, positive, patient environment must be preserved to help foster an accepting and safe school environment.

Creating an atmosphere of safety is another way to increase self-esteem. Recognition, confidence, and performance go hand-in-hand. Even the most minute accomplishment, should be recognized immediately. As the expression goes “justice delayed is justice denied.” Do not delay the recognition as the impact becomes diminished. Do not let the opportunity to offer praise pass in the moment. Recognition is directly related to building confidence. It boosts self-esteem. The child's performance will increase with continued recognition. It is human nature to want to please someone again, to seek continued affirmation. As a practice, educators should reprimand in private, helping avoid tearing down student's self-esteem and confidence. Public reprimand can cause individuals to give up and to avoid even trying, for fear of failure.

Another part of relational pedagogy is developing innovative strategies to help capture the unique learning styles of the students.

*John Dewey felt it was important for children to learn by doing. He felt that allowing children to explore their questions helps them make real life connections and continually question and increase learning by investigating these questions. Dewey thought education should come from natural curiosity with direction and guidance coming from the teacher. He viewed children as eager learners and felt that it was important for children to learn through activities in which they enjoyed. Learning needs to be relevant to the children. Dewey stressed the importance of using situations that children can relate to when teaching. He felt that when children could understand why learning was important, they could understand how to apply learning into their lives. (Platz, Donald; Arellano, Jennifer, 2011)*

Not every student connects with the teacher and activities in the same manner. Therefore it is important to incorporate various sensory methodology – auditory, visual, and kinesthetic/tactile. In auditory learning, a learner depends on listening and

speaking as a primary way of gaining knowledge. A visual learner utilizes graphs, charts, maps, and diagrams to enhance scholarship. Kinesthetic or tactile learning is a learning style in which discovery takes place by the students carrying out physical activities rather than just listening to a lecture or watching demonstration. Creativity in the classroom is essential to creating lasting impressions at an early age. William Wordsworth wrote a beautiful poetic couplet emphasizing the value of imagination:

*For oft, when on my couch I lie; in vacant or in pensive mood  
They flash upon that inward eye which in the bliss of solitude  
And then my heart with pleasure fills, and dances with the daffodils*

Additionally, one can incorporate elements of literature, philosophical thought, intellectual and poetic imagery, historical context, international monuments/architecture – all with an emphasis on stimulating the child to learn through these real-life connections.

### **Pillar 3 - Educational Environment**

Educational environment is more than just the brick and mortar structure of an educational institution. It is more than decorations in a classroom or demographics of a surrounding neighborhood. The educational environment is imagined, developed, cultivated, and sustained by the teacher. The environment must be conducive to learning and teaching. Conversely, a classroom that lacks structure is chaotic and in constant turmoil. Constant vigilance and attention to classroom management techniques is required to maintain a healthy academic environment. While there is typically an iterative adaptation of style year-over-year, educators must exhibit specific qualities to remain successful and effective. Educators have a great responsibility in society. They establish the foundation for how children will understand their place in the world. Visualizing the educator as the architect of the learning environment allows one to set the tone and intentionally focus on the versatile characteristics that create an ideal setting for academic growth.

The Eastern part of the world utilizes bamboo for all types of purposes: clothing, construction, food, musical instruments, bridge reinforcement, scaffolding, and even toys. A successful teacher can be compared to a bamboo stalk, many parallels can be drawn between the two. Teachers demonstrate these attributes by adapting to the versatile characteristics of bamboo. Bamboo is amusing, it is often made into musical instruments both wind and percussion, providing pleasant entertainment. Educators can perform in a similar manner, incorporating humor and creativity into entertaining classroom activities. A multi-disciplined approach to teaching, incorporating innovations, entertainment, and creativity are essential.

A stalk of bamboo is also hospitable and generous. It provides food for the largest of animals, the elephant. In the same manner, a teacher provides another critical nourishment, knowledge. Knowledge is founded in the facts, information, and skills acquired by a person through experience or education, the theoretical or practical understanding of a subject. Teachers can express this characteristic through adapting pedagogy to meet the needs of their unique students. In a similar manner, teachers provide a stable and safe harbor for learning, fostering an environment of safety and acceptance.



Bamboo has another unique quality; it is both flexible and rigid. Flexibility of the stalk and its strong protective housing helps prevent its destruction during a storm. While other plants fall or uproot, the bamboo adapts to winds of change. The stalk is flexible enough to sway with the wind currents yet resilient enough to not stay down after the storm, we often gain more by bending with the wind rather than standing upright in a rigid defiance (as cited in Komarnicki, 2004). Educators must remain flexible in the midst of change, but always rigid and steadfast in matters of ethics. Today, in the 21st century, as the world embraces unprecedented advances in communication technology, we are seeing the creation of a culture born with a global identity unlike any we have seen before. The changes in the way we communicate globally have necessarily affected the language and academic skills necessary to succeed in today's world. Just as technology is in a state of constant metamorphosis, so are the skills needed to utilize it. It is incumbent upon educators not only to understand the immensity of the changes occurring in global communication, but also to recognize how technology and globalization affect the changing identities and need for instruction in language and academic skills.

Part of embracing flexibility and resiliency is found in how educators handle failure. Do not deny you have failed, accept and deal with it. Never shift the blame on others, admit and own failure considering how you can do better in the future. Do not build your ego on the failures of others. You do not want to establish a standard off the failure of others, you must find a higher standard. Do not emulate failure, rather innovate success. Always set your standard to the maximum. While it sounds cliché, reach for the stars. Even if you fall back to the moon, at least you attempted the best within your ability and capability. As Mark Twain declared, "Always do right [what is right] this will gratify some people and astonish the rest." (Twain & DeVito, 2015).

The root system of bamboo is supported by numerous shoots. A single stalk is never found alone; instead, they grow cohesively to support one another through a unified root structure. Teachers must partner with peers, interns, master teachers, community resources, and student families in the same way, developing local support communities. Gandhi spoke on the essence of unity "I believe in the absolute oneness of God and therefore of humanity. What though we have many bodies? We have but one soul. The rays of the sun are many through refraction. But they have the same source. I cannot, therefore, detach myself from the wickedest soul nor may I be denied identity with the most virtuous" (Gandhi, 1922).

Unity provides strength. This cohesiveness is demonstrated in the classroom through respect for diversity. Diversity is all around us; it includes all of us since we have different beliefs, styles, and abilities. This is especially evident with children coming from foreign lands. They are greatly impacted by their move to the new culture, causing potential confusion about their cultural identity. It is important to help these students merge into the mainstream without jeopardizing the quality of education to all students. Empowering these students to share their cultural identity offers other students a global perspective, it also helps embed the individual's home culture into daily school life.

Each of the three pillars discussed – ethics, relational pedagogy, and the educational environment - help to create a solid foundation for early childhood development. Like the bamboo stalk, one must adapt to change by incorporating these concepts in the

classroom. Ethics and values will assist in creating well informed and productive citizens. A focus on relational pedagogy will increase student self-esteem and productivity. Lastly, quality educators that embrace the bamboo characteristics of hospitality, humor, flexibility, and unity will create a safe and welcoming educational environment. All of these attributes are the fundamental foundations for helping educators increase effectiveness and engagement in their classrooms.

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## *Entrepreneurial Attitudes of Students in Higher Education*

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### **Abstract**

Entrepreneurship and entrepreneurship education is one of the most important topics in higher education all over the world. Students are interested in successful start-ups, innovation driven enterprises and are inspired by well-working entrepreneurial ecosystems. They also would prefer to work for their own, to build a successful business as an entrepreneur. In order to explore the attitudes and motivations of university students about entrepreneurship, a four country wide research was conducted. Students of different higher educational institutions were surveyed in the Czech Republic, Hungary, Poland and Slovakia about their knowledge, experiences, attitudes and plans about starting new enterprises. The main goal of the research – besides to give an analysis about the present situation – was to give a feedback for us, educators, about the knowledge and attitudes of students, which results should be built into our curricula. This paper highlights the results of the research related to questions of entrepreneurship (students' motivations, knowledge and intentions). Research results showed that entrepreneurial attitudes of Central and Eastern European students are very strong: not only in business-type courses, but also at courses of agricultural, engineering, human resource and pedagogical studies. Our findings call attention for the different economic knowledge level of students with various specialization, which should be considered during the development of teaching materials and curricula. Based on the findings of the research, new teaching methods are suggested to be implemented into management subjects.

Keywords: entrepreneurship, entrepreneurial attitudes, university students, Central and Eastern Europe

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## Introduction

Entrepreneurship and business success of small and medium enterprises is one of the most widely discussed topics of our times. Enterprises are the main pillars of national economies and the accelerators of economic growth all over the world, in well-developed and underdeveloped countries as well.

To be an entrepreneur, to start a new enterprise is an open working opportunity for anyone, both for young or older generations. The main intention comes from the business idea and the personality of the future entrepreneur, and after checking the feasibility of the idea, a business model should be developed (Vecsenyi, 2011, Vecsenyi & Petheő, 2017). Of course, for successful start and operation various skills, knowledge and experiences are needed, which knowledge could be attained through learning, getting experiences and accepting good practices.

In Central and Eastern European countries – as in most of the former socialist countries – the historical heritage strongly determined the entrepreneurial attitudes and motivations as their economic circumstances turned upside down after the political and economic changes of the 1990s and even after the EU accession in 2004. Small businesses still have to face the problem of entering into the international market, and there is a huge gap between different age groups about the assessment of working as employees or being self-employed. (Swadzba & Cekiara, 2015; Zozulak & Zozulaková, 2015; Dunay et al., 2017; Szerb, 2017).

Many international literature sources dealt with the financial knowledge and entrepreneurial attitudes of the young generation and discussed different aspects of financial and economic culture in different countries (Otter, 1991, Veciana et al. 2005, Sieger et al., 2011; OECD, 2013; Kovács et al., 2013, Farkas & S. Gubik, 2013; S. Gubik, 2014; Dunay et al. 2015).

This paper focuses on entrepreneurship and entrepreneurial attitudes of students in the four Visegrad countries, which have many similarities in their historical background, traditions and economic situation. The aim of the paper is to give insight into the opinion of university students on entrepreneurship, to answer the questions about their motivations and attitudes on entrepreneurship and entrepreneurial activities focusing on the Visegrad countries.

## Methodology

To explore the current need for students' economic awareness, knowledge and intentions towards entrepreneurship, an international survey was conducted by an international group of experts representing CEE countries. The research project entitled „The economic awareness of the young generation of Visegrad countries” has been conducted under the support of the International Visegrad Fund Standard Grants. The project has been finalized by the collaboration of four partner universities: the University of Silesia, Katowice, Poland, the Palacky University in Olomouc, Czech Republic, the Constantine the Philosopher University in Nitra, Slovakia and the Szent István University, Gödöllő, Hungary.

The economic awareness and entrepreneurial knowledge and attitudes of university students were surveyed by questionnaire method with mostly closed questions. The same questionnaire was used in all the four countries, which will allow the full international comparison. The research topics focused on the following topics: the economic awareness of the young generation, the general system of values of the university students and the entrepreneurial attitudes of this generation (Cekiara, 2018; Dunay et al., 2018; Swadzba & Zak, 2018; Swadzba et al, 2018).

The sample of the survey covered nearly 1600 students of the four countries, all research groups surveyed 400 respondents from the different faculties of their universities (faculties of Agriculture, Arts, Economics, Engineering, Social Sciences, Pedagogy and Technology), i.e. students of business and non-business type courses were examined.

## Results

Firstly, were asked about *the current conditions* for the development of entrepreneurship in their countries: how do they assess the political, economic, social, technological and legal background of existing and newborn enterprises according to a 5-grade Likert scale (definitely good, rather good, rather bad, definitely bad, hard to say). The answered were grouped as positive (definitely good and rather good), negative (definitely bad and rather bad) and neutral (hard to say). Most of the students think that current legal and economic conditions of starting and operating enterprises in their countries are not proper enough. As it is shown in Figure 1, most of the positive answers was given by Polish students: 33,6% think that the economic and legal background is strong enough to start and operate an enterprise. Czech students are the second most positive (29,1%), Hungarians are the third with almost 26%. Slovak students formed the most negative opinion about economic background.

	Polish (n=400)		Czech (n=400)		Slovak (n=387)		Hungarian (n=369)	
<b>Definitely good</b>	1,3	33,6%	1,3	29,1%	0,8	11,1%	1,4	25,8%
<b>Rather good</b>	32,3	<b>positive</b>	27,8	<b>positive</b>	10,3	<b>positive</b>	24,4	<b>positive</b>
<b>Rather bad</b>	37,4	52,4%	50,5	56,0%	61,2	78,8%	51,2	65,6%
<b>Definitely bad</b>	15,0	<b>negative</b>	5,5	<b>negative</b>	17,6	<b>negative</b>	14,4	<b>negative</b>
<b>Hard to say</b>	14,0		12,1		10,1		8,3	
<b>No response</b>	0,0		2,8		0,0		0,3	
<b>Total</b>	100,0		100,0		100,0		100,0	

Figure 1: Opinion about the current conditions for the development of entrepreneurship (%)

The next question was related to the *entrepreneurial family background*: ‘Does anyone in your close family (grandparents, father, mother, brother or sister) run own business?’ Answers are displayed in Table 1.

Table 1: Family background: entrepreneurial activities or business ownership in families (%)

Answer	Polish (n=400)	Czech (n=400)	Slovak (n=387)	Hungarian (n=369)
Yes	51,8	47,8	<i>40,6</i>	55,8
No	48,3	48,8	58,9	43,6
No response	0,0	3,5	0,5	0,6
Total	100,0	100,0	100,0	100,0

For this question, 55,8% of the Hungarian students answered that someone in their close family run their own business (in any industries and sectors, including agriculture). Present or past entrepreneurial activities in the families of Slovak students was 40,6%, while 47,8% of Czech and 51,5% of Polish respondents indicated that their families have entrepreneurial experiences and/or perform business activities.

After excluding the non-informative ‘no response’ category, a Chi-square test was conducted. Its results ( $P < 0,01$ ) showed significant differences in the opinion of students from different V4 countries about entrepreneurial experiences and business ownership in their families. In Table 1, grey colored cells show the significantly higher, the numbers in italic refer to the significantly low proportions based on the Adjusted Residuals. The answers of the Hungarian students showed significantly higher business activities in the family background, while Slovak students have a significantly lower entrepreneurial family background. In case of Czech and Polish students, the proportion of families with entrepreneurial activities was relatively closer to the average of the Visegrad countries.

Students were asked about their *motivations, intentions and attitudes about entrepreneurship*, entrepreneurial life. A relatively high share of Polish respondents (43,5%) showed interest in having own business in the future. This proportion was 28,9% among Slovak students and 27,1% in Hungary, and only 19,3% of the Czech respondents showed intentions towards starting own business in the future.

4,1% of the Slovak students have already owned enterprise at the time of the survey, their Czech and Hungarian fellows were both represented by 3,5-3,5%. Polish respondents showed the lowest results, only 1,5% of them owned and operated their own enterprise. 2,8% of Polish, 1,9% of Hungarian, 1,3% of Slovak and 0,3% of the Czech students have had negative experiences in entrepreneurial life: they have already started enterprise unsuccessfully and they do not intend to start again.

Polish students showed a high uncertainty in answering the question (17,3% marked the answer ‘hard to say’). 40,9% of Hungarian students have thought about starting a new enterprise, but have not decided yet. 20,5% of the Czech respondents have never thought about entrepreneurship and 21,5% of them did not take entrepreneurial life into account in their future plans.



	Level of Entrepreneurial attitude	Polish (n=400)	Czech (n=400)	Slovak (n=387)	Hungarian (n=369)
I already own (co-own) a private company	high	49,0	31,0	38,2	37,9
I want to soon start my own company					
I'm thinking of starting my own business in the future					
I have thought about it, but have not decided	medium	20,3	25,8	29,2	40,9
I have never given it much thought	low	13,6	42,3	31,0	19,0
I do not take this into account in my plans for life					
I had my own company and do not intend to assume the next					
Other possibilities/ hard to say/no response		17,3	1,1	1,6	2,2
<b>Total</b>		<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>

Figure 2: Entrepreneurial attitudes of respondents

After excluding the non-informative 'other possibilities', 'hard to say' and 'no response' categories, a Chi-square test was conducted. Its results ( $P < 0,01$ ) showed significant differences in the opinion of students from different V4 countries about their affinity towards starting a new enterprise. By combining statements concerning entrepreneurial attitudes, three (high, medium and low) levels of entrepreneurial attitudes were generated (Table 2).

We also examined the possible relations between the different fields of study (polytechnic/agricultural/medical; economics; social; arts/humanistic) and the level of entrepreneurial attitude of the research sample, using Chi-square test (Table 2).

Table 2: Entrepreneurial attitudes of respondents related to field of study (%)

Country	Field of study	Level of Entrepreneurial attitude			Chi-square test
		low	medium	high	
Hungary	Polytechnic/Agricultural/Medical	19,0	40,0	41,0	p=0,987
	Economics/Management	18,8	42,4	38,8	
	Social	20,3	42,0	37,7	
	Arts/Humanistic	23,5	47,1	29,4	
	Total	19,4	41,8	38,8	
Slovakia	Polytechnic/Agricultural/Medical	19,8	28,1	52,1	p<0,01
	Economics/Management	19,0	31,6	49,4	
	Social	37,2	31,9	31,0	
	Arts/Humanistic	47,3	26,9	25,8	
	Total	31,5	29,7	38,8	
Czech Republic	Polytechnic/Agricultural/Medical	36,9	24,8	38,3	p<0,01
	Economics/Management	13,5	33,7	52,8	
	Social	72,6	17,9	9,5	
	Arts/Humanistic	55,4	28,4	16,2	

	Total	42,7	26,0	31,3	
Poland	Polytechnic/Agricultural/ Medical	9,9	25,9	64,2	p=0,040
	Economics/Management	9,3	24,4	66,3	
	Social	26,4	22,0	51,6	
	Arts/Humanistic	19,2	26,0	54,8	
	Total	16,3	24,5	59,2	

Based on the results of the Chi-square test, significant differences were detected between the fields of study and the level of entrepreneurial attitude in case of Slovak, Czech and Polish students (grey colored cells show the significantly higher, the numbers in italic refer to the significantly low proportions based on the Adjusted Residuals).

The students learning in Polytechnic, agricultural and medical fields and Economics and Management represented a greater share in high entrepreneurial attitude, compared to their fellows at Arts/Humanistic field in Slovakia and the Czech Republic. In Poland and Czech Republic, the students of Social field of study represented a lower proportion of high entrepreneurial attitudes. In case of Hungarian students, we could not find significant differences in the entrepreneurial attitudes of students at different fields of studies.

These findings about entrepreneurial attitudes and intentions of university students of different fields of studies should be considered in the future work of educators at higher educational institutions, particularly in developing new curricula, subjects and educational materials. If students can achieve an appropriate knowledge on entrepreneurial skills and knowledge, they might be more enthusiastic and motivated and will be more open for self-employment.

Students also were asked about their opinion, whether they have the *necessary abilities* (e.g. *knowledge, experiences and skills*) which may help them to be self-employed. When we ranked the results according to positive answers (Definitely yes and Rather yes answers) it is seen that Polish students represent 46,1%, Czechs 56,3%, Slovaks 74,4% and Hungarians 67,7%, i.e. they think that they have abilities to be an entrepreneur. However, there is a relatively high proportion of those respondents, who did not give a real answer (Hard to say) or did not respond (17,8% of Polish, 12,8% of Czech and 15,1% of Hungarian students).

The question is that they just refused answering, or they are uncertain at the moment, because of young age or lack of knowledge, skills, experiences etc. 36,3% of Polish students consider that they have no entrepreneurial abilities, while 27,5% of Czech students think that perhaps they have not got enough entrepreneurial knowledge and skills to be an entrepreneur. Slovak students represented the higher proportion of 'Definitely yes' answers and positive answers. Hungarian students were the second most confident national group as 53,1% responded with 'Rather yes' answer.

Table 3: Entrepreneurial attitude related to the opinion about having necessary abilities to be self-employed (%)

Country	Opinion	Entrepreneurial attitude			Chi-square test
		low	medium	high	
Hungary	Definitely yes	1,9	17,3	80,8	p<0,01
	Rather yes	9,8	47,9	42,3	
	Rather not	42,6	40,7	16,7	
	Definitely not	87,5	12,5	0,0	
	Total	16,2	40,6	43,2	
Slovakia	Definitely yes	23,1	19,2	57,7	p<0,01
	Rather yes	28,9	31,7	39,4	
	Rather not	50,0	35,5	14,5	
	Definitely not	66,7	22,2	11,1	
	Total	31,8	28,5	39,7	
Czech Republic	Definitely yes	20,0	13,3	66,7	p<0,01
	Rather yes	21,2	34,6	44,1	
	Rather not	71,3	23,1	5,6	
	Definitely not	80,0	20,0	0,0	
	Total	38,6	27,8	33,6	
Poland	Definitely yes	22,7	13,6	63,6	p<0,01
	Rather yes	5,6	19,4	75,0	
	Rather not	25,5	34,7	39,8	
	Definitely not	63,2	10,5	26,3	
	Total	17,7	23,7	58,7	

Based on the results of the Chi-square test, a significant relation was found between the students' entrepreneurial attitude through their opinion about having necessary abilities and their motivation towards starting a new enterprise and being self-employed in the sample of all Visegrad countries (Table 3). Those students, who think that they have the abilities, knowledge and skills to be an entrepreneur; they have a higher level of entrepreneurial attitudes.

## Conclusion

As a conclusion, entrepreneurial attitudes, motivations and ambitions of the young generation play an increasingly important role all over the world, but it has a special focus in the Visegrad countries (Czech Republic, Hungary, Poland and Slovakia).

Our results showed that entrepreneurial attitudes in the CEE countries are influenced by the relatively short period have been passed since the political transition in the 1990s. There is a strong social and traditional background (family traditions, lack of motivations, lack of 'Good practices') which influences negatively the entrepreneurial attitudes of the young generation. Nevertheless, there is a strong entrepreneurial spirit among young people. Our results showed that university students have intentions to be self-employed and they are attracted by the opportunities and the creativity of entrepreneurs.

In general, students from the examined four countries showed interest towards entrepreneurial activities, they are attracted by entrepreneurial life and think about

being self-employed in their long-term life plans, and they are interested in starting their own businesses. Polish students were the most opened in the sample for starting an own business: 49% of them showed high level of entrepreneurial attitudes. A higher proportion of Czech students would not start a new enterprise (42,3% had low level of entrepreneurial attitudes), while the affinity of Hungarian and Slovak students towards entrepreneurial life did not differ significantly from the average of the four Visegrad countries. It is very important to highlight that there are differences in entrepreneurial attitudes according to the students' field of study and their attitudes are strongly determined by their family background.

Their attitudes and inspirations may be and shall be supported by educational institutions as well, by developing well-built courses, which provide appropriate knowledge and practical education for the students with different background. The results highlighted the role of educators in the entrepreneurial ecosystem and the importance of entrepreneurship education as it was already discussed by international authors from and outside the Central and Eastern European countries (Szerb & Márkus, 2007; Gibcus et al., 2012; Imreh-Tóth, 2014; Illés et al, 2016).

The attention of professors and lecturers should be focused on the need for preparing new curricula in the subjects related to entrepreneurship education, where practical knowledge and experiences are in the center (with invited lecturers, field trips, case studies etc.). In addition, new techniques, teaching methods should be used in order to improve practical skills and practical knowledge of students. A special field related to psychological and self-managing skills should be also included in entrepreneurial subjects, which may help to raise self-estimation and problem solving attitudes of students, i.e. the future entrepreneurs.

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## *Questions of Entrepreneurship Education for International Students*

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### **Abstract**

Micro-, small and medium-sized enterprises are accelerators of national economies, and the existence, the successful performance and the development of these enterprises play an important role in developed and underdeveloped regions of the world. Entrepreneurship education may be a key point for the successful start and operation of enterprises. Entrepreneurship may be taught at different levels, for less educated people with the basic knowledge (e.g. rural entrepreneurship programs, special programs for women), and there are programs for people with higher educational level. In this paper, we focus on the entrepreneurship education at universities, for students of different business and non-business courses. Therefore, the aim of the paper is to give insight into the special topics and methods of entrepreneurship education for international students at the Gödöllő Campus of the Szent István University, in Hungary. At this university, entrepreneurship education and enterprise management subjects are taught at three levels of education: bachelor, master and doctoral level, both in Hungarian and English languages. The basics of the courses are the same, but the education of international students raises special questions. These issues are related to the different types of enterprises, the different rules and regulations of enterprise management and the different attitudes and cultural-traditional background of the international students. The entrepreneurship education courses focus on case studies, learning-by-doing methods and teamwork of students from different countries, which may help them to prepare for their future jobs in multicultural environment. Our paper summarizes the experiences and the curriculum development of the past six years.

Keywords: entrepreneurship education, SMEs, foreign students, management, practice-oriented, multicultural environment

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## Introduction

It is not easy to define entrepreneurship education, as it is only slightly differs from general management studies. Both sciences provide knowledge, skills and motivation to encourage entrepreneurial success, but entrepreneurship education focuses on the development of skills or attributes that enable the realization of opportunity, while management education is focused on the how to operate existing hierarchies. Management subjects like Business Economics, Marketing, Accounting, Finance, HR management, Logistics, etc. primarily focus on the operation processes in small, medium and large companies, and only few lectures of the courses deal with the starting of enterprises, idea generation, opportunity check, feasibility check and planning issues.

As entrepreneurship and the formation of new enterprises are among the main accelerators of national economies all over the world, it is very important to define the tasks of educators in different educational institutions. Educators' knowledge, skills, teaching methods and networking abilities play an important role in this process. If educational institutions and teachers are able to attract students and introduce entrepreneurship as a possible path of their future, if students are able to check their motivations, to see entrepreneurial life through real examples, and to try their abilities and skills in practical tasks, student contests, planning assignments etc., more students will probably choose entrepreneurial life (Pompa, 2016).

The importance of the institutional and educational background of enterprises and entrepreneurship is widely discussed by international authors, where authors introduce the main processes and network system of educators, the business sphere, the institutional background, the civil sphere and the teaching process itself, with all the interactions of this complex.

Many authors agree that entrepreneurship education shall be built on the synergic connections between entrepreneurs and professors or lecturers of the universities. This partnership network is mostly built on the scientific and professional network of the university staff, the alumni system and of course from other relations and acquaintances from the business sphere, and it is one of the pillars of the so-called entrepreneurial ecosystem (Galloway & Brown, 2002; Shattock, 2005; Joensen, 2009; Csapó, 2010; Fetters et al., 2010; Thorp and Goldstein, 2010; Feld, 2012; WEF, 2013, Nathusius, 2013; Acs, Autio & Szerb, 2014; Krawczyk, 2014).

The main players of the entrepreneurial ecosystem can be distinguished as external players and internal players. External players – for example players of the product and services markets and financial markets, state organizations and NGOs, existing companies – contribute to the creation of the financial background, technical support and they provide external tuition activities for the internal players (Figure 1).

Internal players are the students, professors and those entrepreneurs, who take part in education. Professors and entrepreneurs – in close cooperation – will transform the students to be nascent entrepreneurs, who will be able to join the entrepreneurial sphere in the future as young companies. Later, these newborn companies can mature and grow, and will be able to work as an accelerator of the national economies (Nathusius, 2013; Illés et al., 2016a, Illés et al., 2016 b).



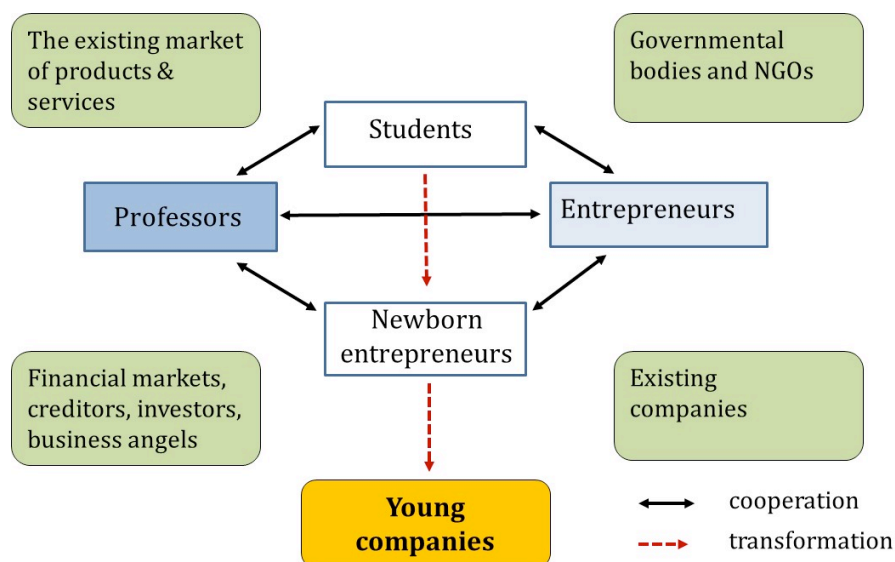


Figure 1: Entrepreneurial ecosystem network of higher education  
(based on Nathusius (2013), Illés et al. (2016a,b))

This article primarily focuses on the ‘transformation process’ of students from first-year students to be newborn entrepreneurs, by giving examples of our experiences at the Szent István University, Gödöllő Hungary.

The special feature of our educational structure is two-sided education: all courses are taught in Hungarian for Hungarian students and in English, for foreign students from different countries of four continents. After few years of experience, it is obvious that courses for foreign students shall differ from “domestic” courses in their topics, teaching methods, background and assessment and the requirements should be tailored for the required standards and the special needs of students with multicultural background.

## Theoretical background

### Edgar Dale’s Cone of Experience

A very important question of education at each levels (primary school, secondary school, vocational schools and higher educational institutions) is to share and transmit knowledge in an efficient way, keeping the right balance between theory and practice. Edgar Dale’s Cone of Experience (Dale, 1946) symbolizes the different levels of experience, connecting to the different sources of experience. In his definition, the cone explains the interrelationships of the various types of visualization and their positions in the learning process. For more successful and useful learning:

- Students use their eyes, ears, noses, mouths and hands to explore the experience,
- Students have a chance to discover new experiences and new awareness of them,
- Students have chances to practice their past experiences and combine them to create new experiences,
- Students can develop their own dynamic experiences.

Dale (1972) highlighted that most students in schools did not learn how to think, discover, and solve real problems, rather, students were forced to memorize facts and knowledge instead of practical use in most schools and as a result, any knowledge they acquired was inert in their real lives.

Dale's Cone of Experience (Figure 2) is built from 11 levels starting from concrete experiences (at the bottom) up to the more abstract levels. This model suggests that without direct experiences (learning by doing) the more abstract experiences (learning by observation and learning through verbal instructions) are less digestible for the students. Dale suggested to mix the different teaching techniques and to allow enough time for understanding, achieving and digesting the experiences. The original cone model does not make any ranking of the experience levels it suggests to use the lower levels to help understanding and to use the higher levels for achieving deeper levels of abstraction to make learning process more efficient (Molenda, 2003; Lee & Reeves, 2007).

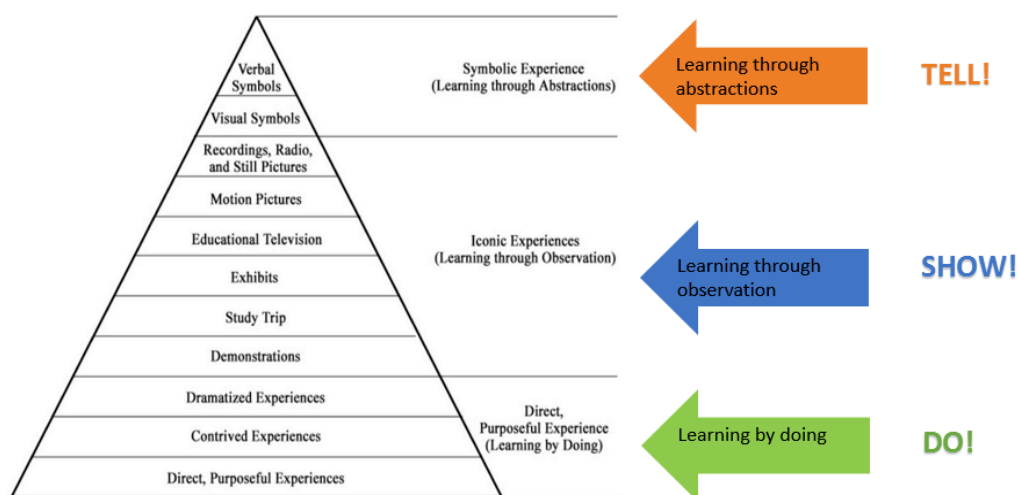


Figure 2: Dale's Cone of Experience. Own figure using original of Dale (1946)

### Retention chart or Learning Pyramid

The original Cone of Experience is often misinterpreted and mixed by other information. One of the frequently added models is based on the so called Retention Chart (or in other name the Learning Pyramid) which shows the retention rate, i.e. that after 2 weeks individuals will remember:

- 10% of what they read
- 20% of what they hear
- 30% of what they see
- 50% of what they both see and hear
- 50-70% of what is discussed with others
- 75-80% of what is experienced personally (an activity in real life)
- 90-95% of what they teach someone else.

This model is also called as Learning Pyramid (Figure 3), and unfortunately, it is often mixed with the original Cone of Experience model (Subramony, 2003; Subramony et al., 2014 a,b).

The learning pyramid was developed by the National Training Laboratories, Maine, US, According to the learning pyramid (Figure 3) reading and hearing are the least effective tools of learning (of course the efficiency of these methods varies in different age groups and level of education). A more effective source of knowledge is seeing and hearing together, and the highest proportion of long lasting knowledge could be gained through such teaching/learning methods, where both parties (lecturer and student) will participate actively.

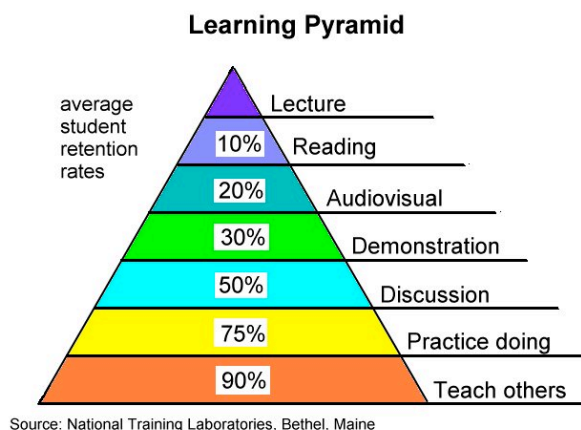


Figure 3: Learning Pyramid

Although the retention numbers are not justified by scientific methods, these proportions are widely used in the world of education and the numbers are considered as realistic. It is obvious that practical tasks will deepen the knowledge and forcing the students to perform discussions, do in practice and to present themselves before their classmates will make them more engaged towards the different topics. But it is also obvious that these methods should not be used in each age groups, young students (for example bachelors/undergraduates) are not well prepared or mature enough for teaching each other, but for PhD students (the future educators) it should be a common teaching and knowledge sharing method.

### **Experiences of Entrepreneurship Education at Szent István University**

In this case study the experiences of entrepreneurship education at the Faculty of Economics and Social Sciences, of Szent István University, Gödöllő, Hungary are presented (Figure 4).

At the University there are not special entrepreneurship courses but the content of the professional subjects fully covers this field.

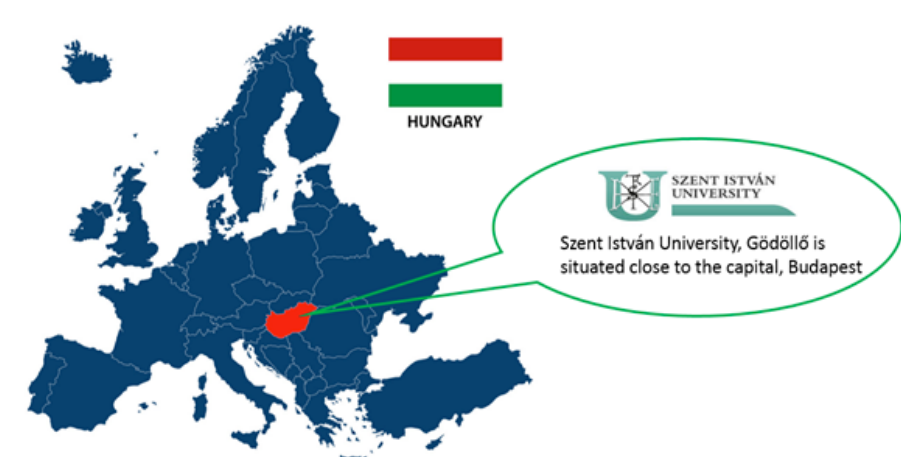


Figure 4: Szent István University, Hungary

The University is of Hungary's largest institutions of higher education, situated in Central and Eastern Europe, close to Budapest, the capital of Hungary. The University works at different campuses\_ with 8 faculties, there are educational centers Slovakia, Serbia, Romania and the Ukraine as well, for the Hungarian speaking communities. The university is very popular among foreign students; many of them hold scholarship (Stipendium Hungaricum) and others are self-paid students from four continents.

At the Gödöllő Campus, there are 3 faculties: Faculty of Agricultural and Environmental Sciences, Faculty of Economics and Social Sciences and Faculty of Mechanical Engineering.

The Faculty of Economics and Social Sciences provides a full range of higher education courses of management and business studies in Hungarian and English languages at:

- Bachelor's degree (BSc in Management and Business Administration)
- Master's degree (MSc in Management and Leadership)
- Doctoral studies (PhD in management and Business Administration)
- Executive MBA programs for CEOs and professionals who are interested in management and business administration.

Of course, there are courses which are taught only in Hungarian language such as BSc and MSc in Commerce and Marketing, BSc and MSc in Finance, BSc and MSc in Human Resources, BSc and MSc in Rural Development and Agribusiness, MSc in Supply Chain Management.

As the largest group of students is studying at the Management and Business Administration bachelor course, and as the authors are the leaders and lecturers of this course, the experiences of this bachelor course are discussed in details.

The study program of this course focuses on practice-oriented education, which mainly means the increased share of seminars. Not only basic subjects (microeconomics and macroeconomics, mathematics, statistics and financial subjects) but also professional subjects (e.g. business economics, management of SMEs, project management, business planning, change- and crisis management) are taught with high number of practice-oriented seminars:

- Basic subjects (Microeconomics, Macroeconomics, Mathematics, Statistics, Financial subjects) are taught in the first three semesters in order to provide the basic knowledge and to support students to reach a more or less equal level of knowledge before starting the professional subjects.
- Professional subjects (e.g. Business Economics, Management of SMEs, Project Management, Business Planning, Change- and Crisis Management) are started from the second semester, with a rather theoretical subject (Business Economics) and subjects are built on each other.
- Internship period (65-75 working days) is a compulsory period of work, which students shall apply individually, and they spend their intern period at different small, medium or large companies of the business sphere or in the public sector, NGOs or municipalities. The main requirement is to perform managerial or administrative work at any departments of the company or institution. The internship period is performed under a contract between the university and the given company, and it is supervised and assessed by the professional supervisors of the given firm.

In the elaboration of course curricula, the continuous development is plays the key role, subjects are built on each other and the results are assessed after each academic year. Although there is no specific courses of entrepreneurship, the related subjects are inserted into the general process of education. The ‘entrepreneurial’ feature is given by the teaching and assessment methods, where skills, motivations and creativity are to be improved by performing individual and teamwork tasks assignments and presentations.

The following compulsory subjects are related to entrepreneurship education:

- 2nd semester: Business Economics (theoretical background, environment analysis, general management issues)  
*Tasks:* introduction of own country (individual)
- 4th semester: Management of SMEs (new venture creation and management of existing enterprises)  
*Tasks:* introduction of ourselves (individual), uniqueness, steps of new venture creation
- 5th semester: Strategic Planning, Project management (strategic planning and project planning methods and practices)  
*Tasks:* team work, problem solving in strategic and project point of view
- 6th semester: Business Planning (from business idea to business plan)  
*Tasks:* team work, mixed teams,  
Oral work business concept preparation (Business Model Canvas or Lean Canvas), elevator pitch,  
Written assignment for teams: creating a Business Plan from the canvas model.

The practice oriented education is supported by:

- the high number of seminars, where individual tasks and teamwork projects are performed under the supervision of the lecturers,
- the practice-oriented lectures which are held by the involvement of entrepreneurs and the representatives of the business sphere as invited lecturers (as an average, 30% of the lectures are held by invited lecturers),
- lectures give opportunity for students to give presentations in selected topics after self-preparation,

- field trips and company visits, organized by the lecturers,
- the involvement of entrepreneurs in the education process as internship partners and supervisors, thesis supervisors and reviewers and as members in final exam boards,
- entrepreneurs are frequently alumni students of the university, which may give an extra support for the students,
- in English-speaking courses, our foreign PhD students can get practice in education, as most of them are present or future educators in their home countries.

As it was described in Figure 1, entrepreneurs are among the most important pillars of the entrepreneurial ecosystem. Entrepreneurs support students in different ways, such as:

- knowledge and experience sharing (as invited lecturers or at company visits)
- donations and grants (for example at students scientific and learning contests, field trip support, etc.)
- internship partners and supervisors
- thesis supervisors, reviewers
- membership in exam boards.

An important question is that how can universities invite entrepreneurs into education. In official way, the two parties (university and entrepreneur/company) work in accordance with special agreements between the two parties, while in the unofficial way, the external persons (entrepreneurs and companies) work voluntarily, without any financial benefits, as the members of network system and the professional or business connections of the professors and other educator colleagues. For the most active and regular participants of this special educational work and support, this voluntary work is often awarded by the university by honorary lecturer status.

Besides the complex general questions of entrepreneurship education, there are special challenges of multicultural education. Most of the international students are scholarship holders, coming from countries of Eastern Europe, Middle East, Middle and South Asia, East African and Sub-Saharan African countries, Middle and South America.

In addition, there are self-paid students from these countries, and there are a high number of Erasmus+ students representing Europe.

These students have different cultural and educational background and they have different macroenvironment in their home countries. Sometimes it is very critical to balance these differences, and it is the role of course leaders and lecturers to manage the situation. The most important method for this is to let time and place for introducing their countries as individual or teamwork presentations, in an interactive way, in personal, social and professional aspects.

## **Conclusion**

As a conclusion, the successful educational and learning work is based on different factors (Figure 5). Without the appropriate motivations and attitudes of the teachers, without the relevant and up-to-date teaching methods the courses will not be

successful. It is particularly true for the very sensitive multicultural student groups, and one cannot use the same methods for domestic and international students. The formal background (atmosphere of the class, personality of the teacher, the consistent requirements, teaching materials and handouts, etc.) is also play an important role in the education process.

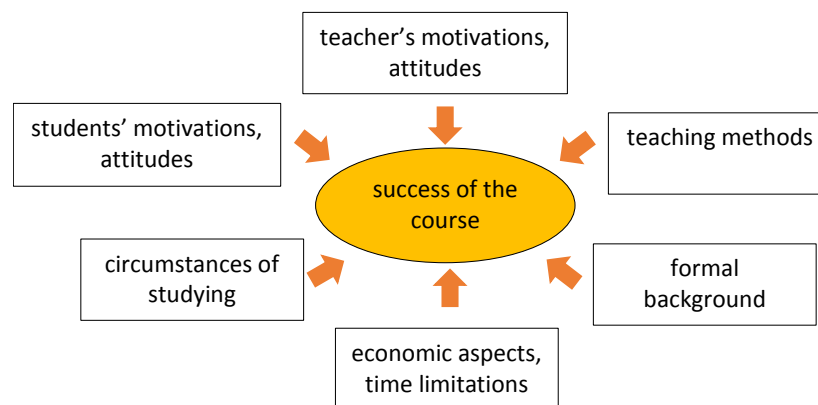


Figure 5: Factors of success in education

Based on the five years of our experiences at the examined international course, it can be stated that teaching in a multicultural environment needs special attitudes of all participants, educators, students, the professional staff and course leaders.

The original idea of systematic education, i.e. starting with theoretical and basic subjects then focusing of professional subjects was successfully built successfully into the curricula.

The introduction of the mixture of theoretical knowledge and learning-by-doing methods was successful, which is justified by the good graduation results, successful internships and the satisfied international students who continue their studies at the higher (Master and PhD) courses of the Faculty of Economics and Social Sciences of the Szent István University, Gödöllő, Hungary.

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*Perceptions of EFL Instructors on Negotiation of Meaning Strategies from an ELF Perspective*

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**Abstract**

In recent decades there has been a major shift in perspectives of English Language Teaching (ELT), and a pivotal role of English as a lingua franca (ELF) has gained a lot of attention. As the needs of English language learners have changed in a globalized world, there is a demand for raising awareness on ELF-oriented teaching in ELT curricula. As one of the widely used strategies among ELF speakers, negotiation of meaning (NoM) strategies is a central concern in this study. In this sense, this study aims to explore English as a foreign language (EFL) instructors' awareness of NoM strategies and also aims to shed light on EFL instructors' teaching practices and perceptions of prescribed coursebooks. This descriptive case study, based on the preliminary findings of a Master's thesis, was conducted by collecting both quantitative and qualitative data through an open-ended questionnaire administered to 45 EFL instructors at a foundation university in Turkey. Quantitative data were analyzed through descriptive statistics while qualitative data were examined through thematic analysis. Findings of the study revealed that the majority of the instructors had concerns about the application of NoM strategies despite being aware of them. The participants also disagreed with how NoM strategies were integrated into the prescribed coursebooks. Moreover, many participants regarded Turkish students' resorting to their mother tongue as negative behaviour when negotiating the meaning. These findings will be presented and discussed further in this paper against the backdrop of a global perspective.

Keywords: English Language Teaching, English as a lingua franca, Negotiation of Meaning Strategies

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## Introduction

With the widespread use of English around the world, ELF is an emerging field which attracts so much attention from both the field of Applied Linguistics and ELT. British Council (2013) reveals that the total number of English speakers around the world is now over 1.75 billion, and they forecast that the number will have reached two billion by 2020. Among the speakers, roughly one out of every four users of English in the world is a native speaker of the language (Crystal, 2003), which shows that non-native English speakers outnumbered the native speakers (Kachru, 2005). Therefore, it can be stated that English is being shaped at least as much by its non-native speakers as by its native speakers (Seidlhofer, 2011).

The dynamism of acknowledged model proposed by Kachru (1985) which categorizes English speakers into three circles as *Inner*, *Outer* and *Expanding* was rearranged based on speakers' language proficiencies such as high and low proficiency (Graddol, 2006). In this new model, the *Inner Circle* is conceived as proficient English speakers who achieve "functional nativeness" as opposed to "genetic nativeness" (Kachru, 2005, p. 12). According to Graddol (2006), English is considered as not only belong to *Inner Circle* countries where English functions mostly as a first language, but also to any individual who is a proficient user in this language regardless of his/her bilingual status.

The aforementioned reality of globalization has helped the English language become enriched through the proficient ELF speakers around the world. The proficient ELF speakers are highly skilled communicators who can use their multilingual resources to achieve successful communication. They project their own cultural identity by building their idioms and using chunks creatively (Jenkins, Cogo & Dewey, 2011). However, even though scholars in Applied Linguistics are satisfied with spreading of English language, they tend to ignore the transformation in language forms. This transformation, namely, flexibility and variability in English should be seen as an inevitable part of a language evolution which dates back to pre-history. Thus, a better understanding of this phenomenon is crucial to be able to explore its effects on the nature of the language (Cogo & Dewey, 2006).

The NoM strategies are deemed as appropriate for the base of this study as it is one of the widely used interactional strategies among ELF users to achieve successful communication. So far, NoM strategies has mostly been examined in the field of Second Language Acquisition. However, the studies which examine NoM strategies from a global perspective are rather small in number, therefore, much research is called for in this domain. There is also a need for raising awareness of such ELF strategies in the ELT curricula. In this regard, this study was conducted to seek answers to the following research questions:

1. Are the EFL instructors aware of the negotiation of meaning strategies?
2. If so, what are the practices and perceptions of the EFL instructors on the negotiation of meaning strategies?
3. What are the perceptions of the EFL instructors on the negotiation of meaning strategies in the prescribed ELT coursebooks?

## Methodology

### *Research Design*

In this research, a descriptive case study was utilized by collecting both quantitative and qualitative data. Quantitative data of this study were analyzed through descriptive statistics, and qualitative data were examined via thematic analysis. For the analysis of the qualitative data, Braun & Clarke's (2006) six-phase framework is considered as suitable one and the steps indicated below were followed.

**Step 1:** Familiarising yourself with your data

**Step 2:** Generating initial codes

**Step 3:** Searching for themes

**Step 4:** Reviewing themes

**Step 5:** Defining and naming themes

**Step 6:** Producing the report (pp. 16-23)

Celce-Murcia, Dörnyei and Thurrell's (1995) model of "Suggested components of Strategic Competence" serves as a theoretical framework for the study since the model is pedagogically based.



*Figure 1. "Suggested Components of Strategic Competence" adapted from Celce-Murcia, Dörnyei and Thurrell (1995, p.28)*

### *Research Context and Participants*

This study was conducted with 45 EFL instructors from a school of foreign languages in one of the foundation universities in Turkey in the fall term of 2018-2019 Academic Year. For the study, the convenience sampling method was adopted due to the availability and willingness of the participants (Creswell, 2012). There are 31 female and 13 male participants between the ages of 23 and 69. While 32 Turkish instructors teach more grammar-based coursebooks, five foreign EFL instructors from England, the USA, Ireland, and two Turkish EFL instructors teach listening and speaking based coursebooks. On the other hand, three foreign EFL instructors from Holland, Slovakia, Algeria and three Turkish EFL instructors teach reading and writing based coursebooks from the same publishing house. Before commencing this study, all necessary permissions from the authorities were secured. This study was voluntary based, therefore a consent form was also given to the participants, and all

other ethical issues were considered such as confidentiality of identity and participation, and choice of quitting the study any time desired.

### *Data Collection and Analysis*

For the study, an open-ended questionnaire was administered to 45 EFL instructors. The open-ended questionnaire consists of three major parts. The first part aims to obtain the necessary background information of the participants whereas the second part aims to build foresight on the instructors' awareness and knowledge on the NoM strategies. Finally, the aim of the third part is to shed light on the instructors' teaching practices and perceptions on NoM strategies in the prescribed coursebooks. The open-ended questionnaire was favoured as it allows participants to express themselves in a more flexible way than a structured one (Mackey & Gass, 2005).

Before the questionnaire was administered, the piloting was conducted with five instructors, and necessary amendments were made accordingly. On the first draft of the questionnaire, minor mistakes such as spelling and word order were detected. Moreover, some vagueness in understanding the strategies was mentioned by several instructors. Therefore, the table of Mariani (2010), adapted for our context, was included into the questionnaire since it presents examples of how these strategies are used in a conversation. As a further step, expert opinion was taken and the final version of the questionnaire was formed.

As a first step, data from both first and second part of the questionnaire were analyzed through SPSS descriptive statistics as well as the third part where the participants were asked to select the suitable option(s). The participants were then asked to explain and clarify the reasons behind their choice(s). As a second step, the participants' opinions were examined through thematic analysis, an inductive approach was adopted which means there were not any pre-set codes but the codes were rather developed and modified through the coding process (Braun & Clarke, 2006). As the collected data was manageable, coding was made by hand after developing preliminary ideas on Microsoft Excel.

## **Findings**

**RQ1:** Are the EFL instructors aware of the NoM strategies?

The first research question aims to find out whether the instructors are aware of NoM strategies. It can be stated that even though a majority of the instructors (80%) have heard these strategies before, a third of them (33%) have knowledge about the strategies.

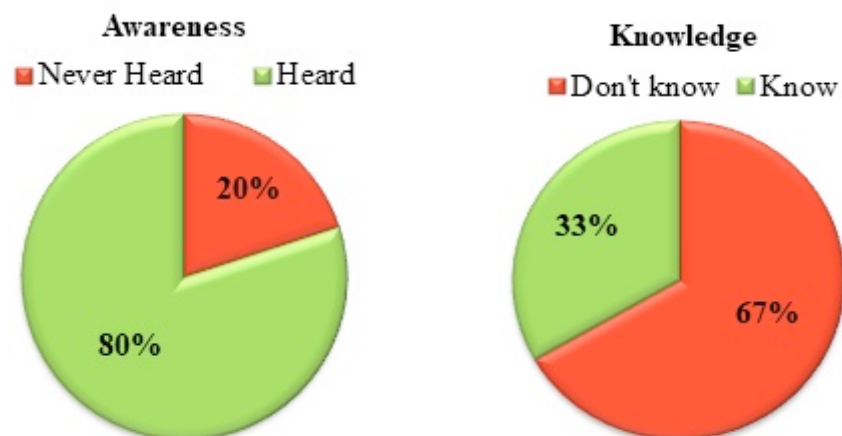


Figure 2. Awareness and knowledge of EFL instructors on NoM strategies

**RQ2:** What are the practices and perceptions of the EFL instructors on NoM strategies?

The second question aims at finding out the instructors' perceptions and practices on NoM strategies. *Item 1*, *Item 2* and *Item 3* in the open-ended section of the questionnaire seek answers for this research question. Perceptions of the EFL instructors about the aforementioned items are presented below.

**Item 1.** It is necessary to teach NoM strategies in English language classes.

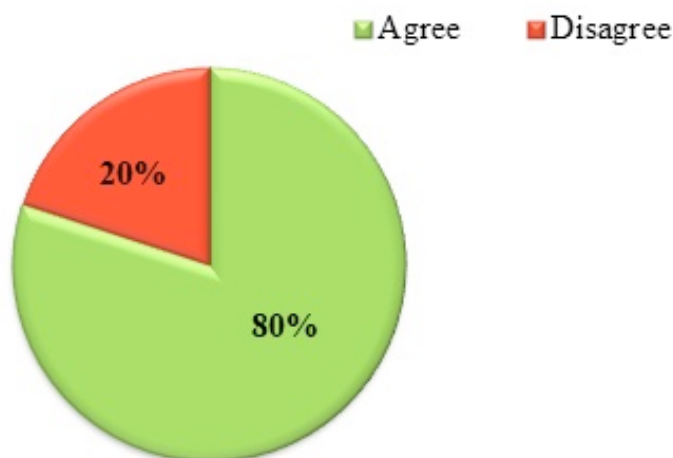
It can be highlighted that all of the instructors in the study agree on the necessity of teaching NoM strategies. Some benefits of teaching the strategies are mentioned by the participants such as helping communication skills improve, making meaning comprehensible, and achieving mutual understanding. Moreover, different benefits are also indicated, all of which may be fundamental for successful communication such as avoiding misunderstandings and communication breakdowns as well as having confidence in conversations in multicultural environments.

**Item 2.** I explicitly and purposefully teach NoM strategies and expect my students to use these strategies in class activities.

For *Item 2*, as it is presented in the pie chart below (See Figure 3), the majority of the instructors (80%) expressed that they prefer to teach these strategies explicitly and purposefully. They also expect their students to utilize these strategies by encouraging and guiding the students. Several instructors indicated that they usually correct their students' language due to their tendency in resorting to mother tongue when the students negotiate the meaning. For some EFL instructors, students' resorting to their mother tongue is regarded as a behaviour to be avoided.

However, a small number of the instructors (20%) mentioned that they do not frequently emphasize these strategies in their classes. Some EFL instructors explained that they are obliged to follow a certain coursebook, thus, they teach NoM strategies unavoidably without the need of incorporating any extra materials. Some, however,

believe in implicit teaching and described this process as “*learner’s own discovery*” (P-14).



*Figure 3: Explicit teaching and expectation of usage of NoM strategies*

**Item 3.** My students can readily apply NoM strategies in English in-class activities and discussions.

A good number of the instructors (60%) agree with the idea that their students can readily apply these strategies in the class as a part of the lesson through class discussions or some activities that a coursebook has. Some of the instructors (20%) highlighted that students are not motivated to utilize the strategies in English. Some of the instructors also believed that students feel an obligation to use NoM strategies in English only with a foreign EFL instructor who does not share the same first language with them. On the other hand, a small number of instructors (20%) preferred being neutral on this statement (See Figure 4). They are convinced that productivity requires time. They also observed that the students tend to use NoM strategies in English not at the beginning but later in their lives as their proficiency gets higher. It can be inferred that guidance, encouragement as well as students’ own motivation towards learning English play a crucial role in acquiring NoM strategies.



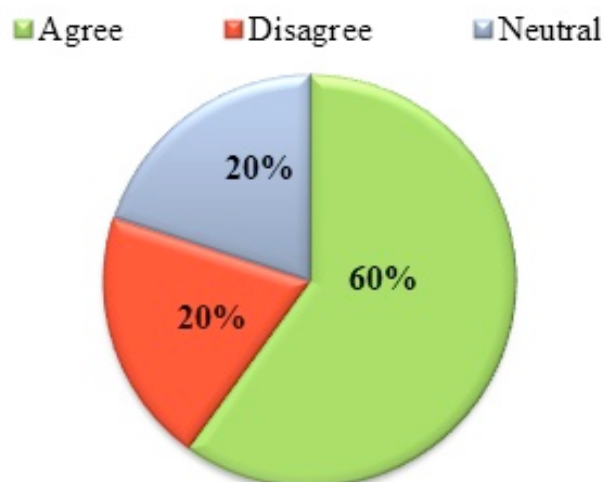


Figure 4. The students' practices of NoM strategies

**RQ3:** What are the perceptions of the EFL instructors on NoM strategies in the prescribed ELT coursebooks?

The third question aims to find out the instructors' perceptions of NoM strategies in the prescribed ELT coursebooks. *Items 4, Item 5* and *Item 6* in the questionnaire seek answers for this research question. Perceptions of the EFL instructors about the aforementioned items are presented below (See Figure 5).

**Item 4.** The coursebook I use includes a sufficient number of activities and tasks to teach negotiation of meaning strategies.

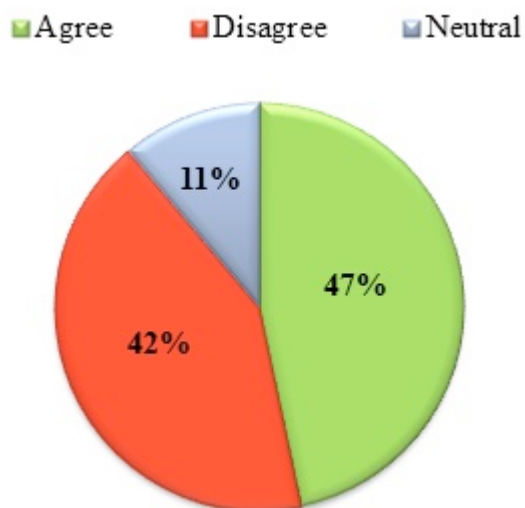
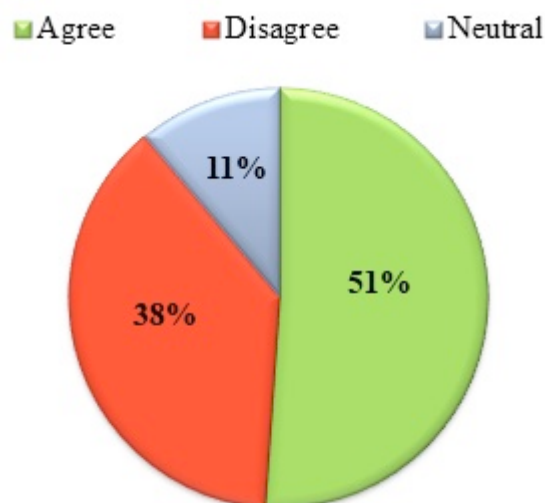


Figure 5. Number activities and tasks that stimulate NoM strategies in coursebooks

Almost half of the instructors (47%) indicated that coursebooks include sufficient dialogues, variety of activities and tasks supported by videos. Other instructors (42%), however, mentioned that the emphasis given on these strategies in the book is not sufficient. To exemplify, one of the EFL instructors explained: "*Activities are not sufficient as they don't provide clear examples on how to use them*"(P-32).

**Item 5.** NoM phrases and expressions in the coursebook match up with the ones that my students use when communicating in English.



*Figure 6. Consistency between the phrases and expressions in the prescribed coursebooks and the students' use of English*

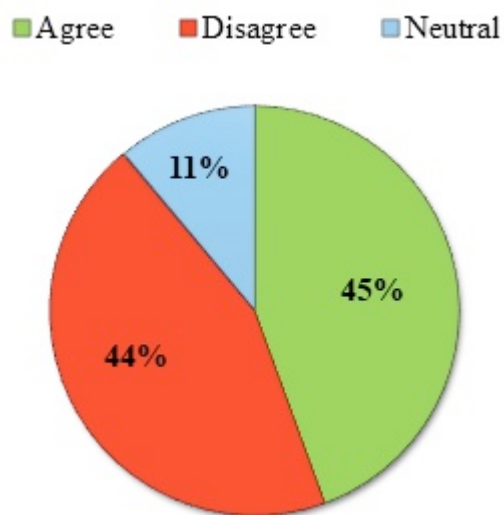
In terms of consistency between phrases and expressions used in the prescribed coursebooks and the students' use of English, the instructors' perceptions vary (See Figure 6). Although half of the instructors (51%) highlighted that phrases and expressions match, they also mentioned that they have some concerns as phrases and expressions in the coursebook set bounds to the students' creative use of language and lead the students to one direction. They also complained about the students' tendency to think in their mother tongue.

While some instructors prefer to focus on accurate usage of these phrases and expressions which the students memorize, others do not prefer to restrict their students only with the phrases and expressions in the coursebook as long as the students can communicate and have an ability to express themselves in English. One instructor mentioned: *"The phrases and expressions in the coursebooks only cover the basic needs of students in real-life communication and do not allow diversity to get into the class"* (P-7). Another instructor also highlighted the importance of the context by indicating *"Not all phrases and expressions in the coursebooks used in real-life communication, in some cases, they may even sound weird in that particular context. So, students should be aware of in which situations and contexts these strategies are used."* (P-25).

**Item 6.** The number and variety of NoM strategies in the coursebook are sufficient for my students to establish effective communication with other users of English in a multicultural environment.

For the issue of applicability of tasks stimulating NoM strategies in the coursebooks to multicultural platforms, the instructors' perceptions also differ from each other (See Figure 7). One participant expressed that the coursebooks include a variety of cultures which may enable the students to make connections later in their lives in multicultural platforms. The instructors assumed that it is easier for their students to use NoM

strategies when they have familiarity with different cultures. It was also highlighted that informal situations and dialogues are mostly ignored in the coursebooks, which might be necessary for the students in multicultural environments. An instructor noted that *“The coursebooks are mostly standard British-English oriented but they should have more varieties of Englishes including various activities and tasks that stimulate NoM strategies.”* (P-41). Another instructor also mentioned: *“The strategies in coursebooks are of course effective to maintain good communication. However, some strategies are more cultural and can only be learned in that society.”* (P-18).



*Figure 7. Applicability of tasks and activities in the coursebooks to multicultural environments*

## Discussion and Conclusions

From an overall perspective, it can be concluded that the perceptions of the instructors are not always parallel with each other. This may tell us that the EFL instructors are in disagreement, and their practices of teaching NoM strategies vary. The findings of the study reveal that the majority of the instructors are aware of the NoM strategies, yet they have some concerns regarding the application of such strategies. Additionally, it might be commented that the integration of NoM strategies into coursebooks is not satisfying for a great number of instructors. Based on the EFL instructors' perceptions, with a wide range of activities stimulating NoM strategies may be integrated into the coursebooks. These tasks and activities, recommended by Hartono (2017), are shown in the table below (See Table 1).

*Table 1. Various tasks and activities that stimulate NoM strategies*

- ❖ Information gap
- ❖ Jigsaw
- ❖ Decision-making
- ❖ Problem-solving
- ❖ Opinion exchange
- ❖ Role play
- ❖ Picture comparison
- ❖ Picture drawing
- ❖ Storytelling
- ❖ Free discussion activities

These tasks and activities may be adapted and modified by the instructors taking into account of the needs of today's learners in a highly globalized world. In other words, flexibility and creativity in language use by using multilingual repertoire may be encouraged by educators as well as coursebook writers. The findings also reveal the fact about students' tendency to think in their mother tongue is regarded as a negative behaviour when students negotiate the meaning. However, the features of ELF speakers in Jenkins, Cogo and Dewey's (2011) study, as mentioned previously, might be well-considered. Namely, ELF speakers are multilingual speakers who are capable of accommodating their multilinguality by resorting to their mother tongue creatively in appropriate contexts (House, 2015). Moreover, according to Cogo and Dewey (2006), flexibility and variability in English should be seen as an inevitable part of language evolution.

Students may also be encouraged to use all the linguistic resources, even their mother tongue, to achieve successful communication. In this way, language students may be prepared for real-life communication where English functions as a global language. It is also worth remembering that successful communication is achieved when communicative practices are applied in a situation rather than depending on a static and rigid code as there is not only one way of communicating in English (Cooper, 1968; Galloway, 2018).

### **Limitations**

This study was conducted within the scope of only one institution. Since there was no possibility to conduct this study with all English language instructors using the prescribed coursebooks around the world, the number of participants was limited. Moreover, the findings of this study cannot be generalized to all English language instructors across the globe.

### **Implications for Further Research**

For further research, the prescribed ELT coursebooks, which all EFL instructors gave various opinions on, may be examined thoroughly in terms of presence or absence of NoM strategies by taking into consideration of the global role of English today. The issue of students' resorting to their L1, which is mentioned frequently and conceived as a disadvantage by EFL instructors, may be evaluated within the ELF context.

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***Teachers' Professional Core Competencies and Functional Competencies of Elementary Teachers under the Office of Basic Education Commission***

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**Abstract**

This research objective were 1) to study total level of teachers' professional competencies at elementary schools under the Office of the Basic Education Commission (OBEC) 2) to analyze teachers' professional core competencies and functional competencies at elementary schools under the Office of the Basic Education Commission (OBEC). Respondents were 135 elementary teachers under OBEC in Bangkok gathering by purposive sampling. Descriptive statistics such as mean and standard deviation were deployed to analysis the data.

**Research Findings:**

1. The professional competencies total level of elementary teachers under OBEC who graduated in education were at moderate level ( $\bar{x} = 3.58$ , S.D. = .886) .
2. The professional sub competencies level of elementary teachers under OBEC were analyzed as below:
  - 2.1 Professional Core Competencies were classified to five components; 1) Achievement-oriented Competency 2) Service-oriented Competency 3) Self-development Competency 4) Teamwork Competency 5) Moral and Professional Ethics Competency.
  - 2.2 Professional Functional Competencies were classified to six components; 1) Curriculum Administration and Learning Management Competency 2) Learner Development Competency 3) Classroom Management Competency 4) Research, Analytical and Synthetic Competency 5) Change Leadership Competency and 6) Relation and Community Collaboration Competency.

**Keywords:** Elementary Teachers' Professional, Core Competencies and Functional Competencies

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## Introduction

Teacher professional development in the education system is the heart of the nation and is the future of the country because education is source of wisdom. But there are still significant problems for people if education does not create qualified workers, teachers lack of encouragement and inefficient to teach. Consequence are graduated students with insufficient quality, no vision, unable to cope with both old and new threats that make country can't catch up with the changes and the evolution of the world. Where will nation go? Or become an underdevelopment country with conflict, selfishness, dishonesty, division of separation (Office of the Education Council, 2015: 2).

Thailand has given importance and invest highly in education, the amount was more than 500 billion baht in 2015, representing 4 percent of GDP and equal approximately 18-20 percent of nation budget since 2008 but Thai education still has quality problems that are not yet able to compete on international stage. Thus causing poor quality of the population in the country, the problem of Thai education is not a lack of "resources" but a lack of "Efficiency" in using resources due to lack of "Accountability" of the education system to students. One of factors which is responsible for solving education problems is "teachers" which are important personnel in upgrading and improving the quality of education. The reform of educational quality will not be possible without raising the quality and competency of teachers, which is one of the most important elements in the education system. (Office of the Education Council. 2015: b)

Competencies of qualified teachers are important factors that affect learners' learning. Especially teachers in primary education because there are research findings from the OECD: Organization for Economic and Co-operation Development which has done in Tennessee (USA.), compared 2 students groups which 8 years old who study at moderate level, one group studied with high-performance teacher while the others studied with low-performance teacher, it was found that within 3 years, the results of both group was different significantly. In addition, the study of such issues at Dallas at the same time found that the students who had the opportunity to study with good teaching teachers were more advanced and found that elementary school students studying with unqualified teachers who are not good for many years will have educational backwardness that hard to improve. There is very little opportunity to correct what is lost from lacking those opportunities, even after returning to a quality school later (Office of the Education Council, 2015: 5)

Therefore, teachers at the elementary level are important person in the process of raising the quality of education while still no effective way to study professional competency, inconsistently and have discrepancy in the determination for teacher professional competencies of teachers in elementary education and also lack of continuity and modernity. In addition, the results of the study of the world-class quality school system found that the important factors that affect the learning change of students at the school level are "competencies of teachers" which schools have world class quality, must have important factors that enabling teachers to have 3 competencies: 1) selecting the right people to be teachers 2) developing teachers to be effective teachers and 3) guarantee system for all students (Barber, 2008 referred to in the Education Council Secretariat, 2012). Thailand Development Research Institute

(2013) discussed the importance of quality and competency of teachers, the reform for educational quality will not be possible without raising the quality and competency of teachers, which is considered an important element in the education system. This leads to the important conclusion for developing and reforming education in 2 ways: 1) Education reform has never been completed. If there is no teachers and personnel reform and 2) quality of education depends on teacher, lecturer and educational human resources (9 years of education reform, 2008, referred to in the Secretariat of the Education Council, 2015: 6). Professional competencies are also key to develop economy, society and nation in all dimensions (Kittichai Suthasinobon, 2016)

Guidelines for professional development Teachers at the elementary level should have a context in the dimension of good teacher performance. Those who are in the teaching profession must be trained in skills that will lead to attitudes, values and good attitude towards the teacher profession. Hence, the teachers at the elementary level should can learn and understand about the characteristics and competencies of teachers and can keep up with the times and changes of the modern world, able to analyze the elements of the characteristics and competencies of teachers of good administrators and teachers as a guideline for professional development which is reflected quality that appears in the learners. And enable learners to achieve their goals by teacher's effective learning management.

For all analysis above, the researchers team realized and focused the importance to study the need to develop professional competencies both core competencies and functional competencies of teachers in good primary education. With the hope that administrator, policy maker or personnel related to the development of teacher professional competencies at the elementary level will be able to apply principles, concepts and knowledge for further developing the quality and competency of teachers to act as better qualified teachers at the elementary level under the Office of the Basic Education Commission as well as extending the development of learners into Thai people who will be quality work force to live happily in the global society.

**The purposes of this research are to:**

- 1) to study total level of teachers' professional competencies at elementary schools under the Office of the Basic Education Commission (OBEC)
- 2) to analyze teachers' professional core competencies and functional competencies at elementary schools under the Office of the Basic Education Commission (OBEC).

**The importance of research**

1. The results of this research would be led to the development of a teacher professional development process that is appropriate to the teacher professional competencies of teachers at the elementary level.
2. Can be used as a guideline for providing guidance on teacher professional development to have teacher professional competencies of teachers in good primary level for the Office of Basic Education Commission.
3. To obtain research base information for proposing as a guideline for determining teacher characteristics and teacher professional competencies of teachers at the

elementary level Under the Office of the Basic Education Commission. And proposed as educational policy in the development of teachers of the nation.

### **Population and Samples**

Respondents were 135 primary school teachers under the Office of the Basic Education Commission in Bangkok Metropolis in academic year 2017-2018.

### **Research methodology**

The research team determined the scope of research. Data collection methods And data analysis By conducting research into 2 phases

**Phase 1** quantitative data collection, analyze data for Phase 1

- 1) To study the level of teacher professional competencies of teachers at the elementary level Under the Office of the Basic Education Commission
- 2) Analyzing teacher professional competencies of teachers in elementary school level Under the Office of the Basic Education Commission

**Phase 2** qualitative data collection for examining the results of competencies of primary school teachers.

- 3) Prepare suggestions for developing competencies of primary school teachers. Under the Office of the Basic Education Commission.

### **Result Conclusions**

1. The results of the study of teacher professional competency level of teachers at the elementary level under the Office of the Basic Education Commission, it was found that the teachers' total professional competencies of primary school teachers who completed the teacher profession under the Office of the Basic Education Commission, mostly at a moderate level ( $\bar{x} = 3.58$ , S.D. = .886) when considered in core and functional aspect can be summarized as follows

#### **1) Core Competencies**

1.1) Competency aimed at achievement in performance in the commitment to perform the duties to have the correct quality, complete with the highest mean ( $\bar{x} = 3.76$ , SD = .924), followed by pursuing learning about Manage learning ( $\bar{x} = 3.73$ , SD = .901)

1.2) Good service performance in terms of service with smiles, empathy, empathy, service recipients with the highest mean ( $\bar{x} = 3.96$ , S.D. = .827), followed by respectful service Humble to honor the service recipients ( $\bar{x} = 3.92$ , S.D. = .939)

1.3) Self-development competency in education, research Committed and seeking opportunities for self-improvement with various methods, with the highest mean ( $\bar{x} = 3.70$ , SD = .847), followed by studying new knowledge and academic innovation in organizational and professional development ( $\bar{x} = 3.67$ , SD = .689)

1.4) The ability to work as a team in working with others according to their assigned roles has the highest mean ( $\bar{x} = 3.87$ , SD = .929), followed by helping colleagues to achieve mutual success goals. ( $\bar{x} = 3.85$ , SD = .910)

1.5) Ethical competencies And the professional ethics of teachers in the generosity of helping and not hurting others with the highest mean ( $\bar{x} = 4.08$ , S.D. = .923), followed by being friendly to learners Colleagues and service recipients ( $\bar{x} = 4.06$ , S.D. = .929)

## 2) Functional Competencies

2.1) Course management competencies And learning management in the use of psychology in learning management for learners to learn happily And develop the full potential with the highest mean (= 3.87, S.D. = .767), followed by the use of various media, innovation and technology and suitable for content and learning activities (= 3.81, S.D. = .728)

2.2) Competency development for learners in organizing moral promotion activities Ethics for learners by allowing learners to participate in the activity planning with the highest mean (= 3.84, S.D. = .932), followed by morality insertion. Ethics for learners in classroom management (= 3.81, S.D. = 1.026)

2.3) Classroom management competency in terms of participation of students in determining the rules, class agreements, the highest mean (= 3.74, SD = 1.051), followed by promoting good interaction between Teachers and learners and learners and learners (= 3.71, SD = 1.057)

2.4) Competency in synthetic analysis and research to develop learners in the survey of problems related to students occurring in the classroom for research planning for learners development with the highest mean (= 3.61, SD = .837) Is the processing or summary of useful information for solving problems in the classroom using information around (= 3.50, SD = .880).

2.5) Competencies of teachers' leadership in changing roles and performance of their own to be conducive to the development of student achievement with the highest mean (= 3.68, SD = .928), followed by listening skills, speaking And questioning, open-minded, flexible, accepting various views of others To be a new way In operation (= 3.67, S.D. = 1.043).

2.6) The ability to build relationships and cooperation with communities for learning management in terms of good interaction with parents and communities in communication for learning management. And coordinate with parents and communities to participate in continuous learning management throughout the academic year With the highest mean ( $\bar{x} = 3.57$ , S.D. = 1.004), ( $\bar{x} = 3.57$ , S.D. = .997) Respectively, followed by building a network of cooperation between teachers, parents, communities and other organizations Both public and private sectors In exchange of information for learning management ( $\bar{x} = 3.49$ , S.D. = .999)

## Summary and Discussion

1. The results of the study of teacher professional competency level of teachers at the elementary level Under the Office of the Basic Education Commission, it was found that the teacher professional competencies of primary school teachers Under the Office of the Basic Education Commission, mostly at a high level (45.20%) and at a moderate level ( $\bar{x} = 3.58$ , S.D. = .886) might be due to the development of the quality of primary school teachers to be able to develop students to have the potential to drive the development of the country according to that national strategy The Teacher Civil Service and Educational Personnel Act BE 2547 has many provisions regarding the development of teacher competencies.

When the person has passed the recruitment process to contain and appoint as a teacher civil service and educational personnel Assistant Teacher position The person must be advanced in the development of teacher civil service and educational personnel immediately, which has established the criteria and methods for the development of teacher civil service and educational personnel throughout life. Since the day that the person began to perform official duties During official duties.

Requesting and promoting academic standing Until the retirement of the government, so that the teacher civil servants will be in accordance with the standards, positions and academic standards that TEPC determines Of the learners and able to raise the quality of education in a concrete manner by TEPC has set the rules and methods for teacher development in 3 parts (Office of the Secretariat of the Council of Education Education 2561: 40-42) including

1) Development at the beginning of government service as an assistant teacher Which the person who has been appointed and appointed as an assistant teacher Must be prepared and developed for a period of two years according to Section 56 of the Teacher Civil Service and Educational Personnel Act BE 2547 (2004). Prepare and develop strongly from educational institutions and agencies for two years. Within the educational institution that the person has been appointed and appointed From the date of entering government service Before appointing a teacher Which during the two-year period that was evaluated Assistant teachers will be developed to prepare. Along with the assessment of their performance And performance With a summary of the evaluation results every 6 months, a total of 4 times. By the Preparatory and Development Board In preparation and development, intensive Assistant teacher position Aims at emphasizing assessment for development And for the assessment to achieve the objectives The Preparedness and Development Board will act as a mentor. Introduce the assistant teacher in both the practice and practice. And when the assistant teacher passed the assessment of preparation and intensive development for two years Therefore will be appointed to the position of teacher

2) Development during official duties When the assistant teacher performing the duties at the elementary level has been appointed to the position of teacher Must have self-development to have characteristics that are suitable for the position, duties and responsibilities for efficiency, effectiveness and progress for the government The supervisor has the duty to promote, support, in accordance with the standard system that is set systematically and continuously every year for not less than 15 days.

3) Development prior to appointment and promotion While the teacher civil servant who is the primary school teacher has developed during the routine With the accumulation of knowledge, expertise, experience in teaching that has increased Another important issue is that all primary school teachers can choose the path to progress in requesting and post academic accreditation by themselves in accordance with the criteria and methods that the Teacher Civil Service Commission and Educational Personnel set. Which requires those who request to have or postpone as a special academic teacher And academic expertise Must pass the development before the appointment according to the rules and methods developed by the teacher civil service committee and educational personnel Amount not less than 24 hours and not less than 30 hours respectively which called this development Early development, appointment and promotion When primary school teachers Which is a teacher civil servant through pre-development, appointed to be promoted to a special academic teacher And academic expertise Under the term of 3 years from the date of completion of development.

Later, the Ministry of Education has a policy to develop the whole system in a new format. So that teachers at the primary level have dedicated their time to teaching and learning to students in the class fully The main focus is Teachers must not leave the classroom to spend time with training. In addition, the teacher civil service committee and educational personnel have improved the position standards. Academic standards And new academic evaluation criteria in order to develop teachers at the elementary level, teacher civil service and educational personnel are consistent. And teachers are developed systematically and continuously every year To provide teachers with knowledge, skills and being a teacher In accordance with the standard, position and academic standards and affect the quality of learners And able to bring self-development results as part of the request to have and post academic standing which has defined the conditions of development in order to support academic standards and academic evaluation that have been developed at all academic levels.

The teacher civil service committees and educational personnel therefore have determined the rules and methods for the development of teacher civil service and educational personnel in the teaching field. In accordance with the letter of office of TEPC at 0206.7 / W 22 dated 5 July 2017. The important matter is that in the past 5 years, the request for evaluation and promotion of any academic status Primary teachers must have 100 hours of development hours. If not 100 hours, but the number of development hours is not less than 60 hours, the number of hours of participation in the professional learning community (PLC). The portion that exceeds 50 hours each year can be counted. In each year, the applicants must be evaluated and promoted by the teacher with sufficient development hours at the Guru Pattana Institute (Teachers Development Institute) or as determined by the Teacher Civil Service Commission and educational personnel continuously every year. When teachers pass development in accordance with the criteria and methods prescribed by the teacher civil service committee and educational personnel, teachers can apply the development hours as a qualification in requesting academic standing and academic promotion according to the rules and procedures for teacher civil service and educational personnel for teacher positions With academic standing and academic standing However, after passing the evaluation to have and post academic accreditation The result of this development is considered to be a pre-development, appointment and promotion. As required by law (Ministry of Education. 2561: 42)

The criteria and methods for developing such teachers have a significant impact on the competency enhancement of primary school teachers to be efficient and effective in performing their duties. And strengthening the teaching profession In order to bring the knowledge and innovations that can be derived from the development to develop learning and develop learners to have potential and be a major force in driving the development of the country into stability, prosperity and sustainability in accordance with the important goals of the national strategy.

## **Suggestions**

### **1. Suggestions for Applications**

The researcher has learned from the research conducted by the government, especially the Ministry of Education and the agencies involved in competency development for teachers at the elementary level, such as the Education Council, the Teachers Council of Thailand, having to turn back to set policies. And clear goals for teacher development Determine the development plan for those who will come into the system to be teachers at the elementary level that must have qualifications that require knowledge and experience in the teaching profession as well as develop teachers to drive national strategies.

### **2. Suggestions for Further Studies**

2.1 There should be a study and development of systems and mechanisms for producing and developing primary school teachers. To have a competency for teachers in accordance with the current professional standards.

2.2 There should be research and development of the teacher training process to enhance teachers' competency according to the 2018 educational standards in all dimensions.

2.3 There should be research and development of the establishment of the National Curriculum and Learning Institute to enhance the professional level of teachers. To have a true and sustainable quality of production and teacher development.

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### *A Scale Development Study on the Schools Areas to be Improved*

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#### **Abstract**

Since all individuals in society do not have sufficient conditions in terms of education, there are significant differences in the achievement levels of students in different regions. In order to cope with this problem it can be provided enhancing the quality of learning environments, the restructuring of the school system based on the qualifications of the school system, increasing the quantity and quality of the academic staff and the integration of information and communication technologies into the training programs. Therefore, changes should be made in the educational system for improving the quality of school and teaching. However, the success of change initiatives is generally low. As the process of change can be successful, employees should be informed about the change and their concerns should be addressed and the goals of change must be unified with the purposes of the employees. The study aims to determine the perceptions of primary and secondary school teachers and their administrators about the areas of their schools to be improved and to state whether these perceptions differ in terms of some variables. The design of this research is a descriptive survey model. In this study, a scale was developed as a data collection tool. The study sample consisted of 1539 primary and secondary school teachers and administrators who have worked in the metropolitan districts of Izmir in the public schools in the 2018-2019 academic year.

Keywords: School improvement, administrator, teacher

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## Introduction

Since all individuals in society do not have sufficient conditions in terms of education, there are significant differences in the achievement levels of students in different regions. In order to cope with this problem, it can be provided enhancing the quality of learning environments, the restructuring of the school system based on the qualifications of the school system, increasing the quantity and quality of the academic staff and the integration of information and communication technologies into the training programs (TSV, 2015). Therefore, changes should be made in the educational system to improve the quality of school and teaching. However, the success of change initiatives is generally low (Kondakçı, Zayim, & Çalışkan, 2010). As the process of change can be successful, employees should be informed about the change and their concerns should be addressed and the goals of change must be unified with the purposes of the employees. When critical situations are overcome and administrators have full support, resistance to change is broken and the change is successful (Töremen, 2002; Altunay, Arlı, & Yalçınkaya, 2012). In this direction, the determination of the situation for the improvement of a school that can realize the change, the use and application level of school development strategies and the factors affecting the school improvement process should be taken into account. For the continuity of improvement, it is necessary to share and learn new things and to appreciate the people who develop themselves. Therefore, determining the factors that affect school and teaching quality is of great importance for the administration of change, school improvement and increasing of the quality.

School administrators and teachers' internal evaluation of the schools they work in provides important benefits both for their development and school. Because school employees have to cope with the obstacles that arise in the process of education and training directly. As the first step of school improvement, it can be provided that school administrators and teachers make a self-assessment about their schools and share information about the inadequacies of structure and human resources to improve the school qualifications under the guidance of these results. In general, it can be seen that the majority of the practices on school improvement carried out unplanned in schools are also negatively affected by the fact that basic and social change is not taken into consideration, the necessary preparation is not made, the measures are not taken and the systematic process is not carried out. In this context, planned improvement in the school involves a regular, consistent and continuous progress to increase the quality of work-life without reducing productivity; the acclaimed, accepted, and conscious movement in the desired direction (Erkal, 1995). The concept of "improvement" in school improvement is perceived as the process of achieving effectiveness and change management. The concept of school improvement can often be confused with the concept of school effectiveness and can be used interchangeably (Halsall, 1998). However, school effectiveness and school improvement approach come from different sources in intellectual, methodological and theoretical dimensions. The concept of school improvement is against the imposition of innovation from top to bottom with a reactive approach; it prefers the change from bottom to top (Reynolds, 1995; Chapman et al. 2011). However, the literature has been developed together. In this context, according to the learning process described by Senge (2016) for learning organization theory can be taken into account the development capacity of the school; the design of practices the school improvement and the determination of priority improvement areas can be made the school a

learning institution by providing learning from experiences.

Organizational improvement is not only the person, the technology or the structure and process in the organization but the change of them as a whole. In this study, Barnard's (1964) concept of organization based on cooperation, on the basis of open social system theory (Katz and Kahn, 1966) and learning organization theory (Senge, 2016), it has been tried to determine the areas where characteristics of individuals in the school organization (students, teachers, administrators and parents) and relating to the characteristics of the institutional process. During the workshop in the scope of the project, participants were asked to express their views on the inadequacies of schools as open-ended. Because there are a limited number of researches about school improvement and the content of the concept changes over time, it is hoped that the development of a data collection tool needs to be improved to identify the areas of the schools of primary and secondary school teachers and school administrators and the findings on the improvement of schools will contribute to the field.

### **Purpose of the Research**

The study aims to develop a data collection tool and determine the perceptions of primary and secondary school teachers and their administrators/principals about the areas of their schools to be improved.

1. What are the areas of schools to be improved?
2. What are the views of primary and secondary school teachers and administrators/principals about the areas of their schools to be improved?

### **Method**

#### **Model**

The design of this research is a descriptive survey model. A scale was developed to reveal the present situation.

#### **Population and Sample**

The study population was consisted of 14.941 primary and secondary school teachers and administrators/principals who have worked in the metropolitan districts of İzmir in the public schools in the 2018-2019 academic year. For the basic application of the study, the proportional cluster method was used. The distribution of the sample according to individual characteristics is given in Table 1.

Table 1. Distribution of Sample by Individual Characteristics

Individual Characteristics		N	%
Seniority	1-6 year	100	6,5
	7-12 year	262	17,0
	13-18 year	319	20,7
	19-24 year	470	30,5
	25 year and over	388	25,2
Duration of Working	1-5 year	771	50,1
	6-10 year	410	26,6
	11-15 year	185	12,0
	16 year and over	173	11,2
Gender	Female	1159	75,3
	Male	380	24,7
Age	26-30 age	95	6,2
	31-35 age	212	13,8
	36-40 age	285	18,5
	41-45 age	325	21,1
	46-50 age	312	20,3
	51-55 age	216	14,0
	56 age and over	94	6,1
Total		1539	100,0

When the distribution of the sample in Table 1 according to individual characteristics is examined, it is seen that the number of the participants is 1539. The majority of the participants were female (n =1159; % 75.3), had 19-24 years seniority (n = 470; 30.5%), had been working in their schools for 1-5 years (n = 771; 50.1%) and the ages of teachers and administrators/principals were between 40-50 years (41-45 years n = 325, 21.1%; 46-50 years n = 312, 20.3%).

### Data Collection Tool

In this research, a scale was developed as a data collection tool. In the first phase of the scale development, the related area had been searched and the areas where schools need to be improved were determined. In the literature review process, scales in the field were examined. In the scope of a research-development (R&D) project, a workshop was conducted in order to determine the areas where schools need to be improved. Raw data contained a total of 65 pages of suggestions obtained in writing form from the 89 school administrators and teachers who attended to the workshop about the areas where their schools need to be improved. The raw data obtained from the primary and secondary school teachers and administrators were analyzed and a scale of the draft was prepared by writing the 118 items including school improvement areas.

At the preparation stage of the draft scale, the scale was first examined by seven faculty members from different universities and departments of Educational Sciences for the validity of language and content (scope) and two teachers were consulted for the clarity. By making necessary corrections in terms of content and expression, the number of items was reduced to 102 and for first tour validity analysis in the pilot application, the scale was distributed to 800 participants. The data of 580 scales were

used among collected scales. As a result of validity and reliability analyses, the scale was reduced to 82 items. For the second tour criterion-related validity and reliability application of the draft scale, 780 scales were distributed and analyzed. Finally, 2100 scales were distributed for the basic application. Data of 1539 participants were used.

### Validity and Reliability

For the validity and reliability studies of the scale, the pre-application was applied to 580 participants and the construct validity and reliability analyzes of the scale were performed. Kaiser-Meyer-Olkin (KMO) coefficient and Barlett sphericity test were calculated to determine the suitability of data for factor analysis and KMO value was found to be .98 and Bartlett test result ( $x^2 = 113691,961$ ;  $p = 0.000$ ) was found to be significant. Because of the seven-dimensional structure of the scale, it has been found that the EFA was collected under seven factors as a result of the Maximum Likelihood method and the variance explained by the seven factors related to the scale was 69%. Items loads of draft scale prepared with 102 items and Scree plot chart were examined, seven sub-dimensions were defined because they were conceptually interpretable seven factors. Barnard's concept of cooperative organization (1964), open social system theory (Katz and Kahn, 1966) and learning organization theory (Senge, 2016) were used for naming dimensions. As a result of the repeated factor analysis, it was decided that the scale form should be 82 items.

As a result of the explanatory factor analysis (EFA), the dimensions of the ASNI perception scale were called such as; the first factor "School administrators/principals" had 42,195% of the total variance; the second factor "Students" had 9,639% of total variance; the third factor "Teachers" had 6,823% of the total variance; the fourth factor "Physical-Technical Facilities" had 3,969% of the total variance; the fifth factor "Targets and Way of Determination" had 2,915% of the total variance; the sixth factor "Parents of Students" had 2,339% of the total variance; the seventh factor "Institutional process" had 1,707% of the total variance. According to the results of the analysis, the reliability values for the dimensions are shown in Table 2.

Table 2. Results of reliability analysis of scale factors

<b>Factors of ASNI scale</b>	<b>Distribution of substances according to factors</b>	<b>Factor loads</b>	<b>Calculated Reliability Coefficients</b>
Students	1. - 15. between items	,317-,464	,951
Teachers	16.-37. between items	,524-,668	,972
School Administrators/Principals	38.-51. between items	,340-,700	,978
Parents of Students		,395-528	,937
Physical-Technical Facilities	60.-66. between items	,357-,579	,901
Targets and Way of Determination	67.-74. between items	,536-,657	,955
Institutional Process	75-82. between items	,558-698	,957
Total			,972

For the reliability of 82 items of the ASNI Perception Scale, Cronbach's Alpha internal consistency coefficient was calculated separately for the whole scale and each subscale. According to the analysis of the internal consistency coefficients of the ASNI Perception Scale, Cronbach's Alpha values ranged from .90 to .97. In addition, the relationship between the subscales of the draft scale was investigated and the correlation coefficients between the factors were presented in Table 3. As a result of the analysis, it was observed that the dimensions were in a positive and significant relationship with each other.

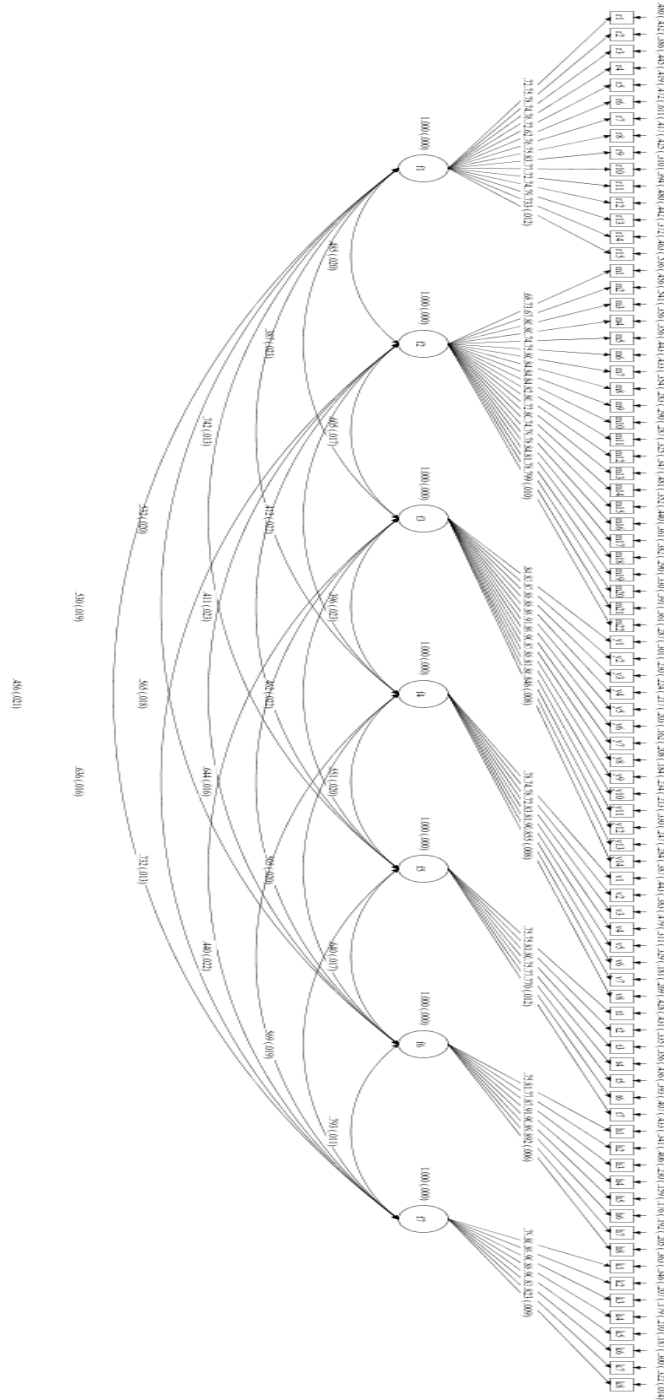
Table 3. Correlations between factors of ASNI Scale

	Students	Teachers	School Administrators	Physical-Technical Facilities	Targets and Way of Determination	Institutional Process	Parents of Students
Students	1	,405**	,305**	,278**	,395**	,359**	,475**
Teachers	,405**	1	,512**	,313**	,509**	,659**	,234**
School Administrators/Principals	,305**	,512**	1	,413**	,646**	,746**	,311**
Physical-Technical Facilities	,278**	,313**	,413**	1	,484**	,406**	,387**
Targets and Way of determination	,395**	,509**	,646**	,484**	1	,618**	,364**
Institutional Process	,359**	,659**	,746**	,406**	,618**	1	,302**
Parents of Students	,475**	,234**	,311**	,387**	,364**	,302**	1

\*\* p<0.01 level is significant. (Correlation is significant at the 0.01 level (2-tailed)).

As a result of the confirmatory factor analysis (CFA) of the ASNI perception scale, it was observed that the structure revealed in the EFA was confirmed. This result also shows that the dimensions of the scale are statistically verified. The model obtained with CFA is given in Figure 1 and Table 4.





**Figure 1. CFA Standardize Results**

In Figure 1, the model obtained in MPlus program output was tested in the confirmatory factor analysis of the ASNIP Perception scale. Calculated loads are presented in Table 4.

Table 4. DFA t values of ASNIP Scale

Dimensions	Substances	T values	R <sup>2</sup>
Students	R1	0.558**	0.520
	R2	0.606**	0.568
	R3	0.645**	0.614
	R4	0.583**	0.555
	R5	0.627**	0.581
	R6	0.634**	0.528
	R7	0.513**	0.389
	R8	0.621**	0.583
	R9	0.623**	0.575
	R10	0.658**	0.690
	R11	0.683**	0.606
	R12	0.561**	0.520
	R13	0.610**	0.558
	R14	0.619**	0.628
	R15	0.579**	0.537
Teachers	M1	0.448**	0.644
	M2	0.570**	0.557
	M3	0.607**	0.567
	M4	0.596**	0.646
	M5	0.565**	0.717
	M6	0.621**	0.710
	M7	0.594**	0.713
	M8	0.612**	0.675
	M9	0.643**	0.653
	M10	0.666**	0.519
	M11	0.605**	0.648
	M12	0.604**	0.560
	M13	0.577**	0.639
	M14	0.585**	0.618
School Administrators/ Principals	M15	0.620**	0.710
	M16	0.655**	0.670
	M17	0.614**	0.609
	M18	0.665**	0.639
	M19	0.617**	0.644
	M20	0.654**	0.557
	M21	0.569**	0.567
School Administrators/ Principals	M22	0.628**	0.646
	Y1	0.775**	0.713
	Y2	0.733**	0.699
	Y3	0.742**	0.770
	Y4	0.736**	0.776
	Y5	0.714**	0.783
	Y6	0.764**	0.797
Y7	0.781**	0.838	

	Y8	0.759 <sup>**</sup>	0.792
	Y9	0.767 <sup>**</sup>	0.816
	Y10	0.803 <sup>**</sup>	0.766
	Y11	0.852 <sup>**</sup>	0.787
	Y12	0.706 <sup>**</sup>	0.670
	Y13	0.778 <sup>**</sup>	0.753
	Y14	0.730 <sup>**</sup>	0.716
Parents of Students	V1	0.747 <sup>**</sup>	0.613
	V2	0.650 <sup>**</sup>	0.557
	V3	0.678 <sup>**</sup>	0.617
	V4	0.618 <sup>**</sup>	0.521
	V5	0.745 <sup>**</sup>	0.689
	V6	0.729 <sup>**</sup>	0.671
	V7	0.795 <sup>**</sup>	0.819
	V8	0.793 <sup>**</sup>	0.731
Physical-Technical Facilities	T1	0.797 <sup>**</sup>	0.572
	T2	0.792 <sup>**</sup>	0.569
	T3	0.915 <sup>**</sup>	0.665
	T4	0.813 <sup>**</sup>	0.644
	T5	0.856 <sup>**</sup>	0.564
	T6	0.913 <sup>**</sup>	0.607
	T7	0.861 <sup>**</sup>	0.593
Targets and Way of Determination	H1	0.673 <sup>**</sup>	0.567
	H2	0.707 <sup>**</sup>	0.659
	H3	0.718 <sup>**</sup>	0.594
	H4	0.736 <sup>**</sup>	0.770
	H5	0.745 <sup>**</sup>	0.841
	H6	0.746 <sup>**</sup>	0.824
	H7	0.749 <sup>**</sup>	0.808
	H8	0.769 <sup>**</sup>	0.795
Institutional Process	K1	0.649 <sup>**</sup>	0.637
	K2	0.635 <sup>**</sup>	0.654
	K3	0.775 <sup>**</sup>	0.793
	K4	0.779 <sup>**</sup>	0.821
	K5	0.766 <sup>**</sup>	0.790
	K6	0.766 <sup>**</sup>	0.813
	K7	0.666 <sup>**</sup>	0.700
	K8	0.736 <sup>**</sup>	0.678

\*\* p < 0.01 level is significant.

As shown in Table 4, according to the CFA results, the compliance of the seven-dimensional model of the ASNI perception scale with the data set was confirmed by the analysis of the Mplus 6.1 program. Goodness of fit indexes of the model were obtained in confirmatory factor analysis:  $X^2 = 14639.241$ ;  $X^2 / df = 4.54$ ;  $p = 0.00$ ; CFI = 0.908; TLI = 0.905, S-RMR = 0.041 and RMSEA = 0.048. When the goodness values of fit of the model stated were examined, it was determined that the measurement model was an acceptable model.

After giving the final shape of the scale of perception of areas where schools should be improved, criterion-related validity studies were conducted with Effective School

Scale (ESS) developed by Balçı (1993: cited in Balçı, 2014). Among the sub-dimensions and on a total scores basis of the Pearson moments product correlation coefficients of "Effective School Scale" developed by Balçı (2014) ( $r = .257$ ,  $p < .001$ ) and OGGAÖ were found statistically low and medium level significant relationship for the criterion-related validity study. Between total scores of two scales were found statistically a moderate level ( $r = .494$ ;  $p < .001$ ) significant relationship.

### **Data Analysis**

The data were obtained from the sample for the exploratory and confirmatory factor analysis of the scale was tested using Mplus 6.1 software program. As the skewness and kurtosis values were examined before the analysis varied in the range of  $+1 / -1$ , it was concluded that the normal distribution assumption was met. Also, SPSS 21.00 statistical package program was used to analyze the data. The arithmetic mean and standard deviation analysis was used to determine the perceptions of the participants.

### **Conclusions**

The findings of the study were presented under two main headings: the psychometric findings of the perception scale related to the areas of the schools to be improved and the perceptions of primary and secondary school teachers and school administrators about the areas.

#### **1. Psychometric findings of perception scale related to the areas where schools should be improved**

In this study, psychometric measurements of the scale of perception of the areas that need to be improved for primary and secondary school teachers and administrators/principals were tried to be done. For the validity analysis, exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and criterion-related validity analysis were performed. Cronbach's Alpha internal consistency coefficients were calculated for reliability. Factor structure of the perception of areas in which schools need to be developed was examined with EFA. In addition, the goodness of fit (CFI = 0.908; TLI = 0.905; S-RMR = 0.041 and RMSEA = 0.048) obtained from the CFA to investigate whether the factor structure of the scale was valid was found to be within acceptable limits (Jöreskog & Sörbom, 1993; Şimşek, 2007).

To test the criterion-related validity of the scale of perception of areas in which schools need to be developed, the correlation between the measurement tools of similar structures were examined. After it was determined that the seven-factor structure of the scale was valid at the level of primary and secondary school teachers and administrator (principals) in the research, similarly the relationship between this scale and "Effective School Scale" which was developed by Balçı (2014), applied and used in many studies in the field of Educational Administration in the past was examined.

The scale of perception of the areas in which schools need to be improved (ASNIPS) consists of 82 items and includes seven dimensions: teachers, school administrators, students, parents, objectives, physical-technical facilities and institutional process. According to the opinions of teachers and school administrators, "teacher", which is

the first dimension of the scale of perception of areas that schools need to be developed, indicates the areas that should be developed for teachers in schools. The participants who have high scores in this dimension think that teachers are sufficient and effective in their schools. The participants with low scores in this dimension state that teachers are weak in terms of communication, pedagogical competence and learning culture.

The second factor of the scale of perception of the areas in which schools need to be improved (ASNIPS) is the "school administrators/principals". According to the views of teachers and school administrators, this dimension indicates the areas that need to be improved for school administrators. The attendants who have high scores in this dimension consider that the administrators in their schools are sufficient and effective. The participants having low scores in this dimension state that school administrators are weak in terms of human and material resources management.

The third factor of the scale of perception of the areas in which schools need to be improved (ASNIPS) is "students". This dimension indicates the areas that need to be improved for students in schools according to the viewpoints of teachers and school administrators. The participants who have high scores in this dimension think that students have high cognitive, affective and psychomotor competencies in their schools. The attendants with low scores in this dimension think that the students are weak in terms of their cognitive, affective and dynamic competences.

The fourth factor of the scale of perception of the areas in which schools need to be improved (ASNIPS) is "physical-technical" possibilities. This dimension indicates the areas that need to be improved for physical-technical opportunities in schools according to the opinions of teachers and school administrators. In this dimension the participants with high scores state that the physical-technical facilities in their schools are sufficient and effective. The participants who have low scores in this dimension think that the physical-technical facilities in their schools are weak.

The fifth factor of the scale of perception of the areas in which schools need to be developed (ASNIPS) is "parents of students". This dimension indicates the areas to be improved for the parents of the students in schools according to the ideas of teachers and school administrators. The attendants who have high scores in this dimension think that the parents of the students in their schools are supportive of the students and the school. On the other hand, the participants having low scores in this dimension express that their parents are weak in supporting the student and the school.

The sixth factor of the scale of perception of areas where schools need to be developed (ASNIPS) is the institutional processes ". This dimension indicates the areas that should be developed for institutional processes in schools according to the opinions of teachers and school administrators. The participants with high scores in this dimension think that the institutional processes in their schools are sufficient and and effective. The participants who have low scores in this dimension state that the institutional processes are weak.

The last factor of the scale of perception of the areas in which schools need to be developed (ASNIPS) is "targets and way of determination. According to the viewpoints of teachers and school administrators, this dimension indicates the areas

that need to be developed on purpose in schools. The attendants who have high scores in this dimension think that the goals in their schools are sufficient, efficient and effective. The participants having low scores in this dimension express that the schools are weak in terms of goals and the way these aims are determined.

## 2. The areas of schools that need to be improved according to teachers and school administrators

The opinions of the primary and secondary school teachers and administrators about the areas where schools need to be improved were analyzed and the findings were given in Table 5.

Table 5. The areas of schools that need to be improved according to teachers and school administrators

School Improvement Dimensions	Mean	SS/Std. Deviation
Students	3,378	,6253
Teachers	3,939	,6179
School Administrator/Principal	3,969	,7691
Parents of Students	3,039	,7521
Physical-Technical Facilities	2,804	,9021
Targets and way of determination	3,642	,7583
Institutional Process	3,763	,7491
School Improvement	3,586	,5660

The opinions of primary and secondary school teachers and administrators about the areas that schools should be improved are at the "High" level. When the average scores of primary and secondary school teachers and administrators regarding the areas that need to be improved in schools are examined, the average of the scores of determining the needs of school improvement is as follows from the least needed criteria to the most needed; "School Administrators/Principals" ( $X=3,969$ ), "Teacher" ( $X = 3,939$ ), "Institutional Process" ( $X=3,763$ ), "Targets and way of determination" ( $X = 3,642$ ), "Students" ( $X = 3.378$ ), "Parents of Students" ( $X=3,039$ ) and "Physical-Technical Opportunities" ( $X=2,804$ ). The participants stated that the most inadequate area was "Physical-technical facilities" sub-dimension in schools and it is necessary to be improved and the most adequate area was "school administrator" sub-dimension. In other words, according to the perceptions of primary and secondary school teachers and school administrators/principals, considering this ranking, the criteria of "Physical-technical opportunities" ( $X = 2,804$ ) need to be improved at the most and the criteria of school administrators/principals need to be improved at least ( $X = 3,969$ ) among the criteria of the needs of schools improvement.

In line with the findings obtained in this research, some application and research suggestions may be presented. When the researches related to the areas that schools need to be developed are examined, it can be said that physical technical opportunities, the performance and motivation of students, the professional development of teachers and administrators, the contribution of parents of students to school goals, and the activities to support cooperation with school members should be emphasized. It will be useful to conduct experimental studies examining how the

different practices of school development affect students' motivation towards school and achievement. In this way, which ones of the school development practices contribute to school members can be understood more clearly.

Because of the physical areas of the buildings of schools' being limited and the low level of parents' awareness to support education, teachers can develop creative solutions to develop physical and technical conditions in a positive way, improve themselves in this matter and increase their cooperation with the school's environment.

Teachers and administrators' scores related to their schools can be examined according to their individual and professional characteristics and problem-solving skills can be developed together to find the source of their problems and solve them.

According to the teachers' self-assessment, the causes of the problems can be determined in detail and teachers can participate in the decisions for the school development process. In addition, social activities and educational activities can be done for all members of the school.

Finally, school members may be advised to carry out learning and teaching activities that support the school development process. For this reason, it may be effective to use activities that increase the motivation of teachers in this process.

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***Decreased Motivation and Increased Mental Illness Among Young People - a Need for Teaching Life Mastery Skills in School***

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**Abstract**

This study investigates how teachers can support students in lower secondary school to develop motivation and life-mastery skills by applying a five-step motivation method. The method is based on Ryan and Deci's self-determination theory, stating that in order to feel intrinsic motivation, the basic needs of autonomy, competence and relatedness must be met. The findings show that the majority of the students appreciate the motivation method, many of them become more motivated, and they manage to make plans and follow them up. In addition, the study shows that the motivation method proves to be a useful tool for the teacher to get a feeling of the class atmosphere, and insight into what the students are concerned with or what they struggle with. Based on our findings, we advocate the application of the five-step motivation method in lower secondary schools to support students to become equipped to handle the pressure and requirements they are exposed to in a modern educational society.

Keywords: motivation, self-determination, life-mastery and metacognition

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## Introduction

“Human beings can be proactive and engaged or, alternatively, passive and alienated, largely as a function of the social conditions in which they develop and function”(Ryan & Deci, 2000, p. 68).

In recent years, national surveys have disclosed lack of motivation and high dropout rates as major causes for concern in Norwegian schools. The national student survey from 2017 (Skoleporten, 2017) exposes both a lack in motivation, as well as a reduction in the students’ motivation from year 7 to year 10. The same survey also reveals a lack in students’ perceived involvement. Ryan and Deci’s Self Determination Theory (2000) highlights the effect motivation has on learning. In addition, Thuen and Bru (2000) have emphasized the negative consequences for motivation and effort when students experience school subjects as tedious and of little relevance. This, in its turn, could cause a decline in motivation, and lack of motivation could cause problems in learning.

In addition to problems with learning, a recent report displays high dropout rates in upper secondary schools (Rambøll, 2015/2016). As of 2018, 43% of males who started vocational studies had not finished within 5 years. For males and females in both general and vocational studies the rate is 25% (*Gjennomføring i videregående opplæring*, 2018). A major American study holds lack of involvement and low motivation as the main underlying risk factors for school dropout (Rumberger, 2011). It is commonly known that dropout could have devastating consequences. Studies show that receivers of social aid and disability benefits are almost exclusively school dropouts (Falch, Johannesen, & Strøm, 2009) and that these often have challenges in the form of mental health issues and addiction (Furuberg & Myklebø, 2013). Both the dramatic link between lack of motivation in school, school dropout and its consequences for adult life, as well as the consequences lack of motivation can have on learning, underline the complexity of this problem and the need for a solution for systematic work with motivation in school settings, which is the focus of the current study.

This study is part of a larger project called “A Systematic Approach – the five-step Motivation Method” (SAMM<sup>1</sup>), where we aim at developing an approach to working with motivation that can be applied across contexts. The project started in upper secondary school, and the current study investigates how this approach can be applied in lower secondary school. The method specifically focuses on developing and supporting metacognition and self-regulation (De Corte, 2010), strategies viewed as important for motivation in general and also highlighted in recent reports as central to the upcoming national curriculum reform in Norway (*Elevenes læring i fremtidens skole — Et kunnskapsgrunnlag*, 2014). It is also specifically aimed at supporting intrinsic motivation, through working with the students’ sense of autonomy, relatedness and competence (Ryan & Deci, 2000).

According to self-determination theory, all students have a tendency for creativity and learning. However, supportive conditions are essential for intrinsic motivation and numerous non-supportive conditions could be disruptive (Ryan & Deci, 2000, p. 70).

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<sup>1</sup> For more information about the project, see <https://samm.uia.no/en/frontpage/>

It is thus vital for schools to provide supportive conditions for students' intrinsic motivation. Several studies have shown that feelings of autonomy, relatedness and competence are central to intrinsic motivation, and studies have also found that teachers who are "autonomy supportive" provide helpful conditions for students' intrinsic motivation, curiosity and desire for challenge in addition to learning outcomes (Deci, Nezlek, Sheinman, & Manis, 1981; Flink, Boggiano, Barrett, & Sherman, 1990; Reeve & Jang, 2006; Ryan & Deci, 2000; Ryan, Grolnick, & Sarason, 1986). Feeling competent also leads to an increased belief in one's own success, and as pointed out in Bandura's theory of self-efficacy, this again leads to increased motivation. The aim of this study is to try out a method that may provide school staff with a tool that supports autonomy, relatedness and competence in students, a method that may increase students' intrinsic motivation (see figure 1 below).

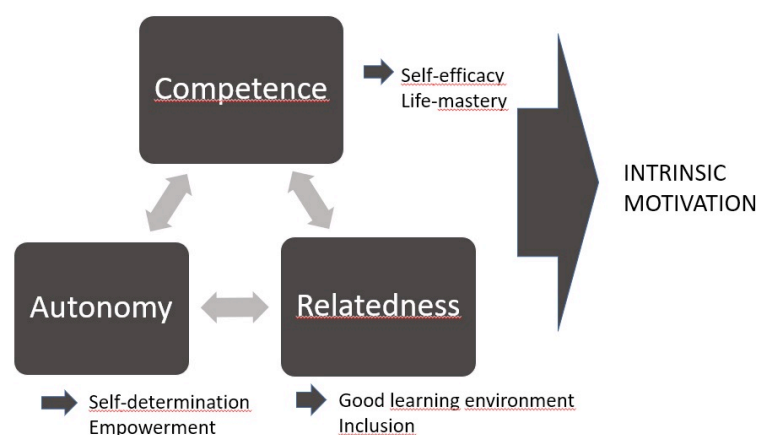


Figure 1: Self-determination theory (Based on Ryan & Deci, 2000)

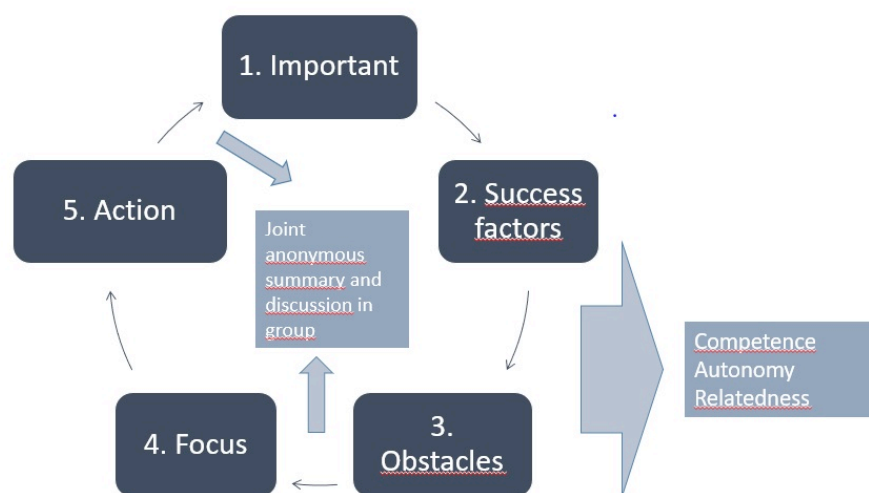
The research question of this study is *how can we support students in lower secondary school to develop motivation and life-mastery skills?* To investigate this, we have carried out a teaching intervention in 6 lower secondary school groups with a focus on identifying what is important in life, what may hinder one in reaching one's goals and how these hindrances can be dealt with. We define this study a pilot-study, as it presents data from the initial stages of transferring the motivation method developed in upper secondary school to lower levels.

## Methodology

This study is part of an action research project (Postholm) investigating how to work with motivation in the classroom. It is a multisite case study (Creswell, 2013), combining data from four lower secondary schools in the southern region of Norway. Although the informants were recruited through convenience-sampling, the selection of participant groups was strategic to a certain extent (Cohen et. al, 2011), as we recruited participants from different levels in lower secondary school. The study includes qualitative data in the form of student and teacher reflections and quantitative data in the form of answers to closed questions with a limited range of answers. More details are given below.

### *Teaching intervention*

The teaching intervention applied in this project consists of a five-step motivation method repeated one or more times during the year. How often the method was repeated differs somewhat in the different groups. The first time the method was applied, it was split into two sessions, where the first session focused on identifying 1) what is important or goals, 2) success factors, and 3) obstacles, and the second session focused on deciding on 4) focus and 5) action (see figure 2 below).



*Figure 2.* The five-step motivation method (Based on Langeland et al. 2018 and Horverak et. al 2018).

In the first session, the students discussed what was important or what goals they had in life, what they were good at or what was good in life already and what might be difficult and prevent them from being okay or reaching their goals. After the discussion, the students wrote answers to these questions in empty logbooks. They put a random number of their own choice on the front of the book instead of their name to ensure anonymity. The teacher collected the books after the session and summarised the students' notes. The following session, the teacher summed up in class what the students in the group had answered, and then they discussed what they could do to improve their situation or work towards their goals. Following this discussion, the teacher lay out all the logbooks for the students to collect to answer the final two questions; What do you choose to focus on the next few weeks and how will you manage this? The students wrote their own individual action plans, and the teacher collected the books again. In the third session, the teacher gave examples of action plans, and summed up what the students had decided to focus on and how to do this, and the group discussed whether there could be other ways of working towards their goals.

### *Data material and analyses*

All the students' reflections from the motivation sessions are included as qualitative data in this study and have been analysed according to themes (Braun & Clarke, 2006). In addition, the students filled in questionnaires with some open and some closed questions. As this is a pilot-study in an action research project, the

questionnaire has been adjusted during the year in cooperation with teachers and other collaborators in the SAMM-project, hence different versions were applied. Some of the questions were similar in the different versions, and even though the wording may have been somewhat different, the answers have been collapsed. The students crossed out for gender, and they could consent to using their reflections for research and teaching purposes.

The final questionnaire used included the following questions; 1) How satisfied have you been with the motivation method? (a scale from «not satisfied» to «very satisfied»), 2) Have you become better at planning and knowing what is important for you (Options: “yes”, “no”, “I don’t know”), 3) Has the motivation method made you more motivated to work towards your own goals? (Options: “yes”, “no”, “I don’t know”), 4) Have you become better at finding solutions to difficult situations? (Options: “yes”, “no”, “I don’t know”), 5) Give examples of something you have focused on working with, 6) How did it go to follow your own plans? 7) Has the work with the motivation method affected the learning environment? If yes, how? Question 4 was not included in all the forms used, and instead of question 2, one of the forms included a question concerning whether the students felt the motivation method had been good for them. In addition to student evaluations, teacher evaluations from involved teachers have been included, and they answered on questions concerning how the students responded to the method, what was positive, whether there were challenges and whether they had suggestions for changes. The students’ responses to the closed questions are presented in percentages.

### *Sample*

The sample consists of 68 (76% response rate) lower secondary school students from 4 different schools (see table 1). Two of the schools were located in rural areas, one school in a small town and one school in a city.

Table 1  
*Participants.*

<b>School</b>	<b>Level</b>	<b>Participants</b>	<b>Total number in group</b>
School 1	8. grade	6	6
School 2	8. grade	16	24
School 1	9. grade	7	10
School 3	9. grade	21	30
School 1	10. grade	5	5
School 4	10. grade	13	15
<b>4 schools</b>	<b>6 groups</b>	<b>68</b>	<b>90</b>

There were 2 groups on each level, and this resulted in 30 participants from 8th grade, 40 participants from 9th grade and 20 participants from 10th grade. There were 34 girls and 33 boys in the sample, hence the sample is balanced in terms of gender. One student’s gender is not identified. 6 groups participated in total, three of which were quite small, hence they were collapsed in the motivation sessions.

### **Results**

This study investigates how a five-step motivation method may support students to develop life-mastery skills, and the result section here presents findings on how the

students respond to this method. First, we have summarized examples of what the students wrote during the intervention concerning what is important for them, or goals they have, what is already positive and what obstacles they experience, as well as what they choose to focus on and how to do it. The summary is followed by a presentation of student evaluations on how they perceived the method and their own development. Lastly, we have included reflections from the teachers. All quotes have been translated from Norwegian.

### *Student reflections in logbooks*

On the first question on what was important for the students, or what their goals were, many of them list that friends and family are important, and pets and hobbies. Some of them also write that they want to succeed or develop in sports, or more specifically football and handball. Quite a few are also concerned with taking drivers' licences of different types, such as tractor, boat and moped. Many of them mention that education or getting good grades is important, to concentrate in school, as well as getting a good job.

The success factors the students list are that they have parents who help them, or a supportive family, they have good friends and like sports. Quite a few of them also list personal skills or qualities, for example they are good at carpentry or repairing motors, they are good with pets, or they are kind, honest, caring, funny, «I'm funny, kind and think about how others feel» (student's quote). One of the students write «That I manage to carry out things I didn't think I would manage», which shows a level of reflection on not only skills but also limitations. and the ability to exceed these.

Obstacles many students mention are grades, tests, or pressure in school in general. They mention in particular maths, writing, learning German and New Norwegian (a second standard language in Norway obligatory in school). Dyslexia is also mentioned as a challenge. Several students struggle with concentrations and disruptions from for example mobile phones. Other health challenges that are mentioned are stress, mental issues, confusion, sadness, anger, exhaustion, lack of motivation and lack of sleep. «It's hard to get up in the morning», one student writes. Another student is very specific about his/her troubles: «I really feel nauseous nowadays. It makes me exhausted. I have performance anxiety, and I'm so sick of it. The nausea lasts almost the entire school day and I consider going home all the time». A couple of students write that it is an obstacle that parents are not engaged in their schoolwork or they argue with each other, and quite a few students write that they have issues with friends or struggle to find friends. One student writes:

That friends let me down again and again. That I don't see any light at the end of the tunnel. That my friends have made me physically and mentally exhausted. That the threshold for being best and perfect is too high and I can barely stand it. That I have reached rock bottom.

When choosing focus areas and actions, many of the students write that they will be social, include or contact other students and make new friends, and for example say «hi» to others. Here is an example of what a student writes about this in his/her action plan:

Focus: I will try to say hi and smile and be nice...I'll try to include people and be nice. I will give compliments to people.



Action: I will also make others happy and make them smile. I want to express a type of happiness to other people.

Other students focus on school, and write that they will study for tests, work at home at set times, concentrate better and focus in class, raise a hand or participate in class. Some will focus on learning theory for drivers' licences. Quite a few students mention exercising, for example handball or football. A couple of the students write that they will make plans or structure the days. Some students focus on getting more sleep, getting up earlier and going to bed earlier. Others mention that they are to put the mobile phone away or spend less time on the mobile. Here is an example of a student's action plan combining some of these elements:

Focus: My goal is to get to bed at 22:00 because I will be more focused at school.

Action: My plan is to put away the mobile and listen to calming music until I fall asleep.

### *Student evaluations*

On the question of whether the students were satisfied with the method, 82,5% answered positively, 16% answered negatively and 1,5% did not know (N = 68). Some of them scored high on the satisfaction scale, others low, but the majority was generally just satisfied. Both girls and boys responded positively and negatively. The answers to questions with positive and negative answers are presented in table 2 below.

Table 2  
*Students' answers on evaluation form*

Question	Yes	No	I don't know	Number of respondents
More motivated?	53%	20%	27%	55
Better at planning?	42%	14,5%	43,5%	55
Followed plans?	75%	10%	15%	68
Better at finding solutions?	21%	32%	47%	34
Good for you?	38%	8%	54%	13
Change in class environment?	15%	49%	36%	55

*Note.* The number of respondents is different in the various categories as some of the questions were not included in all the questionnaires. Therefore, N is reported for each question.

To the question on whether they had become more motivated, 53% answered positively and 20% answered negatively. To the question on whether they had become better at planning, 42% answered positively and 14,5% answered negatively, however, a majority of 75% reported that they followed their own plans. Half of the students were asked about whether they had become better at finding solutions, to which 21% answered positively and 32 negatively. About half of the students did not know. One of the groups were asked whether they thought the motivation sessions had been good for them, to which 38% answered positively and 8% negatively.

Another question has a somewhat different focus, as it asks about change in the learning environment and not change on an individual level. Here only 15% answers positively, whereas 49% find that there has been no change. Even though the number of students who believe there has been a change is very low, their comments show

that at least some students have made an effort to make a change. A couple of them write that it has become less noisy in class, and others write that they try to socialise with others; «I have at least given hugs and said ‘Hi!’», «I talk more with those students I didn’t talk to before». Another point made is as follows «I feel that perhaps more students dare to speak about how they feel». So even though few students have noticed a change, there are signals in the answers that something has changed.

### *Teachers’ reflections*

One of the things the teachers comment on is that the method gives them an opportunity to pick up what is going on in the class, and what challenges and needs there are. Even though they do not know which students write what, they get an impression of what the students as a group are concerned with. It is also mentioned that some students were quite specific in their guidance to each other and gave good advice, for example that they could put away the mobile phone in a cupboard until they had finished their homework, and that if somebody came with unpleasant comments about them, they could talk directly to the person giving the comments.

A challenge that two of the teachers mention is that some students were demotivated to work with this method, and they did not really participate. Another teacher also mentions that disturbance in class is a challenge. Another issue mentioned is that it could be a challenge if something serious comes up, and the teacher has problems identifying the student who wrote this. However, it is also said that the teachers generally find out who has written it, particularly if there is something truly serious.

One of the teachers comments on something that is central in the motivation project, namely that the method gives the opportunity to reflect on personal issues in a school context: «It seems like the students find it both important and exciting, and that they feel that this concerns themselves as persons, and not just as students who are here to learn a subject.» Another issue mentioned by a couple of the teachers is that it is interesting to see how many success factors the students come up with. One of the teachers commented «It was quite fun to see, when looking at success factors and obstacles, it is easy to focus on what is difficult, but here the lists were equally long, they commented on many good things». This focus on success factors is something that is emphasised as very important in the motivation method, and it is interesting to see that young people in a vulnerable phase actually dare to speak out about their good qualities.

## **Discussion**

This study set out to investigate whether the five-step motivation method presented here may support students in lower secondary schools to develop intrinsic motivation and life-mastery skills. The findings show that the students are generally able to apply the method and reflect on what is important for them, what success factors and obstacles there are in their lives, and the majority of the students also report that they followed their own plans on how to deal with their obstacles, or how to reach their goals. A majority also report that they were satisfied with the method, and about half of the group report that they became more motivated to learn. Many of them also report that they had become better at planning. The fact that many of the students feel that they improve their planning skills, and that the majority followed their own plans, can be seen as evidence that they developed autonomy as learners as a result of the

motivation method work. Furthermore, as pointed out by Bandura in his self-efficacy theory (1997), believing in one's own ability to succeed also influences motivation in a positive way.

We see from the analysis of the student reflections that they did not only focus on life-mastery in general in their plans, but they also focused on school, and they give specific examples, such as setting a certain time for practicing for tests, or raising their hands in class. This is a sign of self-regulating behaviour, and a sign that the motivation method works as a metacognitive learning strategy supporting students to plan how to improve their learning, in addition to working as a strategy for mastering life. Metacognition and self-regulated learning are viewed as being of importance for motivation in general. As referred to in NOU 2014:7 (*Elevenes læring i fremtidens skole — Et kunnskapsgrunnlag*, 2014), De Corte (2010) and Dinsmore et al (2008) hold that students' metacognition and ability for self-regulated learning could have positive effects on motivation. In Zimmerman and Schunk's (1989) definition of self-regulated learning (SRL) the students systematically orient their feelings, thoughts and actions towards fulfilment of their goals (Boekaerts, Pintrich, & Zeidner, 2005), which is what the students have done when working with the motivation method. As described in Boekaerts et al (2005), metacognitive skills include problem solving and the ability to create alternative paths in the face of obstacles. Students should be able to stipulate goals and subgoals, identify problems, explore and compare solutions, create and execute an action plan and monitor themselves. This is something that is also emphasised in the new curricula in Norway:

Life mastery is about being able to understand and influence factors that may be of significance for mastering one's own life. The topic will contribute to students learning to handle both success and hard times, and personal and practical challenges, in a best possible way. (Overordnet del, 2018:2.5.1. Folkehelse og livsmestring, our translation)

This is really the core of the motivation method, identifying obstacles and making plans on how to overcome these to achieve goals, and to do this systematically and continuously. Even though only a few students find that they have become better at finding solutions to problems, the method also gives the students a channel to go to the teacher with their problems, perhaps a low-threshold-channel, as they can write anonymously to the teachers. One of the students wrote the following in his logbook to answer the five questions:

Goal: Save money

Success factors: I have nothing to be happy about

Hindrances: Everything (anxiety and depression)

Focus: Not to take my life

Action: Need help

This student was identified and followed up and received help. As one of the teachers participating in the project said, just one story like this, saving one life, makes the method worth applying, even though some students might find it tedious and unhelpful. We argue that this method is a powerful tool for teachers, as it provides an opportunity to find out what concerns and challenges the students' have at the same time as it provides an opportunity for the students to develop intrinsic motivation through feeling autonomous and competent.

## Conclusion

The main finding of this study is that the five-step motivation method presented here provides lower secondary students with a tool for mastering life and increasing their motivation. Many of the students became more motivated as a result of the motivation sessions, and many of them showed the ability to use the method and follow up their plans. Not all students benefited from the approach, but as pointed out, if it helps some students, it might be worthwhile to prioritise time in school to use it, even though not all students appreciate it.

Another positive aspect of the method that is highlighted by the teachers, is that it gives them as teachers an insight into the class atmosphere and possible conflicts. Also, serious mental issues are revealed, and may be followed up. It is emphasised that it is important to apply the method with a certain frequency, and that the students need reminders, as they tend to forget easily. It is also mentioned that it may take time to learn the approach, so there is a need for a long-term study to see if the method has an even stronger influence on the students if applied for a longer period, even for several years.

However, this study has its limitations, as we have a rather small and limited sample from just one region in one country. The findings may not be transferrable to other completely different contexts. There are also some differences in how the method has been applied, as the teacher manuals are not too detailed, and the teachers have had some freedom to find out how the method is best carried out in their classes. In addition, most of the data is self-reported, and the students may falsely think that they have followed their own plans, even though they have not. As all notes are anonymous, there is no way of discovering whether they have actually done what they have written in their plans. Still, even if they just feel that they have managed, this may give them a positive feeling of their own competence that may result in improved motivation.

The students' evaluations indicate that the motivation sessions did not influence the learning environment much. The reason for this might be that there is an individual focus in the method, and that perhaps the method should also be applied with a focus on the learning environment – what is already good and what needs to be improved because it hinders students from learning. This would be interesting to follow up in future research.

Despite the limitations of this study, we argue that the motivation method is a universal method that is transferrable to different contexts, and that it is a useful approach to give students control over aims and learning outcomes. They are asked to reflect and give themselves credit for existing competence that could help them along the way, and they collaborate with their peers in solving challenges, setting goals and creating plans. These are important skills, and students need to develop these types of skills, and therefore we advocate the application of the motivation method in lower secondary schools. If students learn how to take control of their own lives and their own learning at an early stage in life, they may be better equipped to handle requirements and pressure higher up in the educational system and avoid becoming dropouts struggling to succeed in life. There is a great deal of pressure on young

people in the modern society we live in, and perhaps it is important for young people to remind themselves, as one of the students write:

- Remember that when I do my best, it is good enough.

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***The Development and Deployment of a Mobile Music Application for Literacy Enhancement (M2APPLE)***

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**Abstract**

We present in this paper the design, implementation, and broad scale deployment of a Mobile Music Application for Literacy Enhancement (M2APPLE) that leverages the fun activity of Karaoke music as a motivational and complementary tool for learning English as a second or even third language. English language illiteracy is a particularly endemic problem for a vast majority of youth in Northern Nigeria who are consequently disadvantaged since English is not just the language of governance but is the lingua franca for commerce and much else across the entire country. M2APPLE leverages the full potential and portability of Hyper Text Markup Language (HTML) 5 for a complete client-side application that runs seamlessly on mobile and non-mobile technologies alike.

**Keywords:** Karaoke music, English Language illiteracy, learner-centered learning, mobile technology, hypermedia

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## Introduction

Music has been widely researched and employed as an important tool for, and complement to learning, especially within informal settings. Music is widely used in early learning of phonetics, word recognition, counting, etc.; in general, as a motivator for the learner to improve their level of literacy, build their vocabulary base and gain some level of confidence (Gupta, 2006). Illiteracy has been identified as a major hindrance to the socio-economic development of much of the developing or so “third” world. Such is the case for Nigeria, in spite of speculations and indicators that Nigeria is on a fast trajectory to emergence as an economic power house on the African continent. Illiteracy, and especially youth illiteracy, which is particularly endemic in the densely populated Northern parts of Nigeria, becomes a major impediment to this economic development. It also adds to the security challenges facing this region of the country (Ojong & Ejar, 2018), (Akpan, 2015). The insurgency in the North-Eastern region of Nigeria, largely perpetuated by Boko Haram, easily breeds on illiterate youth. As a development University, and in recognition of the added danger posed by the Boko Haram insurgency, the American University of Nigeria (AUN) in Yola has mounted many initiatives to help improve the level of literacy in the State of Adamawa and beyond. One such is TELA (Technology Enhanced Learning for All) which leverages such technologies as Radio and mobile tablets to impact on this problem. Our research effort, part of which is reported in this paper, adds a dimension to the TELA initiative and focuses on developing a mobile application, code-named, M2APPLE (Mobile Music Application for Literacy Enhancement) that leverages the fun activity of Karaoke music as a motivator and complementary tool to learning and building the vocabulary of illiterate youth in Northern Nigeria. M2APPLE leverages the full potential and portability of HTML 5 and related technologies for a complete client-side application that can run seamlessly on mobile and non-mobile technologies alike. It is built as a progressive web application (Gatsbyjs.org, 2019), that is, as a modern, offline-capable, cross-platform mobile web application. The explosive growth of the mobile phone industry in Nigeria and Sub-Sahara Africa, coupled with the growing integration of web and mobile content on smart phones presents a very real, viable and affordable opportunity for bridging the knowledge barrier that has simply not been there before for the developing world. On the pedagogy front, research has shown time and again that learner-directed learning is far more effective than instructor-led [Terry Anderson, 2008] and developing life-long learners is becoming a common learning outcome for many an educational institution. M2APPLE puts the learner in the driver’s seat and not only allows them to pick and choose songs of their liking to play and learn from but they can also interact with the system as a song is being played to learn words/phrasal translations and/or to get a better handle on word phonetics. The direct relationship between a learner’s vocabulary bank and their level of confidence has been known for some time now (Turnbull, Gupta, Murad, Barone, & Wang, 2017), (Rengifo, 2009). The overall purpose of M2APPLE is to help increase the learner’s vocabulary pool in order to increase their level of confidence. The second author of this research has experienced first-hand the motivational force of music in learning a new language and believes he was able to quickly build and grow his vocabulary base in the Portuguese language because of his connection with and influence of Brazilian music he employed to quickly learn the Portuguese language while on his first major post-PhD job teaching at a University in Brazil. He recounts that his love for a song that was being played provided the impetus to invest time in finding out the meaning of the words behind the music, further expanding his vocabulary pool and with that his confidence in speaking the language. The rest of this paper is organized as follows: in the next section –

section 2, we introduce the problem of illiteracy and its specific manifestation and impacts in Nigeria. In part 3, we review the literature on the use of music as a motivator to learning a new language. We look at Karaoke music in particular, and how it has been employed to improve the learning of a new language. In part 4, design and implementation, we first present important design and implementation considerations or objectives for the system and then elaborate on the enabling technologies supporting our M2APPLE system and how these have been strung into a system to meet the objectives. In Part 5, we critically evaluate our implementation and deployment for use, outlining some important contributions and some pointers for future work.

## **Background**

Since independence in 1960, Nigerian leaders, scholars, and institutions have initiated many efforts aimed at improving the level of literacy of Nigerian youth. Unfortunately, most of these efforts have not had the impact hoped for, especially in the North. Today, youth and adult literacy in the English Language remains a critical determinant for improving the livelihood of individuals, their families and the country at large. According to (Omolewa, 2006), ‘before we can conquer poverty, ignorance and disease, we must first conquer illiteracy; because illiteracy is the most serious handicap for economic, political, social and individual development’. (Tella, 2015) cites illiteracy as one of the major causes of the Boko Haram insurgency. The United States Institute of Peace listed ignorance of religious teachings, poverty and unemployment and high levels of illiteracy as linked to youth radicalization and extremism. Before the UN’s effort, education experts monitoring the activities of UNESCO, United Nations International Children’s Emergency Fund (UNICEF), Action AID, British Council & United States’ Agency for International Development (USAID) had made two sanctions: (1) the need to establish a literate and learning society using innovative approaches (Tahir, 2005), some of which include Each-One-Teach-One, Literacy Shops, distance learning, etc.; (2) the need to expand our current educational system to allow adult men and women access to education. Too many adult Nigerians, especially in the Muslim North, are disadvantaged for religious or financial reasons, and so are deprived of their right to basic education which is achieved mostly through classroom learning at a young age. Illiterate children (whether rich or poor) grow up with low self-esteem; when they go to hospitals or banks or court houses, they cannot communicate with the nurses, doctors, cashiers, etc. so they are forced to find interpreters or to resort to other ways to solve their problems. To reduce this inherent disadvantage associated with high illiteracy rate in the Northern Nigeria especially, it is necessary to develop innovative approaches that are self-applicative and can be used at any time and from anywhere. This research proposes to implement a mobile application code-named M2APPLE: Mobile Music APPLICATION for Literacy Enhancement, with the broader goal being to expand access to education and command of the dominant English Language by leveraging mobile technology and promoting lifelong learning (Omolewa, 2006).

### **2.1 Broad Goals Of The Research**

As a Development University, the American University of Nigeria (AUN) has led many initiatives to alleviate many social ills in Yola and the wider region of Adamawa State. These include the Adamawa Peace Initiative (API), Student Empowerment Through Language, Literacy and Arithmetic (STELLAR) and STEM Projects. Another initiative also aimed at improving the literacy level across all age groups, especially the young and adolescent, was

code-named TELA (Technology-Enhanced Learning for All). TELA is a program that proposes to offer basic reading and math lessons through radio and mobile technology to some 20,000 Nigerian children and adolescents, orphaned, displaced, homeless or at-risk (American University of Nigeria, 2016). However, TELA targets mostly children within the ages of 5 to 15, even though it shares the same broad purpose of ‘learning for all’. M2APPLE is an off-shoot of TELA that seeks to leverage the fun-activity of Karaoke music on mobile devices to help illiterate youth improve their spoken and written English by building up their vocabulary. The M2APPLE application aims to employ popular, catchy local, national and even international songs and their lyrics to improve their spoken and written vocabulary in the English language. It specifically targets Nigeria Youth, some of whom are already fluent in other languages (Hausa in particular). The widespread availability of smart mobile phones with internet access and sufficient computational power to run the intended application means it should be more widely available to just about anyone with some appreciation of music (teenagers and above), and eliminates having to train anyone on how to use it, since most of them already use smart phones. The mobile domain also provides huge opportunities to the various institutions interested in this problem. Ease of use, portability and scalability are important objectives of the system.

### On the Use of Karaoke Music in Learning

Karaoke is a musical entertainment activity that originated in Japan. Typically, a singer on stage sings along into a microphone the lyrics of a song displayed on the screen, while the instrumentals are played in the background. The background music could also be vocalized depending on the singer’s preferences and confidence level. Karaoke has mostly been seen as a fun activity and stereotypically happens in social settings such as at parties. However, web and mobile technologies have helped redefined what karaoke represents, where it is done and who does it – it can happen anywhere and everywhere today! When used to support learning, it has been seen to be highly motivating for learners of all age groups (Gupta, 2006). It is an important complement to learning a new language, especially for music lovers and for a language and culture of music such as English with some of the best music in the world.

### 3.1 Music & Literacy

Most countries, especially Nigeria, have come to the realization that literacy must not necessarily only be achieved through formal education but also through distance learning; so, the delivery medium to achieve this must be ‘inclusive’ of the many, not ‘exclusive’ of the few (Aderinoye, 2008). This ‘delivery medium’ must, however, be multi-faceted; and what better medium than the use of Information and Communication Technologies (ICTs). In (Haddad, 2007)’s words, “to tech or not tech education is not therefore the question, the real question is how to harvest the power of ICTs to make education relevant, responsive and affective for school settings and lifelong learning for anyone, anywhere, anytime”. However, in (Aderinoye, 2008), Rashid argues that until such a time as we begin to remember that ICTs are not just limited to computers, we probably would not fully leverage ICTs as a channel to enhance literacy, especially ‘distance learning’. He reminds us that ICTs include radios, mobile phones and tablets, televisions, and prints, all of which are cheap and readily available in our homes, and more importantly have better penetration, culturally and geographically speaking, than our precious computers; although computers bring a certain degree of ‘interaction’. He discusses the three learning revolutions the world has seen so far. First was the discovery of the ‘written

language', the second was the expansion to moveable books and types, and the third ICTs. He calls them 'revolutions' and opines that ICTs alone have the ability to prepare us to become life-long learners because of their ever-changing nature. This, he describes as a move towards the 'constructive learning theory' (Anderson, 2008). The 'interaction' mentioned earlier regards Haddad's view that ICT applications have not only succeeded in making learning socially interactive, but also take into consideration the learner's abilities and needs. For instance, most literacy apps have different 'levels' categorized typically as novice, advanced beginner, competent, proficient, and expert following the (Dreyfus, 2004).

Because ICTs as literacy tools, especially mobile phones and computers have to some extent penetrated the geographical barrier, Haddad has interestingly split them into two. The first category, technologies in location, includes "digital notepads, mobile phones, printed materials, CDs, films & videos, scanners, slides, etc." The second category, which comprises "correspondence, radio, television, web pages, web internet, webcasts, etc.", are technologies of distance. They both integrate audios, videos with tools such as emails and chat rooms to promote synchronous and asynchronous interactions amongst learners". The general use of Karaoke music in teaching and learning as in the works of (Israel, 2013), (Sigurðardóttir, 2011) and (De Cristofaro, 2011) fall in the first category. Both authors employed Karaoke music as an entertaining, motivational and complementary tool for learners in the classroom to improve the pronunciation and communication skills of the learners and as a medium that encourages more practice and collaborative learning amongst the students since students can take turns to sing and sing in groups too. Qualitative assessments of past works concluded that karaoke did indeed improve students' pronunciation challenge. Even better, it boosted their confidence greatly because it was observed that the learners interacted more freely during class exercises; all the while communicating in English and trying to accomplish classroom tasks together. Our system shares the same goal with previous works to advance the communication skills of the learner in the English Language in order to improve the learner's economic welfare. It targets youth who are already conversant in another language such as Hausa, or Fulfulde or Yoruba, but are practically illiterate in the dominant English Language - the national language of commerce and governance in Nigeria. M2APPLE qualifies as innovative because it meets the two criteria sanctioned by Nigerian education experts (Tahir, 2005): first, it proposes to use technology to enhance learning and secondly, it 'includes' every English illiterate Nigerian: not just youth, or children. The latter translates to distance learning. Distance learning is advantageous according to (Aderinoye, 2008) for 2 reasons; it uses 'multimedia' to deliver educational services, and it ensures access equity for all, even though M2APPLE mostly targets illiterate youth who can already reason for themselves. M2APPLE can be used locally within a class or at distance by learners doing their own self-applicative learning.

### Design & Implementation Of M2apple

We have stated already an important design consideration for M2APPLE as a mobile application to support learning for all. To achieve this, two important design considerations are ease-of-use and broad accessibility to the majority of learners and learning environments. We add to this scalability or the ease with which a solution can be made widely accessible to a larger pool of users as the need arises. Implementation as a web application that is portable across device types should guarantee both the ease of use requirement as well as go some way to fulfilling accessibility need. Guaranteeing portability and deployment as a mobile app will go a

long way to meeting the latter goal. A solution and deployment strategy that can be easily replicated should address the goal of scalability. As this system targets youth who can already speak a second language, an important end-user goal is to provide more active user interactivity with the system than is available with the typical Karaoke session where the actor simply reads off a screen. An important design objective is support for an interactive word and phrase dictionary that the user can explore to find out the meanings of words and song lines as they learn English.

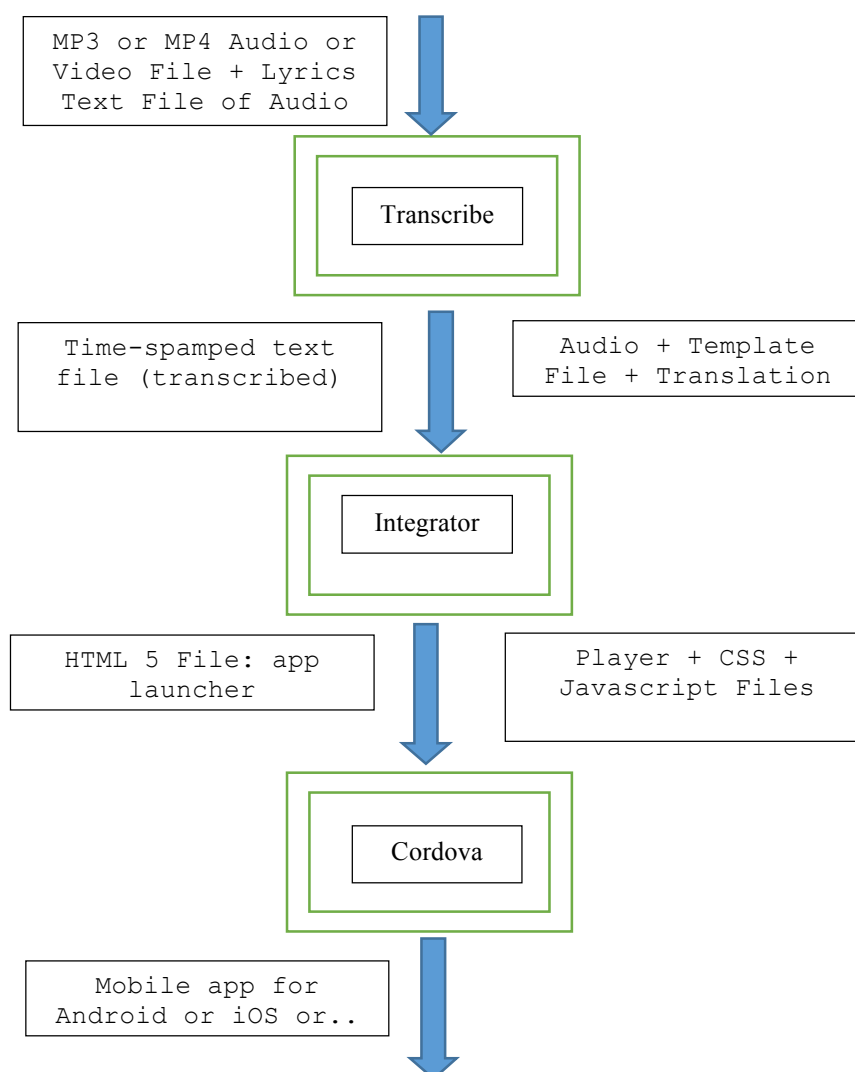


Fig 1: *Architecture View of System Components, their Inputs, Outputs & Interconnects*

M2APPLE is made up of the following key components, technologies and functions.

1. A Creative Studio component made up of the Transcribe Software System used for audio to text transcription. It takes as input an audio file of a song and its lyrics as text within the text area of its window and spits out a time-stamped text or word file of the lyrics with start and end times for each line, or word of the song. We delimit on lines not words. A good part of this involves some user action in delineating the start and end parts of the lines of a song.
2. A standard Player + template HTML file: the player (jPlayer) is a Javascript audio player deriving from the hyperaudio project (HyperAudio). Hyperaudio permits to weave audio into normal HTML providing to audio that capabilities like search, jump etc.
3. An Integrator is a piece a software module that serves to build or flesh out the template HTML file using as input the time-stamped text-file of the lyrics, its translation file, and the name of the audio-file. The output of the integrator is an html file that serves as a launcher for the player or Karaoke system.
4. Mobile App Generator: this is really an extension of the Creative Studio in 1. aimed at generating a mobile version(s) of the application for the different platforms, principally Android and iOS systems. The main technologies employed for this generation are the open-source Cordova system – an off-shoot of Phonegap from Adobe.

5.

Fig 1 is a sketch of a high-level System Architecture showing how these components fit together, their inputs, outputs and the technologies driving each component. Inputs into each component of the system are shown both to the left and right of the input arrow while the outputs of any module are the ones shown to the left of the output arrow from that module.

### Assessment Of Implementation & Deployment

M2APPLE is a cross-platform implementation and adaptation of Karaoke music to support, motivate and advance the learning of English by Youth in Northern Nigeria as a second or even third language. It is principally intended to be run on mobile devices. However, by employing open standard and open-source technologies the application can be run on any platform supporting a web browser. We set out 4 design goals for M2APPLE – ease-of-use, accessibility, scalability and enhanced user interactivity. To a large extent our implementation has addressed all four. Ease of use and accessibility are assured by implementing the system as a cross-platform web application that can run seamlessly on mobile devices including mobile phones and personal computers. To support and advance the University's TELA illiteracy intervention measure and deliver a system that can scale to support an even larger group of learners we not only stuck to open source and open standard web technologies (HTML, CSS3 and Javascript) but we automated the generation of a single launcher HTML file that embeds the text lyrics of a song and its translation dictionary. All other components of the system, namely the Javascript player and CSS files remain the same and can be easily replicated. On the final design goal of interactivity, not only do we provide a fully integrated phrase dictionary but the user can access this while a song is being played by simply hovering the mouse over a line of the song for a

display of the translation of that line into the learner's native language. For our first implementation, Hausa served as the main language we translated into given its very broad adoption in Northern Nigeria, and in fact across much of Sub-Saharan Africa. However, it is an easy matter to translate to other Nigerian languages and employ the same application in other parts of the country. One of our design goals was ease of scalability of an implementation so that it can easily be made available where needed. To meet this goal, we opted for a simple design with just one HTML file carrying the lyrics and its translation. This file can be easily edited by hand to change the translated text to another language. To further facilitate this process, we defined an Integrator module that will take as input the time-stamped transcribed lyrics, its translation into another language and a template HTML file and produce an HTML launcher file for the application. This should greatly ease scaling of the application. We have so far received very positive feedback from key stakeholders on the TELA project, principally the field instructors who employ tablets for teaching. Most of this is anecdotal though. An important remaining part of the assessment will come after actual deployment and use by the Youth themselves.



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***How Status, Elitism, International Capital and Marketability Drive the Practice of Student Mobility within Transnational Higher Education***

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**Abstract**

Internationalisation exists in various forms across Higher Education. Transnational Higher Education (TNHE) enables students to study in one country for a qualification issued by an institution in another country. Student mobility programmes give students the chance to travel and experience university life abroad. Both TNHE and student mobility are facilitated via the formation of strategic partnerships between foreign institutions. Universities look to these partnership arrangements not only as a way of offering opportunity to their students, but also as a way of becoming more of a global presence on their own terms. This study identifies the driving forces behind the search for suitable partners across the Higher Education spectrum. It identifies status, elitism, international capital and marketability as integral to the practice of setting up student mobility partnerships. It further suggests that these driving ideals are supported by a neoliberal ideology in which accountability and performativity are used as tools to justify international partnerships. While this may be superficially successful in the short-term, it is proposed that the development of deeper, more meaningful links would be a more rewarding long-term strategy.

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## **Introduction**

Internationalisation takes many forms within Higher Education (HE). In today's world, HE has been 'influenced by the globalization of our economies and societies and the increased importance of knowledge [...and...] driven by a dynamic and constantly evolving combination of political, economic, sociocultural, and academic rationales' (De Wit & Hunter, 2015). Although universities have always incorporated certain forms of internationalisation, particularly in the form of visiting scholars and shared research, the massification of HE has seen more modern manifestations of internationalisation emerge. Transnational Higher Education (TNHE) is one of the most prominent and significant of these new internationalisation models. TNHE is a program of study where students are based in a different location to the institution which will award their qualification (Wilkins, 2016).

Student mobility programmes are one of the most visible forms of TNHE partnership. Broadly speaking, student mobility is used here to signify an agreement (such as an exchange programme) between institutions which gives students the chance to undertake part of their course of study in a location away from their host university. Such programmes are naturally attractive to students (as well as potential students) due to the exoticism of visiting a foreign location. Meanwhile universities are keen to emphasise how this kind of experience can prove of benefit to participating students once they enter the global labour market.

This paper firstly identifies the forces which drive student mobility within this context. It contends that TNHE institutions employ neoliberal practices when looking to establish student mobility partnerships as a way to boost their institutional prestige. It further argues that this search for status perpetuates existing hierarchical elitism within the HE sector. Meanwhile it claims that students who sign up to mobility initiatives are looking for a way to increase their own individual international capital. These motivating forces combined lead to both individuals and the institutions seeing the programs as a way of making themselves more marketable. Finally, I question whether setting up TNHE student mobility partnerships within such a neoliberal framework allows all participants to derive the maximum value from this practice.

### **Looking to internationalise – the establishment of student mobility programmes**

Student academic exchange is perhaps the most common type of partnership between institutions. Student mobility is not a new phenomenon, but it has certainly become a more achievable goal for the average tertiary student. Programs such as the Fulbright Program, set up in 1948, were originally aimed at the elite of the elite, driven by the belief that academic mobility could contribute to cultural understanding (Altbach and Teichler, 2001). The number of internationally mobile students has increased exponentially since then, rising from c.100, 000 in 1950 to c.3.5 million in 2009 as opportunities for students to travel in search of better educational opportunities have proliferated (Shields, 2013). Numbers are projected to reach 7 million by 2025 (Hudzik, 2011).

Internationalisation initiatives are generally expressed alongside particular metrics for assessing how successful they have been e.g. 50% increase in number, type and range of academic partners/international students involved in 30% of all student clubs and

societies/100% increase in outward student mobility. It is clear that accountability of 'internationalisation performance' is paramount. Measuring success will mean that a university can focus on how they are seen by international partners. This language may indicate to some extent the pressures exerted on the university by local and national state stakeholders, who demand evidence of the university's international outreach. Such performative procedures serve to illustrate clearly the way in which the TNHE university has embraced neoliberal ideals and believes in them to drive the development of the institution.

### **Driving forces of internationalisation in a neoliberal TNHE institution**

Modern TNHE universities are looking to establish themselves among the global HE hierarchy in order to compete for students and research income. In pursuit of these goals, many have an internationalisation strategy which plays a crucial role in the efforts to raise its status. Central to this strategy is the establishment of partnerships with other, more prestigious institutions. The following section discusses issues which arise from the implementation of these kinds of partnership plan, looking at their implications for universities at an institutional level, as well as how they affect the participating students on an individual level.

TNHE is by its very essence a neoliberal education form which encourages and exacerbates competition among students, staff and institutions. It extends beyond borders in the same way that multinational companies span continents and wield greater power than nation states. Neoliberalism suggests that as a result of increased competition due to globalization, the consumer-student is able to buy their education globally, which will eventually lead to increased student mobility and the creation of new World Class Universities (WCUs) (Shields, 2013). As Ball (2015) points out, neoliberalism now runs through all facets of academic life and its performative practices, such as indexes, indicators and measures, have turned those who work in universities into neoliberal subjects competing with one another on a daily basis. Neoliberal categories such as competition, rational choice and the knowledge economy are now an unquestioned fact of life for students, academics and management alike (Shields, 2013). Excellence and performance are key to the existence of the modern university (Harris, 2008). The competition which is central to neoliberalism is demonstrated most clearly in HE through rankings which confer status on universities.

Prestige is a concept which pervades Higher Education. The status of a university is as important now as it has ever been. As Marginson (2011) notes, prestige leads to a ceaseless spiral of competition on various fronts. The consumers (i.e. the students) strive to be accepted to the most prestigious institutions, and thus improve their (and their family's) social standing. At the same time the institutions themselves compete with each other to be recognised for their academic quality. In this way, those institutions which are successful will be able to attract the strongest students and consolidate their status.

Many countries have focussed on developing their top universities into so-called WCUs, in order to improve the prestige of the nation (Courtois, 2018a). Research performance has previously been the main way of establishing status within the HE hierarchy – it is visible and measurable so although it may not directly generate

revenue, success in research can contribute to maintaining a university's position of prestige. In recent years teaching quality and internationalisation measurements have also been used as a number of ranking systems have been introduced in order to attempt to quantify university status.

Rankings have assumed a critical importance to universities. These emergent new accounting tools claim to offer judgment on the quality of an institution. They may be used by students to decide which college to attend, by governments to decide which foreign institution may be invited to open a campus in their country, and by universities themselves to decide whether to set up partnerships with each other (Maldonado-Maldonado, 2013). The rankings remain dominated 'by a global super-elite of prestigious American and British universities' (Naidoo, 2011). As Hazelkorn (2011) points out, despite there being over 15000 HE institutions worldwide, there seems to be a media fascination with the performance and rankings position of 100 so-called WCUs. The rankings systems have consolidated the historical hierarchies of university status (Marginson, 2014), while supposedly offering a way for lesser universities to jostle for position in the race for prestige. There appears to be no choice for those not at the top table except to see rankings as an opportunity for advancement, even if there is little chance of becoming a WCU. HE leaders are thus forced into making every effort to improve the position of their university within the rankings; to that end, internationalisation has become one of the key areas targeted for improvement.

The 'race to internationalise' among universities has been concurrent then with an increased awareness of prestige as a result of rankings. The establishment of partnerships has been a widespread strategy used by university leaders as a form of internationalising. Often the goal is to increase prestige through association with a high-status institution from abroad (Seeber et al., 2016). It has been claimed that direct economic benefit is rarely a motivator for initiating links (Altbach and Knight, 2007), although this may be changing as a result of mass student mobility programmes. As Knight (2015) has highlighted, having a large number of overseas partners may seem prestigious, but in reality, the management of multiple arrangements can be challenging, and it is unlikely that all of these are productive partnerships. She suggests that there is a trend nowadays for universities to put a limit on partnership numbers, and to try to form deeper relationships with those select few (ibid.). This would seem to suggest that the prestige of new partners will become more relevant as a result.

Concurrent with internationalization trends, there has been a move towards the massification of HE over recent decades (European Parliament, 2015). Often driven by government policy, access to a place at university has become much more achievable for the general population of many nations. Thus, HE has moved from being the preserve of the elites within a country, to being a level of learning to which many can aspire. This is not to say, however, that elitism has been eradicated. As Maxwell (2018) notes, elitism is not a concept with which most institutions would like to be associated, but 'elite making' is a likely outcome of any system in which participants promote their own excellence and superiority. In the past, the fact that a student had simply attended university was a sign of their membership of the economic or educational elite; nowadays the difference between elites and non-elites is subtler, but still exists. Marginson (2011) points out that as higher education has

become more socially inclusive, it has also become more stratified, with significant differences in status and resources between WCUs and lesser institutions. As HE massifies, elites look to attend WCUs in order to maintain their social status (Shields, 2013). These WCUs are dominated by students who come from privileged backgrounds and who already have the social and academic capital to be accepted there. These elite students are those who are in the position to be able to invest in their own human capital (*ibid.*). In this way elitism in HE serves to maintain social inequality (Peter, 2018).

Elitism is therefore happening on two interconnected levels; institutions are striving to become recognised as WCUs while individuals seek to improve their own capital by being educated at top strata universities. Evidently, institutions which do not rank among the most prestigious need to find ways of associating themselves with those universities who do belong at the top table, and this is a key motivation for the establishment of many partnerships. Institutions, generally acting independently within a market-driven system, select partners according to rankings and accreditations (Engwall, 2016). For these universities, establishing partnerships with global WCUs is useful for developing research networks, as well as solidifying their own positions.

Internationalisation has been seen by many to be an answer to elitism. De Wit and Hunter (2015) suggest (in a modification of a definition put forward by Knight) that internationalisation is an intentional process ‘to enhance the quality of education and research for all (my emphasis) students and staff, and to make a meaningful contribution to society’. Similarly, Hudzik’s vision of Comprehensive Internationalisation sees the process of internationalisation as being able to democratise education for all students and staff through allowing access to international perspectives (Hudzik, 2011). Altbach and Teichler (2001) argue that non-elite students and non-elite universities are being given the opportunity to participate in internationalisation and should make the most of this. However, the counterargument to these points is strong. Maxwell (2018) points out that there is clear evidence that internationalisation practices are driving stratification within higher education. WCUs and their elite attendees can afford to look outwards and focus on the global, while lesser institutions and their less-privileged students are restricted to the local. Those who gain the most from new internationalisation networks are the national and transnational elites who enjoy access to WCUs (Brown and Lauder, 2006 cited in Shields, 2013). Middle-class groups who do not yet belong to this global elite lack the strategies to effectively put their international desires into practice, while lower class groups do not even get the opportunity to try (Maxwell, 2018).

Student mobility partnerships serve as an example of how elitism can be perpetrated in an internationalised HE system. Historically, academic exchanges, designed to offer experiences that would broaden the cultural perspective of the participating students, have largely been the preserve of the elite in both developed and developing nations, (Altbach and Teichler, 2001). This is admittedly no longer the case. Opportunities to participate in student mobility partnerships are more common than ever before. However, it remains hard to argue that TNHE reduces elitism in any way. On the contrary, it appears to demonstrate that more choices are available for the elite;

in other words, '[it] potentially amplifies class-based differences in educational opportunities and outcomes' (Courtois, 2018b).

Student mobility programmes attract student participation through the promises of having the chance to travel, enjoying new and exotic experiences abroad, and, perhaps most significantly in an era when a HE qualification is a significant investment in one's future, being a way of standing out from the crowd. Stakeholders across the HE spectrum appear convinced of the intrinsic value of time spent studying in a foreign institution. Central to the argument of proponents is the idea that students who accumulate 'international capital' will be at an advantage in terms of employability following graduation. This 'international capital' is related closely to the concepts of intercultural competence or global citizenship; it can be summarized as having the ability and confidence to function effectively within a different cultural environment; an idealistic view sees global citizens as being socially responsible and displaying civic engagement in addition to global competence (Morais and Ogden, 2011 in European Parliament, 2015). Internationally-mobile students may develop into cosmopolitan citizens who are engaged with the global community and have an international and moral outlook (Nussbaum, 2006 cited in Boni & Calabuig, 2017), who are open, tolerant, respectful and responsible (Boni & Calabuig, 2017), and who display dignity and common purpose (Castro et al., 2016).

Global citizenship education is used by individuals and institutions alike to raise their international profiles (Maxwell, 2018). While social responsibility and civic engagement may be positive by-products of global citizenship, the end goal for the student (or parent) consumer is primarily to develop the global competence which may eventually lead to a position working in an international environment or for a global multinational. As Bates (2012) has identified, education is invariably used as a tool for the development of global citizenship by those (especially parents) who see it as a way of opening up future opportunities by allowing advancement in social status. Key to this advancement is acceptance into the transnational elite as identified by Sklair (2012). Waters (2006) has shown how parents in Asia use international HE as a way of accumulating valuable cultural capital. In the name of 'consumer choice', the middle-classes invest in educational qualifications which are unattainable for the working classes in order to emphasise and maintain their position in society (Bourdieu, 1984, cited in Waters, 2006). Those who are global citizens may be afforded some of the benefits enjoyed by national elites. This is the perceived future internationalized life and experience which is advertised to students in university marketing. The promotion of global citizenship goals clearly reflects the global economy and the job market as it stands.

Internationalisation practices such as student mobility therefore offer the chance for social mobility and self-development, while leading to the development of universities with a more international outlook. Yet the fact that these practices have become commonplace does not mean that there are not questions regarding how true these assumptions are, and also therefore how effective such schemes are. Firstly, the extent to which students who go abroad are able to develop the characteristics of international capital should be determined. Knight (2015) in particular has highlighted the fallacy that greater numbers of international students lead to an increasingly internationalized institutional culture, noting that many of these students do not integrate effectively and instead tend to socialize with other international students in



small, safe groups. While this may mean a broad international experience for those students, it somewhat negates the original reasons for choosing a particular course in a particular institution in a particular country. It also does not suggest the development of cultural understanding necessary for true integration into a foreign society, let alone the elite of that society. Secondly, the link between the development of intercultural competence and the opening up of career opportunities remains dubious, despite the claims of research such as the Erasmus Impact Study (CHE Consult et al., 2014 cited in European Parliament, 2015) which states that international students strengthen key transversal skills, fare much better on the job market and have a 23% lower unemployment rate. It may simply be the case that those students who have the motivation to take more risks and step outside of their comfort zones by committing to study abroad are similarly more motivated in the job market.

Nevertheless, student mobility programmes are increasingly sold to students as a way of deriving more value from their courses. Students are ostensibly being given the chance to stand out in the crowd of graduates. Seen from a neoliberal perspective, these students are investing in their own futures, by increasing their value in the knowledge economy. Modern students recognize that they are part of a global labour force, and as a result will need to compete against students from all over the world for employment opportunities (Shields, 2013). Thus, they make the rational choice to increase their employability by increasing their international capital and getting access to the more elite positions (such as in multi-national companies) afforded by globalization. According to Courtois (2018a) the desire to acquire international capital is 'a vast emotional resource that universities can tap into'. Governments and institutions are happy to promote this viewpoint as, in addition to the economic benefits it brings, internationalisation can raise the status of institutions and, by proxy, the status of whole nation states. The link between employability and university reputation is explicit – higher quality education is seen as leading to increased employability while employability is used in rankings systems by institutions as an indication of the quality of their education (Lomer, 2016; Hazelkorn, 2011). In the neoliberal system, those students who fail to succeed are themselves to blame (Brennan & Naidoo, 2008, cited in Lomer, 2016). However, the prevalence of the neoliberal narrative serves to obscure the situation. As higher education has massified, competition for elite positions has intensified. Similarly, as participation in student mobility programmes increases, the perceived advantages of global citizenship and international capital it brings will also diminish. As Courtois (2018a) adroitly identifies, non-elites who do not understand the workings of the global labour market may be led to miscalculate how beneficial their investment will be.

A central reason why HE institutions tend to fixate on becoming more prestigious, and thus rising within the rankings, is to make themselves more marketable to potential students, staff and partners. In the neoliberal model, market forces mean that the profile and reputation of an institution are supremely important in order to encourage student enrolments, and as a result, there has been serious investment in universities across the world into marketing and branding campaigns and departments (Knight, 2014; Altbach and Knight, 2007). Rankings play an important role in the promotion of institutions with a majority of international HE leaders saying that they are useful for recruiting students, and that positive rankings are without exception highlighted in speeches, online, and when lobbying policymakers (Hazelkorn, 2011).

HE institutions in the USA have historically led the way in terms of marketing themselves as destinations for internationally mobile students, but have lost market share since the 1980s as other countries, such as the UK and Australia, have become more competent at marketing their study opportunities for students from abroad (Altbach and Teichler, 2001). These openly entrepreneurial strategies form part of a neoliberal internationalizing agenda in these countries, and institutions may be supported in their marketing efforts by local or national authorities if they wish to raise the profile of the area and attract talented people and investment capital (Marginson, 2011). Singapore, for example, ‘embarked on a major marketing and recruitment drive to attract students from the region and worldwide’ (Naidoo, 2011). This coordinated national policy sees international students as bringing benefits beyond simply revenue (Sanders, 2018) and aims towards developing a global alumni body with experience of living and working in Singapore. In the case of China, the national government encourages the university to recruit international students, but there does not seem to be much support, or indeed interest, in creating opportunities for graduates to remain in China after their courses finish. Despite this, marketing often focuses on international qualities and location in China: ‘... you will find an international community of learners in the heart of China’s ongoing economic success story and opportunities found nowhere else on Earth’ (XJTLU, n.d.)

Internationalisation efforts are at the forefront of many university marketing campaigns. In Asia funding has increased for marketing and promoting institutions globally (European Parliament, 2015), although this does not necessarily mean that its institutions have successfully internationalised. The internationalisation of an institution is universally seen as making it more attractive, and of better quality overall. There is a danger inherent to this; the chance that internationalisation will be promoted at a university solely in order to raise its global brand. Castro et al. (2016) provide an example of this from an unnamed Asian institution who ‘take an economic approach to internationalisation’ by using their foreign faculty and students for the purpose of raising their international profile. Knight (2015) also warns against this, drawing a clear distinction between genuine internationalisation plans aimed at comprehensive internationalisation, and international marketing campaigns which seek to exploit internationalisation efforts for commercial gain. In an ideal world, an international marketing campaign simply highlights the international strengths of a university; but as Harris (2008) reflects, economic imperatives brought about by the neoliberal system can easily lead to ‘academic capitalism’ which manifests itself in the mission statements and aggressive marketing campaigns of universities, and which links back eventually to the drive to establish profitable partnerships. Thus, we can see the juxtaposition between competition and cooperation engendered by the partnership model. When it comes to marketing, the public face of the university appears to show an atmosphere of benign cooperation, but this belies the fact that each university is competing for limited resources; namely student enrolments (Knight, 2014).

### **Concluding remarks**

It is important for HE institutions to attempt to find a balance when instigating internationalisation policies. While most institutions have a well-developed rhetoric with regard to the benefits of partnerships, it has been suggested elsewhere that too much focus is directed to student mobility, international reputation and short- and

medium-term gains, at the expense of the internationalisation of the curriculum and learning outcomes (De Wit and Hunter, 2015). Many universities claim to be international but this is often simply their own representation of fragmented ideas and activities taking place simultaneously (European Parliament, 2015). This could be addressed on two fronts. Firstly, institutions should look to internationalise coherently and holistically. Comprehensive Internationalisation (Hudzik, 2011) represents a broad interpretation of internationalisation and may be useful for framing institution-wide commitment to partnerships. Secondly, rather than introducing a wide variety of mobility arrangements, in each of which a small number of students are involved, universities should endeavor to develop more full-bodied relationships (Sutton, 2010). Such partnerships can be seen as being transformational, rather than transactional, and should look to transform the institution as a whole, rather than just the life of individuals (ibid.).

It appears to be impossible for HE institutions operating in the modern world to be unaffected by issues such as prestige, rankings, marketability and elitism. The prevailing climate of neoliberalism forces universities to compete for students and income within a global market, which leads ultimately to a juxtaposition in which institutions need to join together with nominal competitors in order to gain an advantage. It is hoped that an association with universities of higher prestige may mean that lower-ranked universities can improve their position in the global rankings. However, it should be recognized that this is a zero-sum game (Marginson, 2011) and for every university which uses internationalisation practices successfully in order to advance, there is a university which has been displaced.

The use of neoliberal accounting procedures is likely to encourage the establishment of partnerships and acceptance of greater numbers of international students in order to meet targets, rather than because they bring value. At newer TNHE institutions, the use of targets is understandable as a way of forcing proactivity in developing relationships with other universities. There is a danger however that it represents short-termism, and that it does not encourage the development of partnerships and programmes which enable the university and its students to truly internationalise.

Overfocussing on the prestige of potential partners also may be to the detriment of TNHE. Such an approach is likely to mean that there is an emphasis on joining together with universities in the Global North and steering away from riskier partnerships with the South. This would appear to be short-sighted and limiting; it is surely the case that a carefully chosen, well-managed, mutually beneficial partnership with an institution of similar or even lesser notional status is of more value than a nominal link with a more prestigious body which has been set up for the sole purpose of being able to be highlighted in promotional materials for new students. Universities should be encouraged to at least consider the notion that they could step out of their comfort zone and embrace difference and diversity. As Hoey (2016) notes: 'bringing ignorance to the table is as important as bringing knowledge'. Differences in power dynamics can be overcome by ensuring that partnership programmes exhibit mutuality (Mwangi, 2017).

For individual students, participation in student mobility offers the opportunity to increase their international capital. Similarly, on a much larger scale, HE institutions hope to increase their status and marketability through associations with other

prestigious organisations. In this context, membership of the elite is the ultimate goal of internationalization for both students and universities. I contend, however, that this is virtually unachievable for the majority of those involved. All happens within a modern capitalist context in which the forces of neoliberalism foster competition on institutional and individual levels and the tools of accountability and performativity are used to justify such an approach. Internationalisation has been embraced within HE on a similar scale to the way globalization has encompassed the business world. As neoliberal economic policies have created greater economic disparity between rich and poor and stratified opportunity, so does neoliberal education policy perpetuate inequalities within HE. It has no option but to act as such, because the ecosystem in which it exists necessitates a survival of the fittest mentality.

It would be naïve therefore to imagine that TNHE can operate outside of a neoliberal context, but by incorporating elements of CI, and looking to introduce transformative relationships with other universities, it may be able to show a true international ethos. A sensible long-term approach to strengthening as an institution needs to avoid the excesses of scattergun approaches to progress and gaining prestige, and instead should seek to introduce sound and sustainable internationalisation. A serious university is not just one which has been internationalized, it is one in which internationalization means something (Harris, 2008). This meaning could come from partnerships which provide real opportunities for the university and its students to make the most of a spirit of cooperation in a competitive world.

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## *Medical Undergraduates' CORE Performance Scores and Opinions Towards e-PBL\**

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### **Abstract**

As a commonly used method in medical faculties, Problem Based Learning (PBL) is normally performed face-to-face. In this study, online sessions were conducted with multimedia supported (animation-based) problem scenarios. The aim of the study is to evaluate the effectiveness of online PBL (e-PBL) sessions and to compare the success of the both group (face-to-face and online). The study was conducted in the 2018-2019 academic year from 3<sup>rd</sup> Grade students. There are two group (n = 24) for online sessions, and two group (n = 20) for face-to-face. Three sessions were conducted with each group. After the last sessions, all participants joined Clinically Oriented Reasoning Exam (CORE) online. There are 21 male(48%) and 23 female(52%) students in the study group. There are no significant differences in terms of CORE performance scores between online (61.29±13.98) and face-to-face (62.35±9.61) groups. There are also no significant differences according to gender for CORE performance scores. Female undergraduates (62.87±12.30) have similar scores with their male (60.57±11.99) peers. These results show that e-PBL sessions are as better as face-to-face sessions. We asked e-PBL participants to compare their experience with their previous face-to-face PBL experiences. Although there were technical failures in the online sessions, the students are *satisfied with the following features: (a)effective learning, (b)saving of time, (c)visual elements, (d)flexibility of physical environment, (e)the advances of online learning system*. On the other hand e-PBL has the following advantages: *(a)no physical classroom, (b)animation based scenarios causes less paper consumption and increase audio-visual quality, (c)evaluating the performance of students objectively*.

Keywords: undergraduates, physicians, pre-medical education, online learning, problem-based learning, e-PBL, CORE, performance

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## Introduction

Medical faculties are commonly using the pedagogical method of Problem Based Learning (PBL) since the end of 1960s. McMaster University was first that started PBL method in medical education (Zubaidah, 2005; Maldonado, 2011). In Turkey Dokuz Eylül University was first applied “PBL-based method for the first three years of medical education” in 1997-1998 academic year (Musal, Keskin & Tuncel, 2016). Today there are very few universities that apply totally PBL-based method, but most of the medical faculties in Turkey applies PBL method several times in the first three years of medical education. Gazi University applies PBL twice in an academic year for the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> grade undergraduates. In Turkey, the PBL method is not used in the pre-university period, there have been several deficiencies in elementary and high education, and students are immature because they enter the medical school at 18-year-old on average.

PBL method uses modern insights on learning: constructivism, self-directed learning, collaborative process, and contextual process. It is a small group method between 6-10 students and normally performed as face-to-face (f2f). The PBL method was found to be rich and powerful especially in the field of medicine, and it was also found in meta-analysis studies (Strobel & van Barneveld, 2009). Thus, by combining clinical and theory in the early stages of education, it directs medical students to clinical decision-making and reasoning and accelerates their adaptation to the profession (Demirören & Demirel, 2006). In this method, students try to understand the problem related to the case in the scenario, to formulate possible hypotheses related to the problem, to identify and research the issues with information deficiencies, to propose solutions and to evaluate the possible solutions based on their knowledge and experience (Persson, Fyrenius & Bergdahl 2010; Gürpınar, Tetik, Alimoğlu & Akdoğan, 2011) both manage their own learning and improve their problem solving skills (Demirören & Demirel, 2006; Vosinakis, Koutsabasis, Zaharias & Belk, 2012, Musal et al., 2016). In this process, students reach gains in deep understanding of knowledge and long-term recall (Valaitis, Sword, Jones, & Hodges, 2005; Spinello & Fischbach, 2008; Strobel & van Barneveld, 2009) and group collaboration, critical thinking (Vosinakis et al., 2012; Gavgani, Hazrati & Ghojzadeh, 2015) and communication skills (Demirören & Demirel, 2006; Gürpınar et al., 2011; Musal et al., 2016). PBL is said to have a strong impact on learning and achievement (Schmidt, Rotgans & Yew, 2011). This method is reported to improve clinical reasoning skills (Rounds & Rapport, 2008).

The clinical reasoning skills are usually measured by CORE (Clinically Oriented Reasoning Exam) that includes a few stations. The essential clinical skill for the health professional has been the ability to investigate the signs and symptoms experienced by different patients and to treat them as cues to a deeper level of the real pathology (Mattingly, 1991). In each station of the CORE exam small parts of a scenario is given about a patient with many options below. The student can select more than one option. Some of the options are golden standards and have high scores, however some of the options have negative or neutral scores. The student should identify the pathology and select the appropriate treatment in the following stations. This identification allows the professional to extract from his or her repertoire of treatment interventions those scientifically proven to be effective in treating this disease state (Mattingly, 1991). At the end of the exam, usually at the last station, the students are asked to select one option that they thought what the real pathology was.

In this study, we applied e-PBL which has online sessions with multimedia supported (animation-based) problem scenarios. The aim of the study is to evaluate the effectiveness of

online PBL (e-PBL) sessions and to compare the success of the both group (face-to-face and online).

## Method

The PBL sessions consist of three parts. In first part students analyze the problem (in general, 12 students), lasting 2 hours in a given day, guided by a subject-matter expert tutor, when students establish the learning goals for self-directed study. The second part of the tutorial session occurs in another day in the next week, lasts 2 hours. The third part of the tutorial session occurs in another day in the next week, lasts 2 hours, and consists of the reporting phase. In the f2f PBL the scenarios were given as paper-based (see Figure 1).

**1. OTURUM**  
**2. BÖLÜM**

Ece Sağlam'ı karşılayan Acil Servis doktoru Süleyman İmdat'a, hastanın görevi nedeniyle 2 saattir ayakta olduğu ve bayıldığı için arkadaşları tarafından hastaneye getirildiği söylenir. Dr. İmdat, Ece Hanımın öyküsünden aslında 1 yıldır devam eden halsizlik yakınmasının son 3-4 aydır arttığını, zaman zaman da karın ağrısı olduğunu öğrenir. Ece Hanım bu nedenle 2 ay önce kurum doktoruna başvurduğunu ve o zamandan beri de kansızlık nedeniyle demir tedavisi almakta olduğunu da belirtir.

Hastanın acil servisteki fizik bakı bulguları şu şekildedir:

Vücut ağırlığı:	52 kg	
Boy:	165 cm	
Vücut sıcaklığı:	36,8 C	
Kan basıncı:	90/50 mm Hg	( 90-140/60-90)

Figure 1: In paper-based PBL the scenario was given as printed on paper as Black White

In e-PBL setting the scenario was given as animation based (see Figure 2) via online learning system as a part of Live Classroom (see Figure 3). The students can watch the live classroom after the sessions via an LMS system. All participants were educated about the online learning system before the real sessions. However, there are several dysfunctional groups during the tutorial process because of a low level of self-study before the reporting phase of tutoring session.

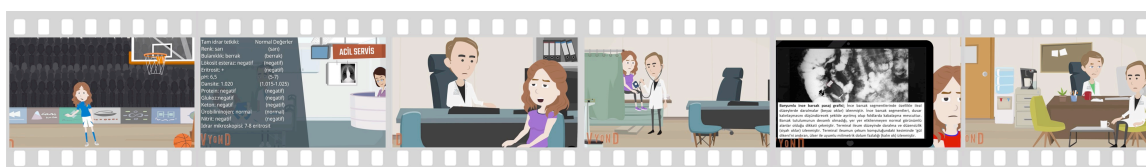


Figure 2: Animation based problem scenarios.

There are three different screenshots in Figure 3, in the first one (A) the patient speaks with the doctor about her symptoms. In the second (B), the laboratory test results of the patient were given and in the last screen (C) the learner-driven self-identified analysis of problems, hypothesis, mechanisms, and learning issues table. The students can see the PBL facilitator video on each screen. Under the video there is a chat box where students can write and discuss their ideas.

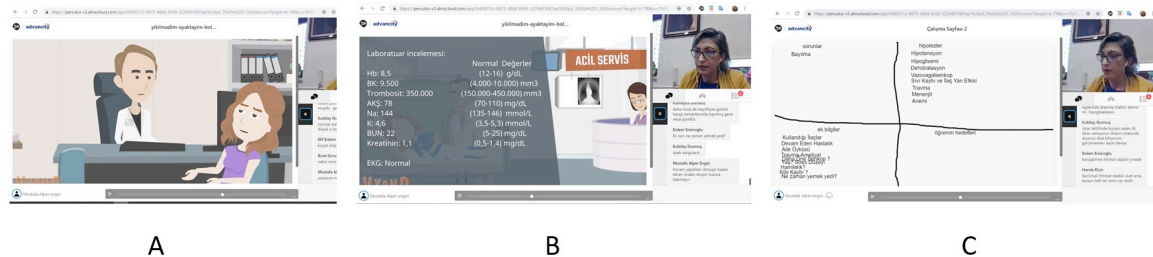


Figure 3: Screenshots from e-PBL session live classroom

The study was conducted in the 2018-2019 academic year from 3<sup>rd</sup> Grade students. There are two group (n = 24) for online sessions, and two group (n = 20) for face-to-face. Three sessions were conducted with each group. After the last session, all participants joined Clinically Oriented Reasoning Exam (CORE) online (see Figure 4). CORE Exam was implemented using Socrative platform (<https://socrative.com>). The exam has 6 stations about «abdominal pain» under the Gastro-Intestinal Course Board. Before starting the exam all students were given a short instruction about how to use the Socrative system. Each student entered the Socrative system once, and we evaluated that score.

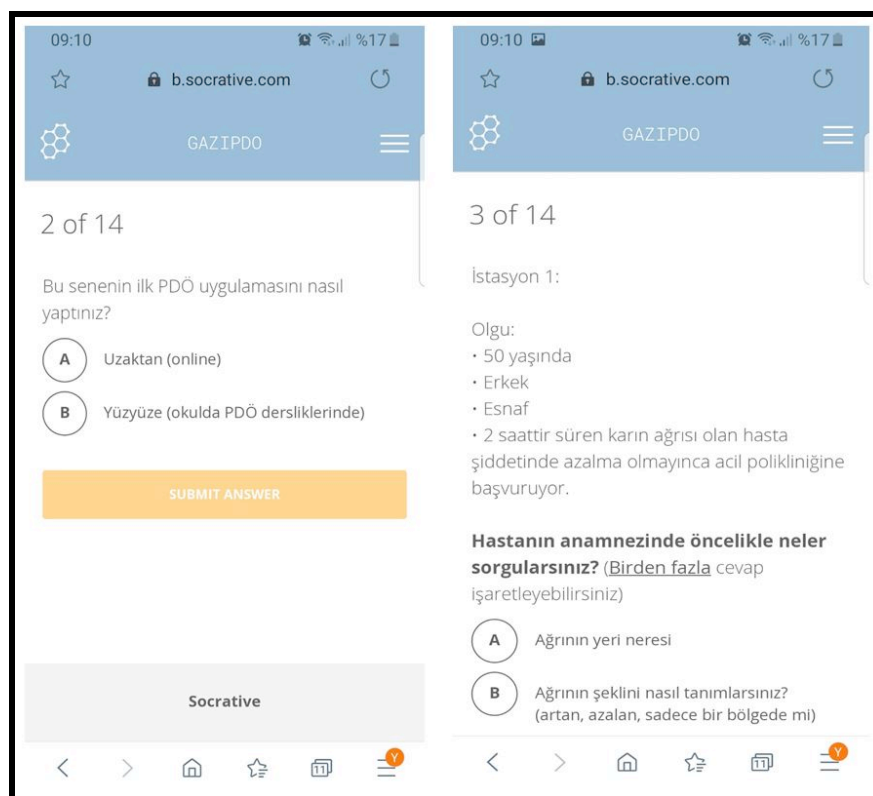


Figure 4: (left) A screenshot from beginning of the CORE Exam: a question aims to determine the students f2f or e-PBL. (right) A screenshot from CORE Exam: Station 1

## Results

There are 21 male (48%) and 23 female (52%) students in the study group. There are no significant differences in terms of CORE performance scores between online and face-to-face groups ( $p > .05$ ; see Table 1).

Table 1. CORE performance score change in terms of PBL modality

	Online (e-PBL) (n=24)		Face-to-Face (n=20)		df	t	p
	M	SD	M	SD			
<b>CORE Score</b>	61.29	13.98	62.35	9.61	42	-,287	.776

There are no significant differences according to gender in terms of CORE performance scores. Male undergraduates have similar scores with their female peers ( $p > .05$ ; see Table 2).

Table 2. CORE performance score change in terms of gender

	Female (n=23)		Male (n=21)		df	t	p
	M	SD	M	SD			
<b>CORE Score</b>	62.87	12.3	60.57	11.99	42	-,626	.534

We also asked students to compare their e-PBL experience with previous f2f PBL sessions. They shared their opinions in open-ended format. We analyzed all the content and classified under five titles. The examples from students' quotes are given below under the related titles. The "P1, 21, M" coding means that "Participant one, 21 years old, and Male".

### a) *Effective learning:*

**P1, 21, M:** In general, we have made a more memorable, fun work. I want it to continue.

**P20, 20, F:** It is good to share the information with each other and make common decisions while solving the problem step by step thanks to group works. Reaching the most accurate information through the discussion environment, the fact that each student is able to recognize the pros and cons of other students are other positive aspects.

### b) *Saving of time:*

**P3, 21, F:** It allowed us to do lessons when we were available.

**P10, 25, F:** Ankara is a big city and is not easy to transport from home to faculty. It was nice to join training from where I was without wasting time on the road. We used time more effectively.

**P25, 21, M:** This environment is more successful in routing time.

### (c) *Visual elements:*

**P2, 21, F:** I liked having visual content in the form of animation. It was easier to visualize.

**P9, 20, M:** Lots of visual materials make learning more permanent. I can also understand the case with a wider angle with animations.

*(d) Flexibility of physical environment:*

**P2, 21, F:** There used to be sessions I couldn't attend because I was out of town. Thanks to the virtual session, I was able to participate even if I was far away.

**P13, 22, M:** Home environment, comfort, class hours. We avoided waiting at the door of the PBL class.

*(e) The advances of online learning system:*

**P7, 20, F:** During the discussion, I was able to search the questions over the internet. It made me pay more attention.

**P10, 25, F:** The program can share documents, screen recording can take. It is also good to be able to watch the lesson from the recordings afterwards.

They also noted the advantages of e-PBL under three titles as follows:

*a) No physical classroom:*

**P14, 20, F:** It was nice to be able to do lessons at any time without having to come to school.

**P21, 20, F:** I was pleased that it was done at a convenient time and accessible from everywhere.

*b) Animation based scenarios causes less paper consumption and increase audio-visual quality:*

**P13, 22, M:** Paper usage decreased.

*c) Evaluating the performance of students objectively:*

**P12, 20, F:** Better evaluation of assignments.

**P13, 22, M:** Homework can be submitted easily by citing the sources.

## Conclusion

No significant differences between e-PBL and f2f PBL show that the all participants have similar learning gains and these environments are coequal of each other. If the students have required hardware and internet access, we recommend them to join e-PBL sessions. On the other hand, free from accessibility; participating to each environment voluntarily is the most important point. Because while some of the students prefer e-PBL some of them prefer f2f.

e-PBL sessions may transfer some of its advantages -such as multimedia based scenarios- to the face-to-face sessions in order to consume less paper. It may be another useful outcome of this project. The total number of students are 1875 for the first three years. Each scenario have at least 10 pages. The paper consumption is so huge that we should produce and consider practical solutions.

These results show that e-PBL sessions are as better as face-to-face sessions. We asked e-PBL participants to compare their experience with their previous face-to-face PBL experiences. Although there were technical failures in the online sessions, the students are satisfied with the following features: (a) effective learning, (b) saving of time, (c) visual elements, (d) flexibility of physical environment, (e) the advances of online learning system. On the other hand e-PBL has the following advantages: (a) no physical classroom, (b) animation based scenarios causes less paper consumption and increase audio-visual quality, (c) evaluating the performance of students objectively.

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*The Characteristics of the Orientation of Arab Parents Regarding the Future of their Children with Intellectual Developmental Disabilities*

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**Abstract**

Future orientation focuses on the image an individual constructs regarding their future; including future goals and courses of action they set for themselves in order to realize these goals. The present study discusses the consolidation of the orientation of parents in the Arab society regarding the future of their children with intellectual developmental disabilities, who study in special education schools in northern Israel. In this study, both qualitative and quantitative research methods were used. 80 families, consisting of mothers and fathers between the ages 34 and 69 participated in the study. The questionnaires they had to answer were originally designed for adolescents without disabilities. However, for the purposes of the current study they were adapted for the population of parents from the Arab society in Israel. The results of the study show that the future orientation of the parents regarding their children with developmental intellectual disabilities is obscured, pessimistic, and passive. The results also show that parents' orientation perpetuates the division of social role of both genders. It also preserves the existing state of social rejection of people with disabilities.

Keywords: Future orientation, Intellectual Developmental Disabilities, Parents, Adolescents, Arab society

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## **Introduction**

Future orientation focuses on the image an individual constructs regarding their future; including future goals and courses of action they set for themselves in order to realize these goals. Forming future orientation is considered as a developmental task and the first step of an adolescent's transition into adulthood. This developmental task is influenced by cultural values and the proximal environment, i.e. family interaction (Seginer, 2009). During family interaction parents express their opinions, beliefs, attitudes, expectations and values regarding their adolescent's future orientation. This way they influence the adolescent's future orientation. However, the consolidation of future orientation is not limited only to adolescents. Parents become concerned about their child's transition to adulthood and they consolidate what Seginer (2009) called Constructed Future Orientation regarding their children' future based on their familiarity with their children's characteristics and abilities.

Unfortunately, no study till this day has examined the orientation of Arab parents in Israel regarding the future of their children with Intellectual Developmental Disabilities (IDD) except for the research of Arslan (2012). This article will be focused on a part of Arslan's study in which she examined the influence of the Arab culture and values on the parents' Constructed Future Orientation.

## **Literature review**

### **Attitudes of the Arab society toward people with intellectual developmental disabilities**

The Arab society in Israel is a society in transition. It is neither a traditional society nor a modern one. On the one hand, changes are happening in the economical, geographical, political, and social domains. On the other hand, it is still a society which is characterized of being traditional, collectivistic, homogeneous, and cohesive (Karni, Reiter, & Bryen, 2011). According to the Ministry of Labor, Social Affairs and Social Services, the rate of people with intellectual developmental disabilities in the Arab society is higher than the Jewish society. Every 10.743 people out of one thousand in the Arab society are diagnosed with an intellectual disability. However, 3.9 people out of one thousand are diagnosed with an intellectual disability in the Jewish society (Ministry of Social Affairs and Social Services, 2009, PP367-399). It may be due to higher rates of marriage among relatives in the Arab society than in the Jewish one. It may also be because of the lack of awareness in the Arab society regarding the importance of tests during pregnancy, and the small rates of abortion due to religious reasons.

Attitudes of the Arab society toward people with disabilities in general and toward people with IDD in particular are influenced by stereotypical negative beliefs. Hence, people with an IDD are usually rejected. They are considered not to match the expected standards of beauty and wisdom in their society. People treat them with misery, compassion, and patronization. Such an approach towards them restricts the chance that they would be included in society and leads to considering them as a burden (Karni, Reiter, & Bryen, 2011). Moreover, according to a report (written in Hebrew) formed by Almanara association- an association for the advancement of the status of people with special needs in the Arab society- this population suffers from major problems such as institutional discrimination, lack of services, and social

exclusion. The report also emphasizes the oppression and inequality of opportunities in vital domains people with special needs face. Such as, employment, inability to have an independent life, get married and establish a family.

### **Future orientation**

Future orientation is the subjective intention of a person toward his future. It is composed of a person's self-perception, ambitions, plans, expectations, hopes and fears of the short term and long term future. All of these are vital for the purpose of establishing personal goals, examining future possibilities, and making important decisions and binding them (Seginer, 2005).

Future orientation can be presented based on two approaches. The first one is the thematic approach. This approach focuses mainly on cognitive representation processes. Two categories of future orientation may be distinguished (Seginer, 1995): (1) the prospective life domain which covers higher education, work and career, marriage and family. (2) The existing life domain which encompasses "concern for self," and "concern for others". The disadvantage of this approach is its lack of identifying the process which underlies thoughts regarding the future and the changes over time. The second approach is the three components approach. Future orientation in this approach is described to have motivational, cognitive, and behavioral components (Seginer, 2009). It is a generic approach which offers a common model for several different future domains. The order of the components is fixed. The motivational component leads to the cognitive component which in its turn leads to the behavioral one. The motivational component is defined by three variables: (a) values which is the importance of each of the future domains for the adolescent; (b) expectations which is the probability for an adolescent to achieve future ambitions or goals (c) control which is the extent to which the adolescent can achieve a certain goal independently or dependently on others. The cognitive component deals with the construction of expectations according to a future time course and it includes both a positive aspect expressed by hopes, as well as a negative aspect expressed by fears. Both hopes and fears may be expressed in life domains such as work and career, higher education, and family (Seginer, 2009; Seginer, Vermulst, & Shoyer, 2004; Seginer & Halabi-Kheir, 1998; 2001). The behavioral component is expressed in the following activities: (a) the examination of future domains. This variable reflects the extent of both interest and willingness to examine each future domain as well as the level of information accumulated (concerning the goal, the adolescent himself/herself, and his/her suitability for the goal). (b) The display of dedication to the possibilities in each life domain. This approach is an extension to the thematic approach because it does not only deal with the cognitive component but also with factors that motivate and trigger the adolescents' interests in the different domains (Nuttin & Lens, 1985; Seginer, 2009).

The consolidation of future orientation is considered one of the most important developmental tasks in adolescence because it is an adolescent's first step into adulthood. It is influenced by the proximate environment and cultural values (Seginer, 2009). Moreover, the development of future orientation is an interactive process, which is complex and ongoing within socio cultural, familial, and internal personal spheres (Seginer, 2009).

### **The socio- cultural context of the future orientation of Arab adolescents**

According to Martin and Colbert (1997), culture is the pattern of life which a group of people transmits to future generations through feelings, language, customs, values, and activities. The sociocultural contexts of the future orientation were examined in several studies which focused mainly on the socio-political aspect (Seginer & Mahajna, 2012). According to Seginer (2009), the future orientation of Israeli adolescents are better suited to the patterns of the future orientation of adolescents in Western societies than to adolescent orientation patterns in societies and cultures which are in transition. At first, studies which were concerned with the future orientation of adolescents have shown that Arab adolescents include the other (the family) and the collective (their own people) in their future orientation. However, studies later on emphasized the change of this future orientation over time. According to Seginer and Halabi-Kheir (Seginer & Halabi-Kheir 1998), the main change is reflected in the reduction of the investment in the existing life domains and the increasing investment in the prospective life domains. In addition, studies of Arab adolescents revealed differences between genders in relation to the future orientation (Seginer, 2001).

### **Gender differences in the future orientation of Arab adolescent**

There is a rigid demarcation of roles between both genders in the Arab society. Women are found on a low rung of family hierarchy (Al-Haj, 1989; Odeh, 2007; Yaffe & Tal, 2002). A female is expected to depend on her husband, to submit to his wishes, to fulfill his needs, to serve him and his family, and to play the traditional role of a housewife. The husband, however, usually takes on the dominant (instrumental) roles. He is considered the bread winner and protector of the family. Yet, the exposure to Western cultures led to fissures in the set of traditional values. It resulted in changes in education, the role of women, and the usual family structure. For instance, Arab girls with no disabilities became unsatisfied with their status. Therefore, nowadays, it is crucial for them to emphasize higher education in their future orientation more than boys. They also tend to integrate more than one domain in their future orientation, but they are still more concerned with the family domain than other domains (Mahajna, 2007; Seginer & Mahajna, 2012).

### **The family context of the future orientation**

Family- child relationship is considered to be important for all ages. Studies on behavioral outcomes indicate the importance of this relation and its outcomes. Parents have a central influence on their children's development (Laursen & Collins, 2009). According to Nurmi and Pulliainen (1991), family interaction and context affect the consolidation of future orientation of the adolescents in three ways: (a) Setting normative standards - parents influence the development of their children's interests, values, and goals. (b) Parents are considered to be a model for solving problems and carrying out tasks. For example, the family atmosphere and the relationship between the parents provide a certain model for how a family should be. It may be a model that encourages their children to have their own family life and marriage - or alternatively, it may lead them to avoid such planning. (c) Parents can make their children interested in a particular domain of adults' life. During family interaction, parents express their opinions, beliefs, attitudes, expectations, and values regarding the adolescent's future orientation. This way, they influence the adolescent's future orientation. Studies concerned with adolescents in the Arab society have shown that beliefs of Muslim parents have a major impact on the future orientation of their adolescents (Seginer & Mahajna, 2004; 2012). Other studies which are concerned

with parents' involvement in education show that parents' hopes, as well as their conversations with their children about what is happening in school and future programs, tend to influence the adolescent's motivation and their academic achievement (Seginer, 2006; Zhang, Haddad, Torres, & Chen, 2011). However, the demands of parents for the future orientation of their child should match his/her abilities (Seginer, 2006; Zhang et al., 2011). Seginer (2009) claimed that parental support for adolescents is considered to be vital for their coping with major and primary developmental tasks in their lives. Positive parenthood motivates the adolescent to consolidate a positive future orientation, and their support also motivates adolescents to think of options for their future, and develop skills for that purpose. Adolescents who perceive their families as supportive tend to invest more in their future than adolescents who do not. This claim was confirmed in studies which examined modern societies and traditional societies in Israel and around the world (Kracke, 2002; Mahajna, 2007).

Formation of the future orientation is not limited to adolescents. Parents whose children are in their transition from adolescence to adulthood consolidate what is called Constructed Future Orientation regarding their children's future based on their familiarity with their children's abilities and characteristics (Seginer & Shoyer, 2012). Unfortunately, former studies considered only the formation of future orientation of adolescents with no disabilities and their parents' constructed future orientation. Moreover, only few studies examined the future orientation in Arab societies. Therefore, Arslan (2012) was the first to examine the consolidation of future orientation among adolescents with mild Intellectual developmental disability (IDD) from the Arab society in Israel and their parents' constructed future orientation in the context of their parenting style. This article is a part of Arslan's (2012) research which focuses on the characteristics of parents' orientation regarding their children with IDD, while trying to shed light on how cultural values might influence this orientation. The following questions are derived from the purpose of the original study: (1) What are the characteristic of parents' orientation regarding the future of their children with IDD? (2) Is parental orientation influenced by the disability of their child? Is it also influenced by social and cultural values? (3) Are there gender differences in the parental orientation regarding the future of their children with IDD? (4) Does the adolescent's gender with IDD affect the parents' orientation regarding their future?

The current article will deepen the understanding of parents' orientation toward the future of their children with IDD. It may enrich parents' knowledge regarding their children with IDD, which in turn will help them in the transition of their children from adolescence into adulthood.

## **Method**

### **Participants**

A total of 80 families of male and female adolescents aged 16-21 with IDD from the Arab society in Israel participated in this study. 89% of the families were Muslims. The parents' ages ranged between the ages 34 to 69. 47% of them had primary school education. 73% of the mothers were housewives. 30% of the fathers were unemployed and 39% of them were manual laborers.

## Materials

Both quantitative and qualitative methods were used. Parents' orientation regarding the future of their children with IDD was examined using a number of questionnaires originally designed for adolescents without disabilities. These questionnaires were adapted to parents of the Arab society and interviewers were trained to help parents who could not read or write.

Two questionnaire were used: (1) Demographic details questionnaire. It requires participants to fill in demographic information: gender, age, socioeconomic status, parents' education, religion, and profession. (2) Hopes and Fears questionnaire (Seginer, 1988). A semi-structured questionnaire which includes two questions that parents had to answer: (1) what fears do you have when you think of your child in the future? (2) What are your hopes when you think of your child in the future? Three content categories were constructed that analyzed the sum of relevant statements on hopes and fears (separately): (a) education and employment (education, employment, property); (B) the social- relation domain; (c) marriage and family.

## Results and Discussion

The parents' orientation regarding the future of their children with IDD was affected by the sociocultural values of the Arab society and parents' familiarity with their child's abilities. This is similar to the way the orientation of parents of adolescents without disabilities is affected (Seginer, 2009). The influence of the sociocultural values was reflected in various contents raised by the parents during the interviews. First, the influence of the adolescents' gender on parents' orientation: adolescents' gender did not influence the mothers' orientation. Fathers, however, expressed more hopes and fears regarding the orientation of the future of their sons' with IDD than their daughters'. The social future of their sons was clearer to them than that of their daughters with IDD. According to fathers, home is the safest place for their daughters. Hence, in their own perspective, a female with IDD should be kept there in order to stay protected. However, they expected that their sons with IDD would have a normal life. For them, males with IDD are expected to be employed, have social relation, and get married. This comparison between males and females were reflected in some of the parents' quotes. For instance, "when she finishes school, she will stay at home. Her mother will take good care of her."; "when he finishes school, we will help him find a job and get married".

Fathers' orientation reflects a clear division of gender role which is found in the Arab society (Alnabulsi, 2005) even among people without disabilities. It also indicates that parents' attention is given to the adolescent according to his/her gender. Moreover, their expectations of their children are influenced by the extent to which they perceive their children's behaviors and characteristics as normal (Seginer, 2009).

Second, parents perceived their children as helpless and easy to be harmed and abused. This is similar to how parents in other cultures perceive their children with disabilities as helpless (Reiter, Bryen & Schachar, 2007). Parents of children with IDD are aware of society's repulsive attitudes toward their children, who do not match the accepted standards of beauty and wisdom (Karni, Reiter, & Bryen, 2011). Parents who participated in the current study searched for solutions in order to cope with the rejection. One of their coping strategies was the patronizing approach toward their



daughters with IDD, which according to it, daughters should stay at home. This reduces the fear of their children being abused. This is reflected in their quotes. For example, “I am afraid that someone might abuse her. It is better if she stays with her mother at home. She will keep an eye on her”. Their sons with IDD, however, are expected to continue the family legacy like males with no disabilities. This is why fathers tend to expect them to have a normal life accompanied with family support. This is also reflected in the parents’ quotes. For instance, “I am always afraid that someone will abuse him, but I will keep an eye on him. I wish that someday he will get married to a good woman who will take good care of him”.

Parents were also concerned with fears more than hopes in their orientation regarding the future of their children with IDD for several reasons. First, during interviews, parents complained of the lack of professional services and guidance during their children’s transition to adulthood (Azaiaz & Cohen, 2006). Parents in the current study are aware of their limited abilities to guide their children with IDD, which leads to increasing their fears. Parents clearly stated that saying: “I do not know how to help my child. I have no professional support, and I will try to do my best”. Second, parents described adolescence as a period saturated with pressure. They face serious challenges during their child’s transition from adolescence to adulthood and independence (Keller & Honig, 2004; Kim & Turnbull, 2004). Parents’ pressure increases as a result of their awareness of their children being socially rejected. This is indicated in their quotes: “People his age go to colleges and find a job. I do not know what will happen to him”; “Her sisters will finish school and apply to university, as to her I am so worried. I have no idea what will happen to her”. Third, parents perceive their children as unaware of real life. They complained that they do not have the skills to discuss their children’s weaknesses and guide them. This increases parents’ fears when they think about the future of their children with IDD. This is also stated in their quotes: “My son is not smart enough, he cannot manage things by himself. I will do my best, but who will take care of him when I die?”

**Parents’ perception of their children’s future employment.** Parents perceived their children’s chances of being employed as low. Moreover, gender differences were found. Parents excluded the possibility that their daughters with IDD will be employed in the future. Instead, they expect them, as mentioned previously, to stay at home. However, their sons with IDD, are expected to be employed in the family business, and be watched by a family member. These gender differences are reflected in their quotes: “No one will agree to employ her, she can do nothing. It is better if she stays with her mother”, “He will be employed in the family business. His brothers and I will teach him what to do and we will keep an eye on him”.

**Parents’ perception of their children’s’ social future.** Loneliness is imposed on their children with IDD for reasons of rejection or protection. This is reflected in their description of their children’s social future. According to Gossenes (Gossans, 2006), loneliness is considered a problem that affects adolescents and their parents and increases their fears regarding the transition to adulthood. These fears are reflected in the parents’ quotes: “No one will agree to be her friend. Her sisters are her only friends”, “Once he is home, he is alone. No one visits him or plays with him. His classmate are his only friends”.

**Parents' perception of their children's family future.** Gender differences were found. Parents totally excluded the possibility that their daughter with IDD will get married. While they expected their son with IDD to get married to a good wife who will take care of him. They also expressed clear intentions to support him. Gender differences are implicated in their quotes: "Who will agree to marry her? No one. She is sick and no one will agree to marry her.", "He will get married, we will help to find a good woman to marry him and she will take care of him". Unfortunately, their perception reflects an existing situation in the Arab society which may not have been proved statistically.

## **Conclusions**

This research sheds light on the orientation of parents from the Arab society in Israel regarding the future of their children with IDD. The results show that parents' orientation is characterized with pessimism as a result of: (a) parent's awareness of their children with IDD as being socially rejected. (b) The lack of plans for individuals to help them with their transition to adulthood. (c) Their perception of their children as helpless and easy to be harmed. (d) Their awareness of their inability to guide and support their children in this critical period of their life. (e) Being aware that the gap between the chronological and cognitive age of their children still exists, although they study in special education schools for a long time. (f) The low chances for their children to be employed, have social relations, and get married and have their own families in the future. All of what is mentioned previously increases the uncertainty and pessimism regarding the future of their children.

Parents' orientation is also characterized with passivity. Parents are aware of the social rejection their children with IDD face. They are also aware of their lack of professional support and the lack of individual plans to help their children in their transition from adolescence to adulthood. Parents do not make an actual practical action to improve their children's life neither at the level of an actual activity nor at the level of a declaration of the need for a change. Parents choose to keep their daughters protected at home, and hope that their sons with IDD will have a normal life with an unconditional support.

Parents' orientation also emphasizes the division of gender role in the Arab society which turns out that it even exists among people with disabilities. Results also show that parents' expectations and attention are given to their children according to their gender regardless of whether they have a disability or not.

Parents' orientation preserves a status quo regarding people with special needs in general and people with IDD in particular. It preserves the stigmatized and rooted stereotypes toward people with disabilities, the loneliness which is imposed on them for reasons of rejection or protection, the misery, compassion, and the patronization they are treated with, the gender role, the oppression and inequality of opportunities between people with disabilities and people without disabilities. The preservation of status quo is reflected in the coping strategies parents in this study have chosen to adapt with their children's transition to adulthood: keeping their daughters in the house protected by their mothers, while wishing their sons a normal life accompanied with family support.

The results of the research implicate that an action is required in different domains. First, there should be programs focused on families. Their aim should be empowering them, providing parents with the appropriate tools to help them cope with their children's transition from adolescence to adulthood, and raising their awareness towards their children's abilities and weaknesses. Second, there should be programs focused on society and institutions. Such programs should aim to change attitudes toward people with disabilities in general, and with IDD in particular. Teams should be trained to prepare a plan for an individual for their transition from adolescence to adulthood. Lastly, there should be programs focused on adolescents in order to empower them, raise their awareness regarding their abilities and weaknesses, and expose them to opportunities and barriers which exist in society.

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## ***Swarm Intelligence Framework for Tutoring***

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### **Abstract**

A web-based intelligent tutoring system with some swarm intelligence capabilities and with the integration of a learning units with Adaptive Augmented Reality Serious Games (AARGS) is presented. Adaptation to the children, necessary for a more effective learning experience is achieved through two means: the use of sequencing graphs and swarm intelligence techniques. Sequencing graphs determine which paths are available for the children. Successful paths traversed by children are reinforced in the graph. This information is presented to the children every time they finish a *learning unit*, so they can choose next units with some information about how their peers did perform in the same situation. The mechanisms of stigmergy (inexplicit, mystical process by which ants and other social insects can create highly complex physical, social and communication structures without any apparent central planning or organization) will lead to the appearance of optimum learning paths. each *learning unit* presents a new educational platform that integrates augmented reality and intelligent tutoring to foster problem solving skills at k-6 to k-12 children through developing their strategic learning. This can be attained through hands on activities and adaptive learning process in a rich interactive environment.

Keywords: Swarm intelligence, web-based intelligent tutoring system, Augmented Reality, Serious Games, Plain graph, Sequencing graphs

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## Web based education

Web based education (WBE) is becoming more popular in recent years, as many learning activities are moving to the web. One of the main challenges of web-based system is their ability to be adaptive, i.e. to adapt to different user requirements. A web based tutoring system may offer customization and an adaptive personal environment for the learner [39], thus avoiding the “lost in cyberspace” problem [44]. The existence of a tutoring guide for the learner maximizes the effectiveness of the learning process [36]. This paper presents a web-based tutoring system that adapts the sequencing of a set of learning units to the children capabilities and needs. It is based on [45], but proposes a complementary approach to obtain better results.

The work in [45] is based on hierarchical graphs, which are a particular case of the finite automata paradigm. The graphs define transitions between different learning units based on some parameters. These parameters are a function of the actions of the learner and its past history in the system. Once the graph is designed, the system can automatically adapt the sequence of learning units to different learner needs, taking more time to explain some concepts that the child finds difficult or skipping aspects over which the child has great knowledge. This adaptation is achieved following different paths in a hierarchical graph, depending on the child’s actions.

We propose a way to extend this idea, based on swarm intelligence techniques. Our approach has some similarities with other swarm-based web-based educative systems and takes some ideas from the collaborative filtering field. The paths that the children take along the graphs are recorded and analyzed, so good paths are reinforced and bad paths (i.e. those leading to poor or no learning, bad result on assessments, etc) are penalized. That way, the children themselves find the best *learning paths* along the graph presented to them, in a distributed and automatic way.

## The Learning Unit

Intelligent tutoring systems (ITSs) have proven to be effective in engaging learners and providing personalized learning process through the use of a child model, there are a number of missing elements that seem necessary to stimulate desired learning outcomes, such as narrative context, rules, goals, rewards, and multisensory cues [36]. Serious games evolved as a field that combines education with game aspects which allows learning to be more motivating and appealing [44]. Serious games are games that incorporate the entertaining format of a game in order to accomplish educational goals. Serious games have proven to be engaging in ways that do not only keep children playing the game, but also keep them interacting with the game in a way that creates real learning experiences and help them achieve subject matter goals. Serious games use 2D virtual environments, and non-playing characters to engage the learners and guide them through the learning process to help them achieve the desired learning outcomes.

One important result researchers seek to measure in regards to educational games is transfer. Researchers measure transfer by focusing on extended performances where children “learn how to learn” in a rich environment and then solve related problems in real-world contexts [17].



Although augmented reality (AR) is not new, its application in education is just beginning to be explored. Augmented reality is a live, indirect view of a physical, real-world environment whose elements are augmented by computer-generated sensory input such as sound, video, graphics or GPS data. AR is learner based, allowing the learner to direct their course of discovery in a rich environment that allows for experimentation and making mistakes with no major consequences.

### Collaborative Filter In N Dimensions

Our approach gives the children the opportunity to see what are the 'reinforcements' on each arc. This bears similarities with collaborative-filtering applications, CoFIND (Collaborative Filter In N Dimensions). CoFIND's purpose is to replace the role of a traditional teacher in structuring and selecting learning resources. It attempts to achieve this through a process of stigmergy and natural selection, leading to a degree of self-organization brought about through the independent actions and interactions of its individual users.

In that case, children had to select between educational resources giving more weight to the more useful ones. There was no sequencing involved, just a distributed filtering of the most valuable resources (e.g. web pages, multimedia presentations, etc) from the point of view of the children.

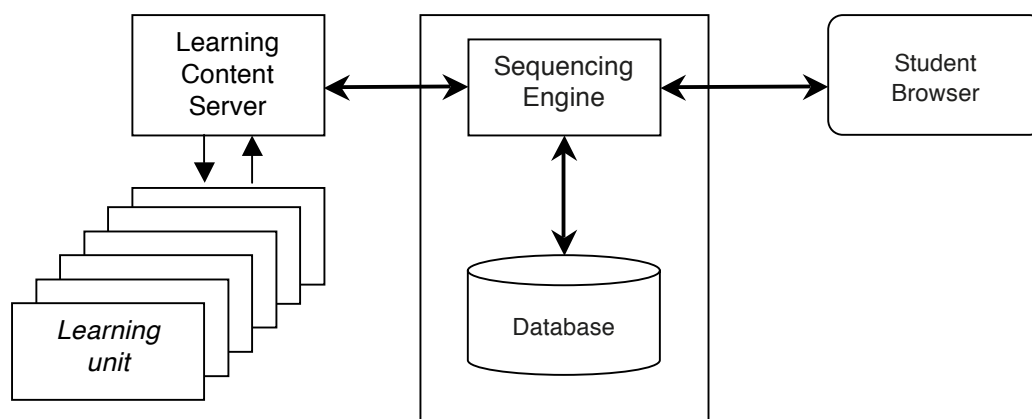


Figure 1. System architecture

### The tutoring system

We have intend to develop an adaptive web-based tutoring system. The children are able to interact with the system using only a web browser. The system presents them some exercises, and adapts the sequencing of these exercises to their needs.

In this section, the technical architecture of the system is presented, while the techniques used to adapt the sequencing are presented in Sections **Sequencing graphs** and **Plain graph**. The architecture of the system is shown in figure 1.

Each part is described below.

*The database.* The database contains all the information relevant to the system.

*Client.* The client at the user side needs web basic navigation capabilities only.

*Content server.* The content server contains all the information to be delivered by the system to the child, whether it is plain web pages or any other thing that is readable to a plain web browser.

*Sequencing server.* The main part of the tutoring system. It retrieves the *learning units* from the Content server(s) and delivers them to the child.

### Sequencing graphs

Sequencing graphs, presented here, are based on the ideas of [45] with some differences. They specify how to sequence learning activities in our system. They are powerful enough to allow arbitrary sequencing in a simple and intuitive manner, yet they can cope with big amounts of activities without becoming unmanageable due to their inherent hierarchy. This hierarchy allows to store small amounts of connected activities (a plain graph) in nodes that are part of a higher level organization (another plain graph, but with graphs inside) and so on.

### Plain graph

A plain graph is defined as follows: A plain transition graph  $G$  is a tuple  $(V, E)$  where  $V$  a set of nodes each of them is a learning unit and  $E$  is a set of directed edges connecting nodes in  $V$ .

An *environment* is a set of pairs variable-value, where information about the child and its relation to the graph can be stored. Attribute values are divided into two types: strings and integers. Changes in the environment are made after each unit is delivered (any output data is stored in it) and, more importantly, by the *actions*.

An *action* determines a change in the environment. This can be the addition of a new pair to the environment, the change of an existing one or the deletion of it.

A *prerequisite* or *condition*  $c$  specifies a Boolean expression, either a simple one or a logic composition of simpler ones. Operators allowed for integer comparison are  $=, <, >, \leq, \geq$ . Strings can only be checked for equality. The allowed Boolean connectives are:  $!, \&, |$  for negation, conjunction and disjunction respectively.

An edge  $\alpha \in E$  is a tuple  $(v1, v2, c, A)$  where  $v1, v2 \in V$ . When condition evaluates to true, the corresponding transition is suitable to be taken. Should the edge be followed, the corresponding set of actions would be executed, modifying the environment.

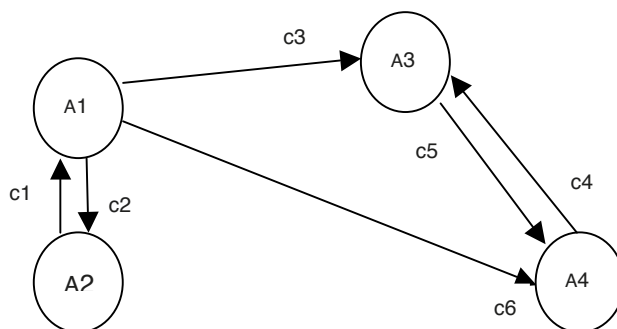


Figure 2. Plain graph example

Many out coming edges are suitable to be taken; one of them is selected in a nondeterministic way. Figure 2 shows an example of a plain graph. Nodes  $A_i$  are learning units: theory, conditions, examples, exercises, solutions, explanations, etc.

At all times the system has a current state  $S^c$  which represents the last activity or learning unit delivered to the user. When the unit has been finished, the set of available next units is selected according to the conditions that evaluate to true in the out coming edges. The child then has the opportunity of selecting which unit he wants to go to.

### Hierarchy. Sequencing graphs.

Although these graphs provide a powerful and flexible mechanism to express sequencing of learning units, they may become too complex for a large number of units. In this situation defining a large transition structure can become infeasible.

A sequencing graph is thus defined recursively as follows:

A *sequencing graph*  $SG = (V, E, V_i, V_o)$  is a tuple where elements in  $V$  are either learning units or sequencing graphs,  $E$  is a set of edges,  $V_i \cap V$  is its set of input nodes and  $V_o \cap V$  is its set of output nodes.

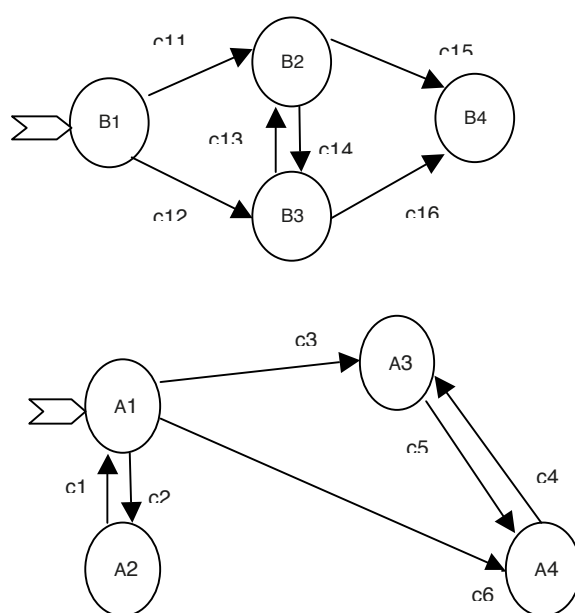


Figure 3. Sequential graph hierarchy example

With this new definition, a sequencing graph is a set of learning units and subgraphs connected among them by a set of edges. The input nodes are the possible entry points from a higher level of hierarchy. The output nodes are those with arcs directed to the upper level of hierarchy. The number of input and output nodes is not bounded in the general case. When there is one and only one input and one and only one output node in each plain subgraph, we call that a *strict sequencing graph*.

The possible sequencings defined by a sequencing graph are very intuitive to see. Nevertheless, in [45] the traversing algorithm is formally expressed. As we have not made any change to that, we do not repeat it here for the sake of space.

An example of a sequencing graph is given in Figure 3, with two levels of hierarchy which nodes are labeled with letters A and B. Input nodes at each level are marked with a white incoming arrow, and output nodes are marked with a cross, representing the edge going “upwards”.

### **Reinforcing the best paths**

Not all possible sequencings are well suited for learning. That’s why some of them are permitted and some of them are not. (i.e. it makes no sense to deliver a child the last assessment if he has not been presented the former theory units.) That is why some arcs exist between units and some do not. Moreover, the arcs have prerequisites to match before the child is allowed to travel from one unit to the next one, and this is how the sequencing is adapted to different children with different capabilities or needs (this is sometimes called link hiding [38]).

But this approach has two weaknesses. First, it relies on some human designer/teacher to design the graphs. While this gives the opportunity of reusing the expertise of a teacher, it makes it harder to maintain the system in the long term. The use of hierarchy mitigates the problem, as some lower-hierarchy graphs can be remade from scratch without affecting the general graph, but it still requires a lot of work to add new learning units to a existing graph.

Additionally, child groups change over time. Different generations have, as a group, different capabilities and needs. It would be desirable that graphs offered the possibility of adapting themselves to different populations of children, and not only adapting the sequencing of learning units to every child according with some rules. As it is pointed out in [52], the set of paths designed at first would not be adequate after all.

We have tried to overcome these problems with the addition of some stirmergic capabilities to our system. Thus, successful paths are reinforced in order to guide children through the optimum path for their learning. The mechanism is similar to the one used by ants for reinforcing the paths leading to food sources through the use of pheromones.

When a unit is delivered to the child, his success or failure is recorded. If there was a success, information is stored about the actual activity and the former one. Thus, not only has every arc prerequisites to be accomplished by the child, but also information about how many children were successful when traversing it.

This information is presented to the child every time he finishes one unit. All the available units are presented to him. Each of them has information attached, about how many children have gone to each of them starting from the same unit as the child has just finished. That way, the child has the ‘ratio of success’ for each unit, according to the data collected from his peers. The result brings some similarities to a collaborative filtering system, but applied to adaptive sequencing.

A child that knows that he is above average compared with his classmates can select to do a unit that has a lower ratio of success but represents a higher challenge. A not-above-average child will be able to select those units in which many of his classmates were successful. This represents an additional degree of adaptation. Its big advantage is that it is achieved in a distributed and automatic fashion, and gives a sensation of freedom and self-control to the children about its own learning, which is very positive.

As many collaborative filtering systems, the platform proposed is suitable of being affected by the *cold start*<sup>1</sup> problem. This means that, at first, there is no information on the arcs, so no information can be presented to the children. This is a big problem in recommendation systems, as they need data to be useful to customers, and they need customers to use them to collect the data, but the users will not use a system that is not (yet) useful to them, producing a deadlock.

This will not be a blocking problem in our system because of two reasons. First, the learning units delivered to the children are useful on their own. They will attract the children even if there is no other feature in the system, either of adaptability or filtering or anything.

Moreover, the system inherent adaptability capabilities, through the prerequisites, that should prove to have some beneficial effect on the children's learning even before there is any meaningful data about their paths.

This process of "child clustering" can be directed by the child themselves. Existing systems show only how children have performed to far as a group. If the names of children is shown (e.g. "A, B and F succeeded here"), next children have the opportunity of following those children (i.e. classmates) with whom they feel more identified. This approach presents some social concerns (e.g. privacy), so it is inhibited in the system.

The children will be able to interact with the tutor for some months. As time progresses, arcs will be reinforced and the children will have more information available to them about the following learning units. We plan to see the influence of different factors as: presence of the reinforcement information, importance of the reinforcement information (i.e. cold start very notorious or not), influence of first or more capable child on the results of their classmates, appearance of local optima. Based on the collected data, an improved version of the platform will be developed.

Another issue to be studied in future versions of the system is how far the reinforcement to be placed has. We will reinforce only the last arc traversed by the child. No studies have been conducted to find which grade of *pheromone spreading* is adequate for an e-learning application, as far as we know.

An intelligent tutoring system with some swarm intelligence capabilities based solely on hierarchical graph, which led to good results in experiments with real children. Adaptation to the children, necessary for a more effective learning experience will be achieved through two means: first, the use of sequencing graphs allows for

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<sup>1</sup> *Cold start* is a potential problem in computer-based information systems which involve a degree of automated data modelling. Specifically, it concerns the issue that the system cannot draw any inferences for users or items about which it has not yet gathered sufficient information.

sequencing adaptation, while the analysis of the successful paths traversed by the children allow the modification of the graph to better confront the needs of a population of children.

Additionally, it gives more information to them about the following activities to be performed. After finishing each learning unit, the children are presented a screen with next available units (depending on the accomplishment of some prerequisites on the graph), with information about how well their classmates performed in those units when they departed from the same unit. In this way, optimal paths for the learning of the children can be found.

### **Augmented Reality in Education**

In the field of education, AR applications have to be grounded in sound pedagogy. Further research is still needed to highlight its relevance and what enhancements AR will bring to the child learning experience. Certainly AR is simpler to use than virtual technology which may make it easier to bring into the classroom if desired. The fact that AR layers information onto the real world may make this type of digital technology more acceptable for those concerned about the use of virtual technology [32]. Most importantly, AR allows for the seamless integration between the real world and the virtual world, which can be a valuable thing when it comes to merging the child's real life with the presented virtual environment. We think this particular point will benefit the teaching pedagogy adopted in this work.

AR has been found to facilitate spatial learning particularly for those who are challenged in translating concepts from 2D to 3D [33]. Another affordance of AR is the concept of "sense of presence" or "embodiment" when using AR in a learning context. *That is, participants have an actual experience and remember it as an actual event thus making connections to previous knowledge stronger.* For these reasons, AR has been found to be a plausible platform for educational systems.

To the extent of our knowledge, there is currently no existing AR games in education that incorporates interactive engaging tasks, teaching pedagogies and adaptive learning processes. We hope to address this lack with our *learning units* and add believable pedagogical agents in hopes of increasing child motivation to interact with and learn from the *learning units* in addition to providing implicit teaching and an immersive environment. Adaptation allows tracking learner performance through employing a child model and providing challenging activities in the learner's zone of proximal development in order to maximize learning.

Lester and Stone relate that "believability in animated agents is a product of two forces: the visual qualities of the agent, and the computational properties of the sequencing engine that schedules its behaviors in response to evolving interactions with the user" [17]. The use of augmented reality and believable agent seeks to improve visual quality by integrating the virtual world as well as the virtual characters into the real world of the child. In this paper, we describe an augmented reality serious game that provides personalized learning experiences to the learners and can be used on mobile devices.

## **Pedagogical believable agents**

Pedagogical agents are computer characters capable of exhibiting aspects of intelligence that fulfill pedagogical purposes by guiding learners through the learning environment. The implementation of agents within the game should increase the learner's engagement and contribute to several elements that have been shown to increase child motivation in learning with educational games. A pedagogical agent can contribute to the narrative context, communicate goals, provide rewards and increase interactivity. Most importantly, pedagogical agents allows implicit (weaved into the background story) and explicit feedback and scaffolding which are essential for child learning.

Creating a believable pedagogical agent should further enhance the child experience of these motivational design elements. Lester and Stone define "believability" as "the extent to which users interacting with an agent come to believe that they are observing a sentient being with its own beliefs, desires, and personality" [21]. They go further to note that "increasing believability will yield significant rewards in child motivation as they interact with learning environments" by providing engaging social interaction that is in itself motivating. They mention observational studies they conducted with middle school children which showed that children's interest in learning was greatly increased by an agent's life-like presence [21]. Learning support provided by a believable pedagogical agent such as feedback and scaffolding should be gauged as more useful and believable by the learner further increasing learning gains.

Agents that perform pedagogical roles have been explored in serious games [16]. Some of the characteristics that should be considered in any believable agent include: *personality, emotion, self-motivation, change, social relationships, consistency of expression, and the illusion of life*. The illusion of life is one feature that can be accomplished by the appearance of goals, the concurrent pursuit of goals and parallel action, the ability to react and respond to an appropriate situation and existence in a context, being resource-bounded, broad capability, and proper integration of their capabilities and behaviours [22]. In addition, a believable agent must be believable within the context of the activities presented.

## **The Learning Unit**

Both the learners' motivation and engagement depend to a large degree on "immersion." Immersion is the subjective impression that one is participating in a comprehensive, realistic experience [23]. In this case, the learner has to have a "sense" that he or she has an important role in the educational work at hand. The learner would be more motivated and engaged to complete a task knowing that his or her actions would have consequences in the world they are engaging in. By adding in Pedagogical agents, the learner's immersion would be heightened by the responses from the agent. This can assist in increasing the motivation and engagement of the learner.

The Learning Unit involves creating an augmented reality serious game that incorporates a believable agent in order to increase child engagement in the activities in a meaningful way that promotes learning and the development of problem solving

skills. The child will initially be engaged via a narrative that places him or her in the position of the helping the characters that will also act as pedagogical agents within the game. After the initial introduction to the agents and initial assessment of the child level with some pre-assessment activities, the child will be able to choose the agent he or she prefers to continue learning with which will then dictate the learning style of activities for the rest of the game.

The following sections describe the Learning Unit architecture and the rationale behind the current design.

### Overall architecture

The proposed Learning Unit aims to provide an engaging personalized learning experience to the players in a rich interactive environment. Dunleavy et al., (2009) provide a diagrammatic conceptual framework for the process of AR in the learning environment [17]. In the presented architecture, Dunleavy et al. incorporated the teacher as the facilitator of the learning experience, which provides the challenge in which the teacher has to manage the overhead that accompanies AR simulation implementation. Substituting the human teacher in this model with an intelligent tutor seems an intriguing idea because of the success of this paradigm in intelligent tutoring systems and serious games in the literature as well as because of the feasibility it can provide to the proposed model for classroom use. For this reason, we decided to adopt Dunleavy et al. model and adapt it to serve our needs, see Figure 4.

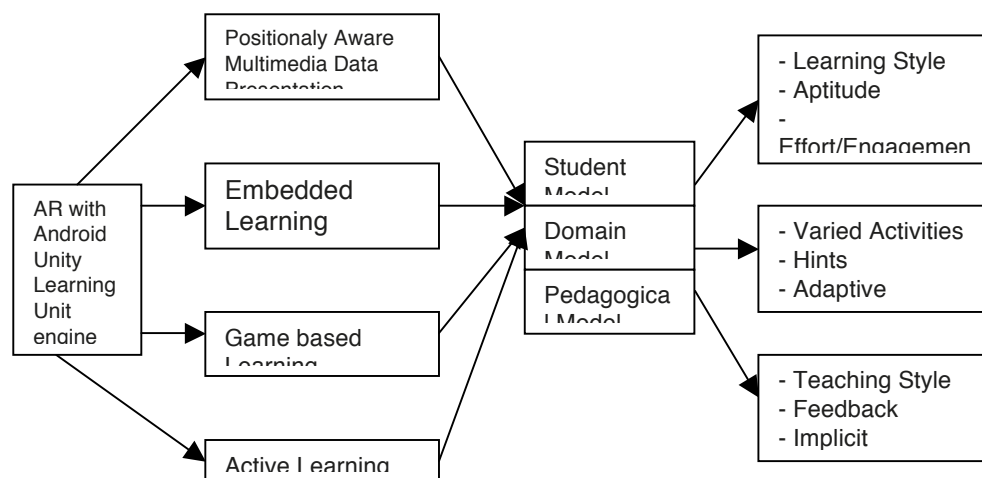


Figure 4. The architecture of Learning Unit

The architecture utilizes multimedia presentation, active learning, game based learning and pedagogical techniques in order to maximize child learning. These work together through the interactive nature of the game play requiring active participation by the user in a context dependent task that helps develop strategic knowledge and mathematical thinking presented through multimedia technology.

Embedded learning gives context to abstract skills. We plan to incorporate intelligent tutoring modules into the Learning Unit in order to add independence to child learning that does not require a large input of adult assistance. Studies have shown



that young children require support for learning until they gain a sufficient knowledge base for independent learning [26].

The architecture involves the interaction between a child model, a domain model and a pedagogical model. The child model will hold child information about the child's learning style and ability level as well as information about current effort and engagement with the game and progression through the levels. The domain model will hold varied activities, hints and other elements of adaptivity that can be chosen during gameplay in response to information in the child model. The pedagogical model will hold variations in teaching style, feedback and ways of varying implicit instruction capabilities that can be modified in response to the child model.

### **Design of the system**

The Learning Unit is an AR serious game that has a background story and engaging tasks that should motivate and immerse the players and encourage them to spend long periods of time playing and exploring the game world. All the tasks provided in the Learning Unit world are sewed into the background story. The game employs a child model that helps provide an adaptive learning tailored to each individual player's skills via tracking and assessing the player's actions and providing him/her with the tutoring appropriate to the player's current skills. Providing the right level of tutoring encourages the player to spend more time playing the game and accordingly should help increase his practice. One of the most straight forward effects of increased practice is that tasks are performed more quickly and more accurately [27]. The game also contains a pedagogical model that present the tasks in a way that helps the child to acquire simple units (skills) that form the basis for developing other complex skills, which has proven to be a successful teaching strategy [27].

### **Conclusion**

Problem solving is an important cognitive skill that highly impinges on other cognitive skills, such as computational thinking. Studies have shown that high school children in the US have lower computational thinking skills than their peers in other countries [30]. The study suggested that developing such skill should start as early as elementary schooling years. This can be achieved through engaging educational platforms/environments that can train and educate children about those meta cognitive skills which have direct impact on other complex cognitive skills such as problem solving and computational thinking. Augmented reality is one technology that can provide fun, safe environments in which child can practice and develop these cognitive and meta-cognitive skills.

Augmented reality has plenty of options when it comes to functioning in educational environments. Object recognition, geo tagging, virtual input, and media effects are a few of the tools a developer can utilize to craft a unique interactive educational experience. In essence there is no limit as far as to the variety of environments that can be used to craft interactive educational experiences. Another motivation for using AR in education is the ease of using them on Android devices which are relatively inexpensive, portable, can be used in a variety of contexts and are readily available.

Each Learning Unit is an intelligent AR serious game that integrates augmented reality technology and intelligent tutoring modules to foster strategic knowledge in young learners. The game world is inhabited with pedagogical believable agents that help motivate and engage the learner as well as provide individualized learning experience. The environment presents the learner with challenging tasks that are weaved into the background story. To increase the learner's engagement and motivation, the tasks in the game are designed with learning theories of Gagné and Keller in mind [28, 29]; the Learning Unit allows the learner to bring in their favourite toys to be part of the game and share the game activities with them. The game design considers different game aspects as mentioned earlier in the paper which should help the player spend long periods of time playing the game which is one key factor for fostering the development of problem solving skills, in addition to providing a personalized learning experience through the use of intelligent tutoring modules. Future plans include finishing the prototype and evaluating the game through focus groups.

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***The Design and Development of an Online Course as a Preparation for a Cambridge PET Examination for the Listening Section***

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**Abstract**

This study explores and describes the effect of implementing an adapted flipped classroom model version when preparing 29 undergraduate students for a Cambridge PET examination in an online learning environment. The specific research objective was to analyze the students' English proficiency level improvement through an online course. The study used a quantitative design method; online pre and post-intervention exams were used to collect data based on listening, reading and writing skills. The focus of this document will be on the listening skill section. Finally, a statistical report of what percentage of students were more likely to pass an Official Cambridge PET examination is presented. Results showed that 34,49% obtained passing grades in the Pre-intervention exam, and 51,73% obtained passing grades in the Post-intervention exam. The effect size of the Pre and Post-intervention exams was of 0.22 with a 9%ile gain which means there was a modest effect in general for the three skills mentioned above. In the listening skill section, students showed a 4%ile gain considered a quite small effect. In conclusion, more than 50% of the students demonstrated they would be likely to pass an official Cambridge B1 or intermediate level examination after the intervention. However, important aspects such as learners' time dedication, number of hours to practice, speaking skill practice and the intervention of more than one rater could be useful to improve the effectiveness of this innovation on learners.

Keywords: Online learning, autonomous learning, flipped classroom.

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## **Introduction**

The purpose of this study was to develop a pilot online course for helping undergraduate students from Universidad Politécnica Salesiana (UPS), located in Guayaquil - Ecuador, who were in their last English level class reach an intermediate or B1 language proficiency level as well as the required strategies to be prepared for the Preliminary English Test (PET) which is a proficiency examination created by Cambridge University Press. The sample of this study was non-probabilistic consisting of 29 undergraduate students' ages 18 to 30 years in level 6 of the English program at the University of study. Non-probabilistic means sampling without using random selection methods; it requires researchers to use their subjective judgments, drawing on theory and practice, or experience (Lund, 2012). This course was implemented in two weeks dedicating 8 hours of practice for each of the language skills: reading, writing and listening. For this paper, the main focus will be the listening section.

The Common European Framework of Reference for Languages (CEFR) is an international standard for describing language ability which is used around the world to describe learners' language skills. The CEFR (2014) explains that on a B1 or intermediate level, a learner is considered an independent user that is able to understand the main points of clear standard input on familiar matters regularly encountered in work, "school", and leisure; deal with most situations likely to arise while travelling in an area where the language is spoken; produce simple connected text on topics that are familiar or of personal interest; describe experiences and events, dreams, hopes, and ambitions; and briefly give reasons and explanations for opinions and plans.

## **Problem**

For this study, it was identified that even after completing the 6 levels of the English program from UPS, many undergraduate students were not prepared to take the Cambridge PET exam nor had they reached an intermediate level based on results of institutional examinations. In addition, taking extra on-site classes was not an option for many students due to the fact that a high percentage of them had a low language proficiency level in English because of the lack of study time, difficulties attending regular face to face courses and above all, high costs.

With the interest of finding possible solutions to the problem aforementioned; the idea of online learning gave students the opportunity to study, learn and improve their English knowledge while continuing to meet their professional and personal time constraints. By the time the study was carried out, there were very few universities that offered online or blended English courses to improve learners' language proficiency in Ecuador (British Council, 2015).

## **Local Context**

In Ecuador, higher education has become more demanding in learning a foreign language in the last five years. This is demonstrated by the promulgation of many new governmental regulations that require new levels of proficiency in a foreign language for university graduates. English is the predominant foreign language being required



for professional, social, economic, and educational purposes. On the other hand, technology has also become an important part of the educational system stimulating the demand for online programs or courses as a different option for studying in universities.

Foreign language learning in Ecuador has reached new heights by becoming a requisite for students at different levels of education. The Organic Law of Higher Education of Ecuador (Ley Orgánica de Educación Superior or LOES in Spanish), regulated by the Higher Education Council (Consejo de Educación Superior or CES in Spanish), stipulates in its higher education guidelines (Reglamento de Régimen Académico or RRA in Spanish), pertaining to foreign language learning, that every undergraduate student must achieve an intermediate or B1 English proficiency level based on the Common European Framework Reference for Foreign Languages (CEFR) once they have completed 60% of their coursework or they will not be able to continue with their program of study.

In order to meet the growing demands for language proficiency in English, many educational institutions are implementing the use of technology in their classrooms. For the Universidad Politécnica Salesiana (UPS), improving English proficiency using technology has been the core of the institutional strategic plan in the last five years. Ramos and García-Peñalvo (2013) explained that the implementation of Information Technology and Communication (ITC) in education has opened new learning environments such as virtual classrooms, Massive Open Online Courses is “MOOCS”, and Learning Management Systems (LMS).

To accomplish the goal of creating a model of an online English course; a virtual platform or Learning Management System called *Schoology* was the host of the course. The official website explained that this online platform greatly contributes to facilitating learning both autonomously and collaboratively at any time, from any place and even from different smart electronic devices such as tablets and smartphones (Schoology, 2017).

### **Innovation Objective**

To develop appropriate strategies, tasks, and resources for improving English proficiency skills as a preparation for a PET examination in an online learning environment.

### **Innovation: Listening Section**

After the pre-intervention exam, learners were exposed to different individual and/or group learning activities, tasks or assignments to reinforce the listening skill as well as give them the necessary learning tools, strategies, and/or academic resources to be prepared for a Cambridge PET examination.

The listening section was graded over 10 points being 7 the minimum score to be considered acceptable to probably pass a real PET Cambridge examination; this scoring range was selected with the purpose of aligning it with the one used by the participant university. The listening section was objectively and automatically graded by the online platform since the types of questions included matching, multiple-choice, and fill in the gaps formats.

Results were first calculated as means and standard deviations and then translated into a unit of measurement referred to as an effect size that expresses the increase or decrease in achievement or level of students' language skills improvement. Finally, percentile gain or loss was presented differentiating the pre and post-intervention results. Figures 1, 2 and 3 show how the listening section of the online course was visualized by learners.

Figure 1: Main page of the online course

Figure 2: Online course – Listening Section

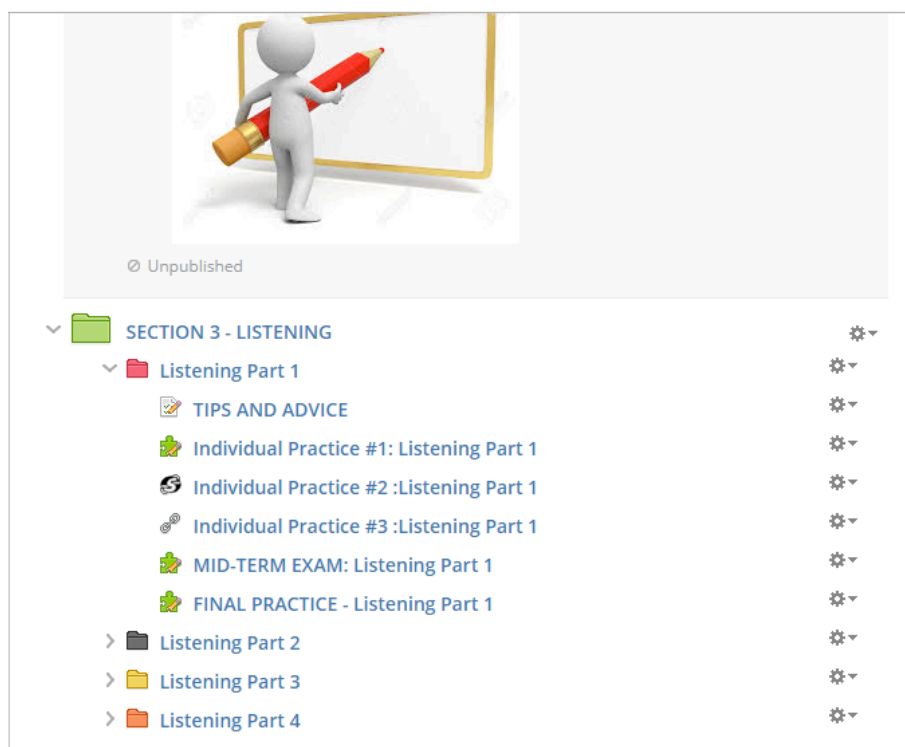


Figure 3: Online course – Listening Subsection 3

Lastly, the online course designed and implemented for this study might serve as a pilot for future study programs in meeting the growing demands for English language proficiency improvement.

**Conclusions**

In summary, the 29 participants of this study had a 9%ile improvement after two weeks of practice (8 hours per skill) in three out of four proficiency skills included in a PET Cambridge examination: reading, writing, and listening which means there was a modest effect. Consequently, for the listening section, there was a 4%ile gain resulting in a quite small effect.

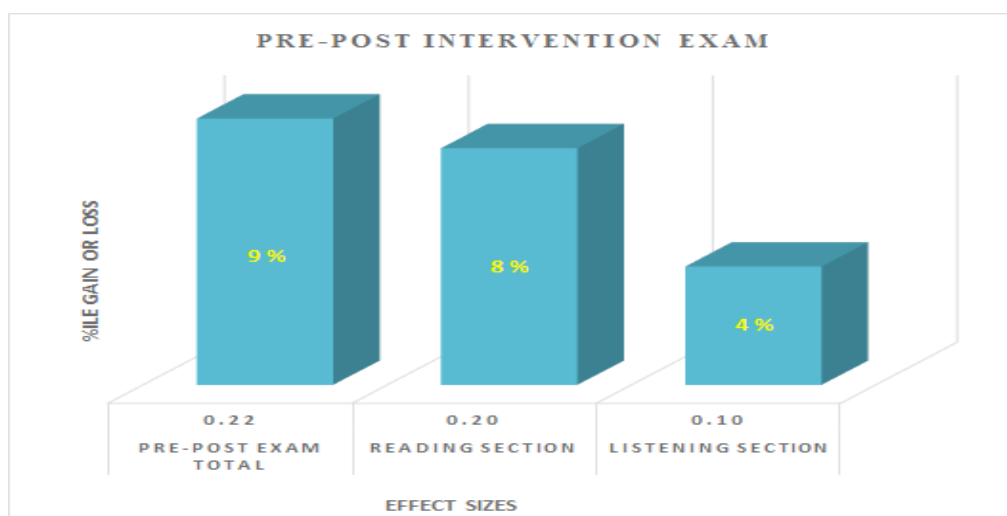


Figure 4: Pre-Post Intervention Exam Results.

In the end, final scores showed that 51.71% would be likely to obtain a B1 or intermediate English proficiency level in an official Cambridge PET examination after the intervention compared to the 34.46% that was obtained before the intervention. Additionally, learning the mechanics, types of questions and organization of the PET examination contributed to the learners' progress shown.

As limitations of this study, it is important to mention that the initial idea of this pilot project was to facilitate between 4 to 5 weeks of practice on the four different language skills; however, students took this course simultaneously with other subjects and the regular English class they have in each term or semester. This aspect reduced the student study time and consequently, the teacher had to adapt the content for a two weeks' plan. In addition, the speaking skill was not considered for this study since the time and students' availability was very short. The results of this pilot course gave an important and general idea of the English proficiency level of students; however, it did not guarantee they will certainly pass an official Cambridge PET examination.

The findings of this study may serve as a basis to plan and organize a more complete and longer online preparation course considering the four different language skills and more time for appropriate practice and learning. One significant recommendation would be to reinforce or invest more time on practicing the listening section since it was the skill which obtained the smallest improvement and it is usually the most challenging for students from Ecuador.

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## *Perceptions of the Perpetual Learner*

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### **Abstract**

Life is curious. We wake up, we make plans, and we see a slight incline, but not many major obstacles in sight. In fact, we know that our day is going to be perfectly brilliant (perhaps). That is not always the case, however, and as learners, teachers, teacher researchers, teacher educators, and/or administrators our days can quickly turn into an uphill battle filled with pitfalls, bridge crossings, floods, and rainstorms until we crawl back under our rocks and wait for our next no problem day to begin. Foreign language teaching, as well, can be a difficult task, particularly when it also involves hard-core experiential learning along the way. This presentation will take the audience through a reflective journey of learning and of being involved in language teaching and language education in Colombia, South America for the past 18 years. During this presentation, we will explore the importance of critical reflection, professional development, and the importance of being a perpetual learner. By the end of the journey, the audience will discover the importance of the development of emotional intelligence, comradery, professional communities, and most importantly addressing contextual needs. Through all of this, it is hoped that audience members are able to take away what it means to consider needs and advances through their own stages of perpetual learning and growth.

Keywords: Reflective Teaching, English as a Foreign Language, Professional Development

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## Introduction

This anecdotal story shares my own reflective journey of learning and of being involved in language teaching and language education in Colombia, South America for the past 18 years.

Life is curious. We wake up, we make plans, and we imagine just slight difficulties throughout our course for the day, but not many major obstacles in sight. In fact, we know that our day is going to be perfectly brilliant (perhaps). Foreign language teaching can be a difficult task, particularly when it also involves tough, experiential learning along the way. As we all know, that first imagined scenario is not always the case. However, as learners, teachers, teacher researchers, teacher educators, and/or administrators our days can quickly turn into a second image entailing an uphill battle filled with pitfalls, bridge crossings, floods, and rainstorms until we reach the summit and return to our homes, reflect, and begin our next nor problem day.

## Pitfalls

A pitfall can be defined as a hidden danger or difficulty. One second, we are walking along a path that is seemingly without obstacles and “BAM” something takes us off course the next second. These pitfalls are the stories of our lives, the anecdotes as to how we became who we are today. Do you remember the game Pitfall (Activision, 1982)? It was this 8MB screen, in which as Wikipedia defined “the player controls Pitfall Harry and is tasked with collecting all the treasures in a jungle within 20 minutes while avoiding obstacles and hazards.” Language teaching, like the game, to me is tricky. There is no one correct path. We are all different in how we play the game. Our beliefs, our values, our perceptions, and our experiences define who we are. Some of these can be changed, but our core content cannot (Borg, 2015; Kumaravadivelu, 2003, 2012). There will always be alligators and barrels to avoid. There will be pits to jump. We battle snakes, we avoid the scorpions, and we gather gold bars; but whatever path we choose, we never truly win the game. However, like the game, language teaching and learning requires practice and reflection. Through this, we can make better choices, jump fewer barrels, and master the path, some of us to excellence.

Let me start this segment with my original pitfall. In July of 1999, I arrived in Barranquilla at Ernesto Cortizo (BAQ) without a single Colombian peso in my pocket nor the Spanish ability to use a payphone if I had had the change. Eventually, a person, who happened to speak English, did me the favor to call. I learned a lot that year a about life. Simply put, I had no clue about life. None. In 2001, I was offered a position at Universidad del Norte, and I have not left. But the most inspiring and monumental part of my language learning and teaching career began at that university.

My first years at the university were about learning student culture and trying to help them learn English. I was frustrated and, through reflection, I was transferring my expectations of US students onto Colombian students. I was flabbergasted and exasperated to the extent of my own ruin. In 2005, the tides had turned, and I had the opportunity to attend TESOL in San Antonio. Henry Widdowson, was one of the plenary speakers.



What I remember the most was the importance he placed on connecting with the student. “Nothing else matters, if we do not connect.” The particularity of the context matters. We have to consider the social, economic, and political situations of the context and make that connection. Once we do, learning can happen. Critical approaches matter (Kumaravadivelu, 2003).

Even through my struggle, I moved forward, developed a style, and shared those experiences with my students, coworkers, and peers continually. I went on to obtain my doctorate in Education and now, I feel, that everyone who has entered my life, including my undergraduate and postgraduate students at UniNorte, have impacted my learning and my language teaching development in very positive ways. I am grateful for every one of them. Pitfalls might present difficulties, but nothing that we cannot get over, get through, or go beyond.

### **Bridge crossings**

Bridge crossings, in this case, refers to solving a problem or difficulty. The business mantra, location, location, location comes to mind. The idea that homes can increase or decrease in value due to where they are located. One of the biggest problems in education is status. The university I work in is of the top Private universities in the country, located in a prominent section of its city, and holds a high standard of learning for the students. However, other locations do not have the amenities and affordances that I have been given to teach students at equitable and fair terms. Nevertheless, location should not diminish the overall value of other areas. It is about the learning (both teachers and students).

Regarding student learning, some of the difficulties and problems can be solved on our own. For example, if a student has difficulty learning grammar or other teacher-oriented skills based and repetitive learning ideas, we know practice is the simplest solution and provide more practice. Nevertheless, it is our duty to find the resources, understand the theory, and apply these to our contexts to note what was positive and not so well received by the learners. I have participated in different learning communities and committees and though not so simple to share ideas sometimes, working together might make that difference and build that bridge: We need to find the need, measure it against the target, and provide the difference. There are many positive outcomes with learning communities, or professional development communities (Jones, Stall, & Yarbrough, 2013; Turner, Christensen, Kacker-Cam, Fulmer, & Trucano, 2018). Teachers need to participate and become leaders in their learning communities, their institutions, and in their classrooms regardless of where they are.

### **Floods**

I attach the word flood, “to fill or diffuse completely,” to students. We have all had that student for whom we cannot help completely, but we tell their story further along the line of our careers. We hold these memories near to our heart and hope that they may motivate, or deter, others further along. They also last a lifetime in our heads as we pave our way along our teaching road. I have a few examples that I would like to share. I call them, *the inundado* (literal and figurative), *the salado*, and *the problematico*.

*Inundado* can be translated from Spanish as flooded. The literal “inundado” is that student who lives in regions in which floods occurring during the rainy season are a part of life. Now, we may start with the question: why would foreign language learning be useful for this child as they live in that area? Well, the fact is, we all deserve the best in life, and if a second or third language provides that gateway, then it needs to happen or at least it needs to be available.

The main concern here though are the constraints that floods impose on the learning context. For weeks, if not longer, the classroom does not exist. It is filled with water and mud, the desks are ruined, and the walls are filthy with grime. The damage to the physical (social) context will take months to repair. In fact, I had a student a few years back in the Master’s program and his school flooded. He tried to do his research and implement his research ideas into the classroom, but the unfortunate flooding slowed down the process. He never gave up, though. He worked hard to help students reorient into learners, and he pursued until there was success, for him and for his school. At that moment, however, the situation seemed uncertain, but persistence kept the dream alive. This student made the language and the learning available.

The figurative “inundado” is the student who constantly suffers emotional, physiological, or at times, dramatic difficulties. The student who has to help with the younger siblings or the one whose parents are divorcing, or worse yet serious difficulties with famine, social, and political issues in the region are important examples. These students obviously need affect, need attention, and most of all need understanding. In my experience though, providing the tools to help students achieve requires theirs and your social and emotional awareness (Goleman, 2005).

*The salado* student is that student that cannot catch a break. Nothing seems to go right for them. *The salado* is the student who consistently has something beyond their physical control or circumstance affected their day. The computer was stolen out of their car, their computer died, or the dog or little sister destroyed their homework. These difficulties are typically uncomplicated distractions, but there is a plethora of other types of reasons. However, the key factor here, for these students, is there is always something that influences their ability to get things done. These students have learned early on that excuses, real or not, were acceptable and most of the times permitted with later deadlines. Without damaging their egos and harping on their lack of commitment, we try to demonstrate understanding and permit the excuse while kindly demonstrating the need to manage environment and balance self and others (Goleman, 2005).

My final example is what I call the *Problemático*. These students demonstrate learning difficulties or complications. The student, for example, might have a disciplinary issue or truly has difficulties learning. We as language teachers, though, are usually not necessarily equipped to forego the essential accommodations. For example, we may not have the institutional power to provide extra time for a reading exam, our school may not have psychologists or worse yet, we have never learned what to do legally or ethically.

Regardless of the types of students we receive, we as teachers and humans, take it upon ourselves to help the students surpass the negative situation and move forward

seeking opportunity and equity in life. I have on many occasions. Though it is tough on most days, I do my best within my realms of power and identity to help these students get through and continue to find solutions (Borg, 2015).

## **Rainstorms**

Rainstorms are the thunder and lightning of our jobs. The macro and micro rulings of our lives: the curriculum and its encompassing complexities. Curriculum decisions come from the top down and from the bottom up. Throughout the past 18 years, the National Ministry of Education (MEN) has provided language programs and their teachers the *Basic Standards*, a *Suggested Curriculum for k-11*, a book series called "*English, please?*" The MEN has also provided training in some regions of the country, and has given scholarships for study at the larger universities over the years with the great hope of increasing the learning and teaching of English throughout the country.

During this time, I also have had the opportunity to learn and work with some of the key players in national, regional and local influence in the country. I attended national conferences and met many more of the language teachers and teacher trainers within the country. People from Bogota, Cali, and Medellin and further along the Northern Coast. My own work with the *Suggested Curriculum* led me to meeting (online and in person) even more language teachers and teacher educators and administrators throughout the country. The list is long and most seem to ask the same question. How can we do it?

Many believe that such top-down decisions do not fit or allow equitable and balanced learning. Nevertheless, top-down decisions are global, political, and obligatory and very often difficult to meet. Thus, the encouragement for anyone is to take the tools supplied and make bottom-up decisions. No one can determine or know what the contextual particularities of your learning situation are. Therefore, the best that can be done is to understand top-down policy and work toward harmony from the bottom-up. This way we can meet students' needs and move from the rainstorm toward a realm of positivity and equity through learning and language learning (Betebenner, 2009; Brown, 2001).

## **Summit**

Many of the English teachers I have met or had the opportunity to teach or work with tend to think that they cannot teach or that their students are less motivated to learn if they do not have some of the following:

- a) Use of computers, tablets, books, or audios
- b) Access to a language laboratory, the internet, or video beam projectors
- c) Knowledge of other new technology that might out there

Well, I ask:

- Can we motivate learners in a flooded environment?
- Can we use local materials?
- Can learners be invited into projects?
- Can teachers of other subjects be invited into the development of new courses?
- Can we work together on the production of materials used in the English classroom?

The answers are a resounding “yes.” We need each other; not stuff.

## **Conclusion**

Lifelong learning is the "ongoing, voluntary, and self-motivated" pursuit of knowledge for either personal or professional reasons. Therefore, “it not only enhances social inclusion, active citizenship, and personal development, but also self-sustainability, as well as competitiveness and employability” (Singh, 2015). Only you know who the *inundados, salados, or problemáticos* are in your context. Only you have the idea of what is expected in your school, from your colleagues and most importantly, what your students need. Therefore, it is important to create a community of learning. We do not need the big stars in the ESOL arena to illuminate who we are; they and their research are the tools for how we build our path. We need other teachers and learners like us to get together and share pains and gains. We do not need experts from the Ministry to plan our lessons. We need to read the documents together, try out the ideas (inside and out), look for materials (or create), try out ideas, and discuss and grow together. Work together and connect.

Therefore, before you go crawl under your rock and hide from the day’s complications and challenges remember that the road becomes less convoluted and easier to manage with professional development, learning, and the willingness to reflect. Choose and participate in a community that works for you while wandering through your own pitfalls, crossing your own bridges, surviving your own floods, and weathering your own storms. Keep positive and keep learning.

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## ***Financial Literacy at The Lower Secondary Schools in The Czech Republic***

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### **Abstract**

Importance of financial literacy among the population is permanently increasing. The number of financial products on the market is growing, and the age at which people start to use these products is decreasing. This is also related to the negative impacts of insufficient financial literacy in this area – rising household indebtedness, the high number of executions, or the inability to manage a balanced household budget. That is why government institutions, banks and other financial market actors have been actively engaged in increasing the level of financial literacy recently. Although financial education bears on all age groups, the Ministry of Finance focuses mainly on primary and secondary schools and the integration of financial literacy in the school curricula. For this purpose, financial literacy standards have been drawn up, where the Ministry of Finance sets the output level of financial education in different areas for each educational level. So far, no testing of compliance of these requirements with the real state of financial literacy of pupils has been conducted. The aim of this research is, therefore, to find out, on a selected sample of lower secondary schools, what is the level of financial literacy of pupils in a selected region of the Czech Republic and what factors influence this level. For this purpose, a questionnaire survey will be conducted among pupils aged 11-15. The questionnaire is based on financial literacy standards set by the Ministry of Finance. Mathematical-statistical methods will be used for the analysis of obtained data.

Keywords: financial literacy, Czech Republic, secondary school

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## Introduction

Financial literacy is one of the basic competencies of a man in modern society of the 21st century, together with a computer or social competence. The average individual is expected to be able to understand the basic principles of the functioning of financial markets, to make decisions independently, and to understand the consequences of their actions. OECD (2012) understands Financial Literacy as a person's ability to understand financial products offered on the market, understand how they work, be able to identify and evaluate the risks associated with investment and use these products to make informed decisions and protect their finances and existence. The National Council for Education in the Czech Republic (2010) recognizes three components of financial literacy: monetary literacy, price literacy and budget literacy. Monetary literacy covers competencies related to the effective management of cash and non-cash money, i.e. ability to manage bank accounts, make payments in cash and cashless. Price literacy covers the knowledge of pricing, the impact of inflation, or influence of taxes on the resulting prices of goods. Budget literacy is the most complex component of financial literacy. It includes the necessary competences for individual/household budgeting, the art of setting short-, medium- and long-term goals and ways to achieve them. It deals with the decision-making process on investments or expenditures. One should be able to cope with unexpected situations (illness, loss of work), prepare for future larger expenses (house reconstruction, car purchase). The individual must be able to understand the obligations that arise from the individual financial instruments (loans, leasing, interest rates). It is therefore assumed that a person can compare individual products, evaluate them in terms of risk and financial cost, with an emphasis on their current and expected financial situation.

Many governmental, non-profit and private organizations, some even internationally, try to measure financial literacy (OECD 2011, Česká spořitelna, 2019). They use both standardized questionnaires and their methods of interviews and case studies. Objectives and methods of testing vary, but most of them are testing multiple competencies at the same time (OECD, 2013). One of the most widely used and well-known international testing paths is the Program for International Student Assessment (Pisa) conducted by an Organization for Economic Cooperation (OECD), involving 18 countries. This testing of the quality and effectiveness of school systems tests different areas of education and compares the results of pupils around the age of 15 in the countries involved. In the last two waves of testing (2012, 2015 - results published in 2014, 2017), money and financial literacy were also included in the questionnaire survey. The advantage of this type of study is the international comparability of results and a long time series that allows monitoring trends.

However, for our specific research, which was aimed rather at verifying the level of financial literacy outcomes in the ninth grade of elementary schools in relation to Czech financial literacy standards, it was not possible to simply adopt this standardized OECD questionnaire. Although the Czech Ministry of Finance was also influenced by OECD standards when developing its norms, the final version of Czech standards is not only Czech translations of already used foreign rules. When developing Czech financial literacy standards, experiences from Slovak colleagues, specifics of Czech education, educational goals of the Ministry of Education and Finance, higher maturity of current primary school pupils, new trends in financial markets, or previous experience in teaching financial literacy at Czech schools were taken into account. As a result, updated financial literacy standards for primary and secondary schools were introduced by the Ministry of Finance in 2017.



The Czech Financial Literacy Standards (Ministry of Finance, 2019) are divided into four categories: shopping and paying, household management, household budget surplus, household budget deficit. Each of these categories has several other subcategories that describe the knowledge and skills that pupils of a certain age should have. Since these standards were the main starting point for the development of the questionnaire, we will now introduce the particular topics in more detail, focusing on the competencies of the pupils of the primary schools concerned by this survey.

The area of shopping and payment deals with the ability to work with cash and cashless money. The pupil should be able to compare the offered goods in terms of price, to compare also different product packages. He can buy goods, check the refund and in case of later problems is able to make a complaint. He knows who he can turn to in case of unfair commercial practices, at least he generally understands the functioning of supply/demand in markets and pricing. He is not alien to the world of cashless payments; he understands the advantages and disadvantages of this method of payment, can control the number of his funds in the current account, knows the difference between credit and debit card.

The Household Economy Section deals with budgeting and the use of various financial instruments. The pupil should be able to evaluate his financial possibilities and wishes, expectations (purchase of a bike versus the amount of pocket money), he should be able to find out about his income and expenditures. Students should be able to draw up a balanced budget and understand the surplus/deficit budget. He can distinguish the necessary household expenses, regular and one-time incomes and expenses. He can calculate simple interests and at the same time, understands compound interest. He defines interest, understands its impact on the price of products and is aware of the existence of other fees associated with the use of the service. They can compare selected financial market products concerning their profitability, risks, time horizon and liquidity. He can plan short, medium, and long-term goals can decide how to achieve them and eliminate threats.

The household budget surplus is a less broad category that deals with the principles of savings, the reasons why a person should make savings, how to save money. The pupil can distinguish between consumption, savings and investments is aware of the existence of insurance of some products and knows the underlying mechanisms of its functioning.

The household budget deficit is the last defined category of standards. It deals with the understanding of the origin of debt, obligations related to their repayment. The student should understand the positives and risks of loans, understand the loans for investment/consumption, should be able to differentiate whether the loan is appropriate for the case and what are the risks of default. Students should be able to propose solutions to deficit budgets, be able to compare various types of loans in terms of their cost, credit conditions, repayment horizon. He understands what a debt is, how to avoid it ideally and, if it comes, how to deal with the situation.

Individual knowledge and skills for certain levels of school facilities are determined only by a general description, it depends on the specific educational plans of each school, how detailed the standards will be implemented in the teaching of pupils, they can integrate themes into existing curricula, a new subject will be created or school will use one-off training. This question had to be considered when compiling our questionnaire.

## Methodology

This research is part of a larger unit that focuses on discovering the level of financial literacy at the lower secondary schools in the Czech Republic (9th grade) in regional capitals. The aim of the whole project is to test the output level of financial literacy at secondary schools and to find out the predictors of its level (age, gender, employment of parents, number of siblings, etc.). The second-largest city in the Czech Republic - Brno - has been selected for the pilot study of this article. Where all primary schools established by the local government were asked to participate, private schools were excluded. The orientation of schools to language, mathematics, informatics or sport was not a selection criterion, as the percentage of these schools in the whole sample is negligible. Of the more than 40 addressed schools, eight elementary schools showed their willingness to participate, which is a total of 40 classes, i.e. 824 pupils between 11-15 years of age. Some schools were interested in testing all classes; some preferred only ninth classes. Concerning the fact that the original intention was to test all the second-grade classes in the project, irrespective of the age of the pupils, the aim was to maximize the number of schools involved. However, for different reasons, headmasters did not want to test mainly younger pupils who did not have sufficient mathematical knowledge to calculate certain types of tasks. The questionnaire was structured identically for all classes, as the Ministry of Finance does not specify when the pupil should have the knowledge of financial literacy.

The questionnaire was compiled on the basis of financial literacy standards issued by the Ministry of the Finance and methodological guidelines for teachers, which were issued as educational material to schools, which should help with implement the knowledge into teaching through various types of tasks. Subsequently, a pilot questionnaire testing was carried out at pupils from the given age range (11-15) to verify the clarity of the questions, the number of questions in the questionnaire, the understanding of the terminology used, etc. Subsequently, the paper questionnaire was distributed to the participating schools. It was necessary to explain to the headmasters and individual teachers how to hand over the questionnaire to pupils, what aids are not allowed to be used, and what time limit is reserved for questioning. The completed questionnaires were then physically collected by the research team again.

The questionnaire consists of three parts - test, computing and characteristics of the respondent. Test part was created from various questions with multiple choice answers (1 point for each correct answer), students always knew if one or more answers are correct. Specific questions and tasks related to the presented standards of financial literacy, mainly based on methodological handbooks for teachers, so that tasks typically correspond to problems that pupils may encounter in their regular teaching classes.

The next, a computational section with open questions followed, the number of points for each item was dependent on its difficulty. Some questions have been subdivided into several sub-questions in order to verify that students understand at least the basic principles of compound interests but are unable to calculate it or are unable to define what it is.

Finally, the characteristics of individual pupils were examined: sex, interests, favourite subjects, number of siblings, the employment of parents, etc.

As the obtained data file was quite extensive, the results were divided into two parts. This article deals mainly with the methodology of compiling the questionnaire and the way of conducting the research. It seeks to answer the following research question.

**RQ1:** What is the level of financial literacy at lower secondary schools in the Czech Republic?

In a related article published at the international scientific conference, European Financial Systems (2019), attention was paid to the influence of selected characteristics on the level of financial literacy. Related research questions addressing the specific features of pupils were as follows:

1. How does the profession of pupil's parents influence the financial literacy level of the pupil?
2. Does gender play an important role when it comes to the financial literacy level of young pupils?
3. Does the presence of siblings have an influence on the pupils' financial literacy level?
4. Is there a relationship between financial literacy and pupils' preferences when it comes to favourite subjects?

However, these four research questions are not addressed in this article.

## Results and discussion

In this case, basic statistical methods of descriptive statistics - maximum/minimum value, average, mean value were used for processing the results of the questionnaire survey. First for overall query results and then separately for computing part.

Table 1 Descriptive statistics – overall points

<b>Descriptive statistics – overall points</b>	
max. value	20
average value	9
min. value	6
middle value	8

*Source: own computing*

A total of 20 points could be earned. According to the results in table 1, we can see that although we managed to achieve even 100% success, the average score is only 9 points, which is not even half success. The mean value is even lower.

If we focus only on the computational part, the score is even more alarming. The maximum number of points earned was eight. On average, the students gained two points, which was also a mean value. But there was also zero scores.

Table 2 Descriptive statistics – computing part

<b>Descriptive statistics - computing</b>	
max. value	7
average value	2
min. value	0
middle value	2

*Source: own computing*

According to the scored points, the level of financial literacy does not seem to be very high, as the average score for the total point gains or the specific computing part did not reach even 50% of the points. However, it is necessary to take into account the fact that the computing part was placed after the test part, so the pupils could be in the time press when filling in. The difficulty with comparing between schools is also the fact that each primary school draws up its educational plans, so the ignorance of pupils may be due to the simple fact that they have not yet managed to discuss the substance (for example, counting with percentages). The lower score could also be because the students did not want to think about the answer because the task was too long, so they did not even try to answer (it is mainly computing part). We also faced this problem when filling in the characteristics of pupils, some of whom filled in nonsense.

Based on the results, computational questions, which proved too complicated in terms of terminology and time demands, were excluded for future research. About the length of the lesson, which is 45 minutes, it is necessary to adjust the time necessary for completing the questionnaire and getting to know the instructions for this interval. Furthermore, research will only focus on the output level of financial literacy in 9th class, as the different framework educational programs at individual schools do not allow comparing the results of each class between different schools. The result is then distorted due to a diverse knowledge base. Although paper testing was more convenient for schools, in terms of data processing, transcription and evaluation as well as greater dispersion of target subjects, an online questionnaire will be used for the next stages of testing. Although this is likely to result in lower interest from primary schools, it is not in the time or financial capacity of the research team to physically double visit all schools. In the next phase of the research all primary schools, established by local self-government, from regional capitals of the Czech Republic will be addressed, except for the already surveyed Brno. Private schools will again be excluded. Neither focus nor other specifics of schools will play a role in the selection.

## **Conclusion**

This article dealt with the method of testing financial literacy at the lower secondary schools in the Czech Republic and finding out the level of financial literacy among the pupils involved. It turned out that the average score of testing is 9 out of 20, which is not even a 50% point gain. With a select view of the computing part, the average point gain is even lower, reaching 2 points out of eight, which is only 25%. However, different school curricula, time constraints per hour (45 minutes), and pupils' unwillingness to respond with anonymous testing might have influenced the results. Based on this pilot testing, some questions were

modified for further research, which will take place in regional capitals of the Czech Republic. Also, the classes represented were reduced to 9th classes, which will allow us to test only the pupils' output knowledge, which should be consistent across schools with different educational plans.

This research had its limitations that could influence the presented results. The number of schools involved was not too high. Schools are currently receiving many offers for various surveys from governmental, non-profit and private entities, so their willingness to participate in any examination is not too large. A problem for comparison was also the decision of schools to involve only some classes of pupils in testing, which further reduced the research sample. As this was a questionnaire made up of members of the project's scientific team, it is possible that some of the questions were too focused on a specific area of interest or some other areas were omitted. School comparisons from one city may be distorted because of the similarity of educational plans in a geographically close region. Therefore, in the next phase of the research, we will try to eliminate the restrictions at least partially.

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