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Self-evaluation of The Success of the Main Clinical Skills Given in Medical Faculty

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Abstract
Background: The aim of medical education before graduation is to train qualified physicians who have the knowledge, skills and attitudes that can provide qualified services, who can improve themselves continuously, acquire problem-solving skills and have clinical competence. We would like to determine how the interns feel about their practice and knowledge and just before the field. Methods: A questionnaire was developed by the medical education specialist according to the curriculum. Every skill was majored from 1(insufficient)-10(sufficient) points. The questionnaire was tested with 10 students. The forms made of 25 questions were sent by Google forms and 172 (51%) interns replied. Ethical approval was taken from the university committee. Results: Of the participants 62.8% was female and 61.1% was born in 1995. 18.1% of the students repeated the class. 29.2% of interns gave a score of 5 and below to the question of gaining the ability to make the diagnosis of the patient. 40.3% didn't gain the ability to make decisions on both the therapy and the tests; %93 didn't gain the implementation of intrauterine device skill, 20.9% didn't gain the ability to suture, %15.3 didn't gain the ability of CPR. 40.3% thought that they're not clinically sufficient.Conclusion: The medical education and the curriculum might be revised and the theoric burden on students can be reduced. Moreover pratical skills can be thought on more simulators and simulated patients.

Keywords: Curriculum, Skills, Clinic, Competence, Theoretic Burden

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Introduction

The aim of undergraduate medical education is to train qualified physicians who have the knowledge, skills and attitude to provide qualified service. These students should improve themselves continuously after their graduation. The medical students shold be able to gain problem solving skills and have high clinical competence (Amin Z et al., 2012; Tıp Eğitiminin Temelleri).

Clinical competence is not only having clinical skills, it is a much more complex concept that arises from the interaction of knowledge and performance and includes many characteristics (Challis M; Portfolio-based learning and assesment in medical education; 1999) such as the use of knowledge, correct behavior and professionalism (Amin Z et al., 2012; Tıp Eğitiminin Temelleri).

Medical education prepares physicians with the knowledge, skills, and features of professionalism needed to deliver quality patient care. Medical education research seeks to make the enterprise more effective, efficient, and economical. Short and long-run goals of research in medical education are to show that educational programs contribute to physician competence measured in the classroom, simulation laboratory, and patient care settings with advances in science and technology, medical education has evolved in the last 40 years to provide a suitable environment and opportunities to train physicians with sufficient competence levels. Therefore, in clinical education, assessment and evaluation methods that evaluate knowledge about many system diseases and multidimensional occupational skills are needed.

It is recommended to integrate measurement and evaluation methods into clinical practices in clinical training, and to structure and implement them through performances, both in the process to support development and at the end of the training process for decision making (Kogan JR et al., 2009; Tools for direct observation and assessment of clinical skills of medical trainees: A systematic review).

It is stated that multiple-choice questions, short-answer, true-false, matching, gap-filled exam methods used in education are insufficient in evaluating high-level cognitive processes such as problem solving, critical thinking, analytical thinking, and decision-making (Tengiz Fİ et al., 2014; Klinikte Eğitimde Yeni Bir Ölçme Yöntemi: Mini Klinik Değerlendirme). Different achievements should be evaluated with multiple assessment methods (Norcini J et al., 2007; Workplace-based assessment as an educational tool). Medical education includes intensive knowledge as well as applied fields. Performance-based assessment methods are recommended to be used especially in the evaluation of these applied areas (Vleuten V., 199; How can we test clinical reasoning?). By Miller in 1990; Four clinical competence levels are defined: knows how, shows how and does. The Miller pyramid shown in Figure 1 shows the relationship of knowledge and experience and evaluation methods.

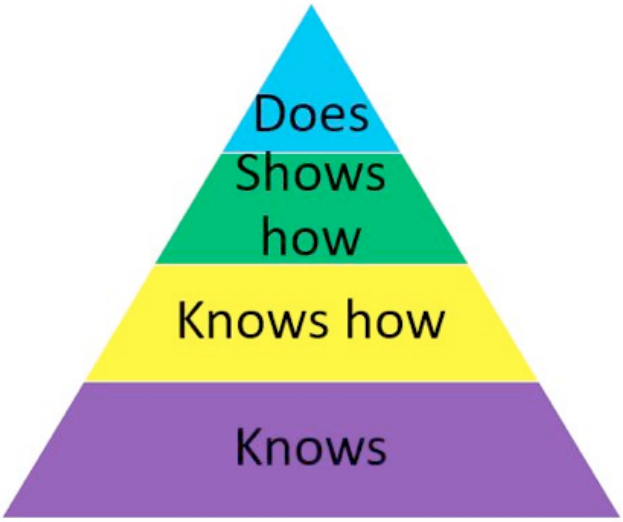

Figure 1. Miller`s Pyramid

The aim of this study is to determine how Intern students felt about some of their practice and skills after six years in the medical school, using the questionnaire method, which is one of the evaluation methods that can be used in the clinical period.

Methods

The research was conducted on 6 semester students of medical faculty. The calculated sample size of the students with 400 students is 150. All students were reached and informed about the research via Whatsapp and E-mail. A questionnaire was sent via Google forms, and the research was conducted by collecting the data filled in as a result of clicking this link.

In the research, the frequency and distribution tables of the students were calculated in SPSS 23.0 by using the percentage method. Sociodemographic variables such as age and gender, grade repetition were requested from the students. These comparisons were made with the chi-square test and / or the t-test.

Apart from these variables, some of the skills required to be done in the National Core Education Program were asked using the Likert scale (UAK; 2014; Standards in Medical Education in Turkey).

The questions were related to these topics:
The ability to make the Patient Problem / Diagnosis.
Medical Interview Skills
Physical Care Skill
Patient Approach / Professionalism
Clinical Decision Making
Consulting and Communication Skills
Patient Management / Event
Story taking, Information and data evaluation
Hypertension diagnosis, treatment initiation, information
DM diagnosis, treatment initiation, information
Interpreting Pulmonary Function Test
Interpreting chest radiography

ECG interpretation
Being able to do first aid
Being able to do IV injection
Ability to insert a urinary catheter
Ability to wear an RIA
Ability to suture
Being able to do CPR
Heart and Lung auscultation
General Clinical competence

Ethics

Participation in the research is on a voluntary basis. The fact that the students are not asked for names and any identifying information increases the reliability of the answers in the form.

Approval was obtained from Gazi University Ethical Research Commission.

Results

172 students participated in the study in which practical skills of medical faculty senior students were examined. Of the participants 62.8% was female and 61.1% was born in 1995 (Table 1). Senior female students' ages are lower than male medical students (p=0.04).

Table 1. The sociodemographical features of the students

	Male		Female		p
	N=64	%	N=108	%	
Age (mean±SD)	24.63±0.9		24.29±0.6		**0.04**
23	-	-	3	2.8	
24	39	60.9	77	71.3	
25	12	18.8	24	22.2	
26	11	17.2	2	1.9	
27	2	3.1	2	1.9	
Grade repetition	14	21.9	14	13.0	0.126

Basic skills were asked using likert scale. According to the responses; male students are more comfortable with taking anamnesis, interpreting pulmonary function test, inserting a urinary catheter, wearing a RIA, suturing and doing CPR (p:0.048; p:0.006; p:0.006; p:0.05; p:0.029 respectively). According to the senior students; male students have higher general clinical competence than female students (p:0.002) (Table 2).

Table 2. The Response Percentages for Practical Skills*

Basic Skills	Male		Female		p
	N	%	N	%	
The ability to make the Patient Problem / Diagnosis.	56	87.5	83	76.9	0.086
Medical Interview Skills	62	96.9	97	89.8	0.090
Physical Care Skill	57	89.1	91	84.3	0.380
Patient Approach / Professionalism	57	89.1	88	81.5	0.186
Clinical Decision Making	47	73.4	72	66.7	0.353
Consulting and Communication	52	81.2	97	89.8	0.111
Patient Management / Event	52	81.2	82	75.9	0.416
Anamnesis, Information and data evaluation	60	93.8	90	83.3	**0.048**
Hypertension diagnosis, treatment initiation, information	47	73.4	84	77.8	0.518
DM diagnosis, treatment initiation, information	49	76.6	79	73.1	0.620
Interpreting Pulmonary Function Test	41	64.1	52	48.1	**0.043**
Interpreting chest radiography	55	85.9	83	76.9	0.148
ECG interpretation	60	93.8	91	84.3	0.066
Being able to do first aid	61	95.3	94	87.0	0.079
Being able to do IV injection	61	95.3	101	93.5	0.627
Ability to insert a urinary catheter	64	100.0	96	88.9	**0.006**
Ability to wear an RIA	11	17.2	5	4.6	**0.006**
Ability to suture	61	95.3	86	79.6	**0.005**
Being able to do CPR	61	95.3	91	84.3	**0.029**
Heart and Lung auscultation	59	92.2	95	88.0	0.382
General Clinical competence	57	89.1	74	68.5	**0.002**

*Gets a score 5 and over from likert scale

The scale scores were evaluated under three topics. According to Table 3; male students have higher sufficiency in clinical topics ($p<0.001$), have higher clinical knowledge ($p<0.001$) and have better medical skills ($p<0.001$).

Table 3. Evaluation of Responses Under Three Topics

Responses	Male			Female			p
	mean±SD	min-max	N	mean±SD	min-max	N	
Clinical sufficiency	6.83±1.9	1-9	64	5.44±1.8	1-9	108	<0.001
General Clinical Knowledge	50.03±15.1	16-70	64	42.86±12.0	7-60	108	<0.001

Medical Skills	98.9±18.7	50-124	64	82.54±18.8	23-112	108	<0.001

Conclusion

This study presents the survey results for intern students to evaluate the effectiveness of the basic clinical skills education. To do that, the questionnaire (25 questions) is developed by the medical education specialist according to the curriculum. Through the survey results, it is observed that 29.2% of interns gave a score of 5 (among total 10 grade) and below to the question of gaining the ability to make the diagnosis of the patient. And, the analytical results also show that 40.3% of interns didn't gain the ability to make decisions on both the therapy and the tests; %93 didn't gain the implementation of intrauterine device skill, 20.9% didn't gain the ability to suture, %15.3 didn't gain the ability of CPR. 40.3% thought that they're not clinically sufficient.

In conclusions, the medical education and the curriculum performed in the study might be revised and the theoric burden on students can be reduced. Moreover use of simulation in medical training today has a scope of teaching and learning with offering potential advantages in the realm of clinical assessment. The simulation technologies can have bigger roles in training of medical students (Olle Ten C. et al., 2007; Peer teaching in medical education: twelve reasons to move from theory to practice).

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Student Evaluations in Teaching - Emotion Classification using Neural Networks

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Abstract
Student evaluation of teaching effectiveness plays an important role in Higher Education. Evaluations serve as Formative (identify areas of improvement in the process) and Summative (assess the end goal) measurements of teaching. Educational institutions collect these evaluations in both qualitative and quantitative forms. Qualitative evaluations serve as a bridge for students to express their feelings about the teaching methodology used, instructor efficiency, classroom environment, learning resources, and others. Identifying student emotions help instructors to have good intellectual insight about the actual impact of teaching. Teaching models include traditional models, modern flipped classroom models, and active learning approaches. The light-weight team is an active learning approach, in which team members have a little direct impact on each other's final grades, with significant long-term socialization. We propose and extend the previous method for assessing the effectiveness of the Light-weight team teaching model, through automatic detection of emotions in student feedback in computer science courses by using the Neural Network model. Neural Networks have been widely used and shown high performance in a variety of tasks including but not limited to Text Classification and Image Classification. It is highly deemed to work great with a huge volume of data. In this study, we discuss how sequential model can be used with smaller data sets and it performs well, compared to the baseline models such as Support Vector Machines and Naive Bayes.

Keywords: Classification, Educational Data Mining, Neural Networks, Student Evaluations, Teaching Methods

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1. Introduction

Quality of education is one of the primary factors which requires constant attention and improvement. Student evaluations of teaching serve as both formative and summative measures in the process of quality education. Literature dates to 1920's (Wachtel, 1998) with the works of Remmers to assess the student evaluation agreements with alumni and peers (Remmers, 1928), (Remmers, 1930). Educational institutions collect student evaluations in both quantitative and qualitative forms. The quantitative feedbacks include a Likert-type scale in which responses are scored along with a range, to capture the level of agreement and disagreement. Qualitative feedbacks serve as a bridge for students to express their feelings about the teaching method used, instructor efficiency, classroom environment, learning resources, and others.

One of the emerging approaches in the field of teaching is the Active Learning approach. Light-Weight teams (Latulipe et. al., 2015) is an Active Learning approach, in which team members have no direct impact on each other's final grades, yet there is a significant component of peer teaching, peer learning, and long-term socialization. This innovative pedagogical approach has been studied in Computer Science undergraduate courses and has been reported to have high levels of student engagement (Latulipe et. al., 2015), (Macneil et. al., 2016).

Emotion Mining is the process of detecting and analyzing human feelings about events, issues, and or services. Qualitative feedbacks aids in the process of identifying student emotions. Authors Tzacheva et al. (Tzacheva & Ranganathan, 2018), (Tzacheva et. al., 2019), study the effectiveness of teaching model and their impact on student learning styles and experience in the classroom and identify factors that help in performance and positive attitude of students towards Computer science course. They propose a novel method for assessing pedagogical innovation through the detection of emotions in text, produced by student participants, in computer science courses. The results show that the implementation of Active Learning methods increase positive emotions among students and improve their learning experience.

Educational Data Mining is a new field that involves identifying patterns of student behaviors and learning by use of Machine Learning and Data Mining technologies. Neural Networks in Data Mining is a mathematical model which has its roots in biological neural network. Neural networks have achieved impressive results in several classification tasks (Aono & Himeno, 2018), (Kim et. al., 2018), (Lai et. al., 2015), (Severyn & Moschitti, 2015). It is widely perceived that Neural Networks performs well with a huge volume of data. Since student evaluations of teaching have limited data availability considering the number of students registering for a course, very limited works have used Neural networks in the education data mining field. Researchers use the classical machine learning models like Naive Bayes, Support Vector Machine for sentiment classification of student evaluations data. In this work, we use a sequential learning model on the student feedbacks for emotion classification and compare with the traditional models.

The remainder of the paper is organized as follows, section II focusses on related work; followed by method, experiments, and results in sections III and IV.

2. Related Works

2.1 Classification – Traditional Machine Learning Models

Authors (Leong et. al., 2012) use short message service (SMS) for student evaluation. They perform Sentiment Analysis ('positive' and 'negative') on SMS texts. Conceptual words and text link analysis visualization are used to explain the positive and negative aspects of the lecture. Authors (Altrabsheh et. al., 2014), classify real-time student feedback into three sentiment class 'positive', 'neutral', and 'negative' by experts. Naive Bayes, Complement Naive Bayes, Maximum Entropy, and Support Vector Machine models were used for evaluation. Support Vector Machine and Complement Naive Bayes yields better results compared to other models. Similarly, authors (Dhanalakshmi et al., 2016) classify student's feedback into 'positive' or 'negative' and suggest that Naive Bayes performs better with good recall.

Authors (Jagtap & Dhotre, 2014) use a hybrid approach combining Hidden Markov Model (HMM) and Support Vector Machine (SVM) to classify student feedback with sentiment polarity ('positive' and 'negative'). According to the authors, the advance feature selection method and hybrid approach work well for complex data. But they did not show the results of the classification model for validation.

Authors (Rajput et. al., 2016) use tag clouds, and sentiment scores from student feedback data to identify insights about teacher performance. Multi-Perspective Question Answering (MPQA) (Stoyanov et. al., 2005) sentiment dictionary is used to find positive and negative polarity. Word frequency and word attitude are combined to obtain the overall sentiment score for each feedback. They have compared the sentiment score with the Likert scale-based teacher evaluation. Results show that the Sentiment score with word cloud provides better insights than Likert scale results.

2.2 Classification – Neural Networks

Neural Networks are widely used in several classification tasks and proven to achieve the best results. But it is still in the infancy stage with Educational Data. Most of the works in the literature focus on predicting student performance using Artificial Neural Networks. For instance, (Guo et. al., 2015) use multiple level representations with unsupervised learning and fine-tune neural network layers through backpropagation. They use High school data with different kinds of information including background and demographic data, past study data, school assessment data, study data, and personal data. Compared to the traditional methods like Support Vector Machines and Naive Bayes, their model achieves better performance.

Authors (Musso et. al., 2013), also use student background information along with cognitive and non-cognitive measures to predict student academic performance using Artificial Neural Networks achieve greater accuracy compared to the discriminant analysis method.

While the above methods use non-text data for classification, the following researchers use text data. An online discussion forum is a popular tool for student communication and collaboration in web-based courses. Authors (Wei et. al., 2017) use Stanford MOOC posts dataset (Agrawal et. al., 2015) to identify `confusion', or

`urgency' and sentiment of the posts. They propose a transfer learning framework based on convolutional neural networks and long short-term memory models. Student Evaluation of Teaching Effectiveness (SETE) serves as an important aspect in validating the teaching models, resources, and effectiveness of teaching and learning outcomes. Authors (Galbraith et. al., 2012) use Neural Networks to measure student learning outcomes from SETE's.

There is not much work in applying Neural networks for sentiment classification from student evaluation of teaching. In this work, we use a sequential model with 1D convolution and word embedding for automatic classification of emotions from student evaluations.

3. Methodology

We use a Web-Based course evaluation system to collect data for the study. This system is administered by a third-party Campus Labs in assistance with the Center for Teaching and Learning. The data is collected for the following span of 2013 to 2017 including Fall, Spring, and Summer sections of courses handled by the instructor. After the data collection from Campus Labs, jsoup (Hedley, 2009) a Java library is used to process the Html files and extract the comments. The data contains 1070 instances. Sample student comments are shown in Table. 1.

Table 1: *Sample Student Comments*

Comments
Easily available to communicate with if needed.
The course has a lot of valuable information.
There was no enthusiasm in the class. The instructor should make the class more lively and interactive.

3.1 Pre-Processing

We use python Natural Language Toolkit (NLTK) (Perkins, 2010) to process the Qualitative student feedbacks and make it suitable for emotion labeling and classification. The steps include removing certain special characters like punctuation, splitting the sentence into pieces of words called tokens, case-folding, stop-words removal. The pre-processed dataset contains close to 800 records in the dataset.

3.2 Emotion Labeling

Labeling the data is the most significant task for any supervised machine learning algorithm. In this work, we use the National Research Council - NRC Lexicon (Mohammad & Turney, 2013), (Mohammad & Turney, 2010) for this purpose. NRC Emotion lexicon is a list of English words and their associations with eight basic emotions (anger, fear, anticipation, disgust, surprise, trust, joy, and sadness) and two sentiments (positive and negative). The Annotations in the lexicon are at the WORD-SENSE level. Each line has the format: <Term> <AffectCategory> <AssociationFlag>.

Student comments are processed and if a match to a word is found then the score is incremented accordingly based on the Flag value in the lexicon, here if a word is

present twice then automatically based on the frequency score for that particular emotion will be incremented. After the entire comment is processed the Emotion which has the highest score is assigned as the final Emotion with respect to that student comment.

3.3 Classification

Classification is the process of predicting the class labels of given data points, and it belongs to the category of Supervised Learning. The learning algorithms for classification are broadly divided into two types as lazy learning (memory-based learning system) and eager learning (optimized learning system) algorithms. Lazy learning algorithms store all the training data and defer the process until it receives a query or test set to process. Whereas the eager learning algorithm learns the classifier structure with the training data and uses the learning to predict the test instances. The former takes less time learning and more time classifying while the latter is the opposite.

Some examples of lazy learning algorithms include K-Nearest Neighbor, Case-Based reasoning; while Naive Bayes, Neural networks, Decision Tree are examples of Eager learning. In this paper, we use Keras (Gulli & Paul, 2017) a high-level neural network API in python for automatic classification of emotion from student evaluation data. The classification model is based on Keras sequential model, which is a linear stack of layers. We use the 1D convolutional kernel with a dense (fully connected) layer compiled with Adaptive Moment Estimation (Adam) optimizer and categorical cross-entropy as a loss function. Finally, the model is trained using Epochs = 5 and Batch size = 2.

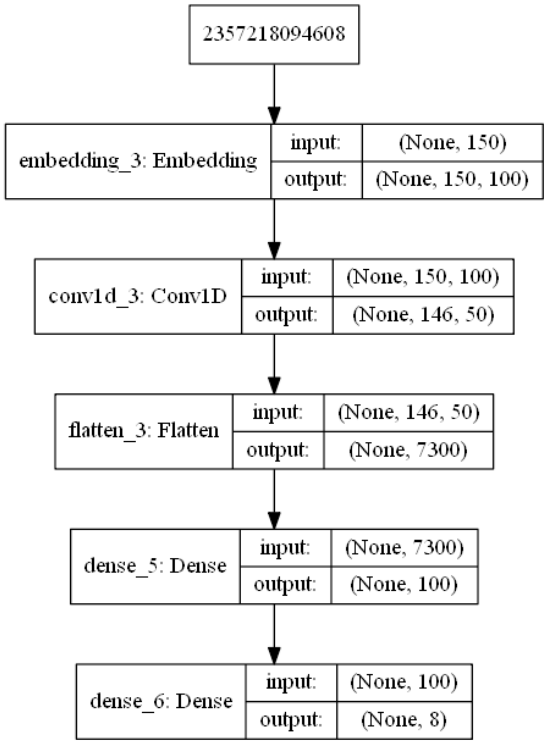

Figure 1: *Neural Network Model Summary*

4. Experiments and Results

In this section, we describe our experiments and results. The data for this study is collected from the Campus Labs website. The data extracted consists of 1070 records. The pre-processed dataset contains close to 820 records in the dataset. For labeling the data - student feedback comments with different types of Emotion, we use the National Research Council - NRC Lexicon (Mohammad & Turney, 2013), (Mohammad & Turney, 2010).

There are several classification algorithms that have been applied to text classification problems. In this work, we use traditional Naive Bayes and Support Vector Classification methods as a baseline to compare the neural network implementation.

4.1 Naïve Bayes Classifier and Support Vector Machine Classifier

One of the popular uses of text pre-processing in the traditional methods is the use of TF-IDF (Term Frequency - Inverse Document Frequency) which is a popular weighting scheme used in information retrieval and text mining applications. It is a statistical measure to evaluate the importance of words in the document or corpus. TF-IDF is mainly composed of two terms: Term Frequency (TF) and Inverse Document Frequency (IDF) as given below.

$$TF(t) = \frac{\text{Number of times term t appears in a document}}{\text{Total number of terms in the document}}$$

$$IDF(t) = \frac{\text{Total number of documents}}{\text{Number of documents with term t in it}}$$

The student evaluations dataset is processed with TF-IDF and given as input to the Naive Bayes and Support Vector classification. We achieve an accuracy of approximately 74.79% with Naive Bayes and 77.97% with Support Vector Machine.

4.2 Neural Networks Classifier

For the text input to be understood by the neural network algorithm, it is required to process the text before passing to the classifier model to be trained. For this purpose, words are replaced with unique numbers and combined with the embedding vector to make it semantically meaningful. We achieve an accuracy of approximately 76.7% which is very much in close approximation with the traditional models.

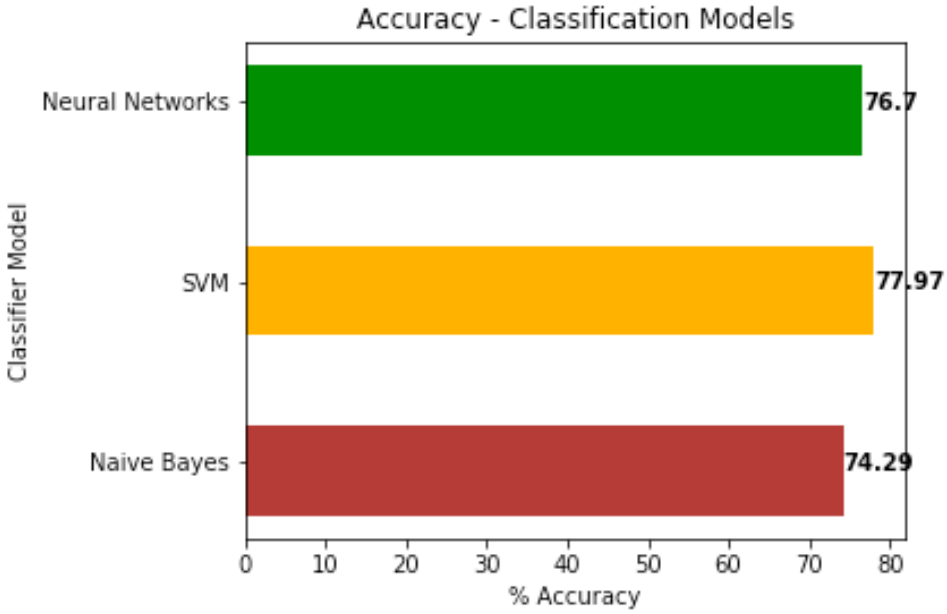

Figure 2: *Classifier Accuracy*

5. Conclusion

In this paper, we apply neural networks classifier for emotion detection in student evaluation of teaching. We use Keras Deep Learning API. Using an appropriate number of epochs for training on the source domain results in better performance. We also compare the neural networks model with the traditional text classification models like Naive Bayes and Support Vector Machine. We notice that neural networks yield (76.7%) similar performance to traditional text classification models like Naive Bayes (74.79%) and Support Vector Machine (77.97%), though the size of the dataset is not big. which is a drawback when using neural networks for classification. In future, we plan to extend this work by collecting student survey to identify actionable patterns that help improve the teaching model learning environment to a better state.

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The Use of Educational Videos to Promote Kindergarten Students' Motivation

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Abstract
Due to the constant stream of stimuli offered by technology, children are harder to motivate, and therefore to teach. According to this, and following today's emerging technological society, states that it is important that school classrooms use and explore technological means of information. Thus, in order to promote a meaningful learning experience, we aim to explore different kinds of educational videos and their effects on students' motivation. During six months, and twice a week we worked with 40 children aged 4-5, learning English as a foreign language through the use of educational videos. Our results suggest that children feel more motivated to learn with videos that require their responding and reflective skills, rather than videos that only require listening and memorization skills.

Keywords: Motivation, Educational Videos, Kindergarten

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Introduction

Considering today's social, economic and cultural changes, it should be stressed that each individual has its own personality and most importantly, that children learn at their own pace. Kindergarten, as the students' first step into the academic world, plays a crucial role in the children's motivation and engagement (Jasmins, 2014). As this stage, educators must be prepared to embrace new pedagogical approaches, aiming to promote the development of the child's personal and social skills, by encouraging to communicate within a multicultural environment, stimulating their curiosity and also their critical thinking (Brito, 2010).

Literature suggests that the use of new technologies in kindergarten may promote motivation, new learning experiences, and the development of cognitive and social skills, thus providing multiple learning resources (Fandiño, 2013; Prensky, 2012). The use of the computer inside the classroom supports new learning approaches that are in line with the digital demands of today's society. Using technology within the academic context offers several strategies to learn either languages, arts, or calculation in a resourceful number of ways, allowing children to explore, to create, to make mistakes, and to try again (Marta, 2017).

Learning a foreign language using technology is much more effective than learning through a lecture-based class, providing the child a more dynamic, inclusive and interactive learning approach, but will also preparing them to face the needs of today's society. According to Francis (2017), the inclusion of technology in education provides a multiplicity of educational tools, such as videos, audios, and games, and also, it promotes an inclusive, dynamic and interactive learning, thus boosting engagement and motivation (Dörnyei & Ushioda, 2011). Furthermore, the use of multimedia animation, such as videos will help children to develop their vocabulary, pronunciation, spelling, and reading skills, but also it enhances their motivation to learn foreign languages (Beluce, & Oliveira, 2010).

Studies on Educational Psychology reveal that motivation is a construct responsible for one's behavior, leading them it make decisions and take action (Pereira, 2013). As a construct, motivation has been, throughout the decades, difficult to define, changing according to the social, cultural and economic context. Due to its complexity, the literature suggests that the construct motivation can be observed through two perspectives: intrinsic motivation and extrinsic motivation. Intrinsic motivation comes from within, and it is mainly concerned with the self (children playing with each other just because it is satisfying), whereas extrinsic motivation refers to rewards and social recognition (Deci & Ryan, 2000). According to Brumen (2011), children are intrinsically motivated to learn because they enjoy the process of learning. Thus, promoting the children's social and cognitive development, by surrounding them with a stimulating learning environment, reinforcing their language proficiency, curiosity and eagerness to learn, will result in a positive attitude towards the learning process (Mosquera, 2017).

Methodology

This study used a qualitative design, as it provided the opportunity to participate, observe, and to carry out a descriptive and interpretive work of the data collected

throughout the research (Amado, 2014; Brannen, 2017; Bogdan, & Biklen, 1994). When conducting this research project we aimed for a holistic perspective, in order to explore the students' opinions regarding the educational videos.

Research Question

Considering the scope of the research project, we wanted to analyze kindergarten students' motivation to learn. Thus, in order to explore the different kinds of educational videos, and their effect on students motivation, we decided to focus on 3 particular research questions, such as:

(1) Do children feel motivated to learn through the use of educational videos?
(2) How do children perceive educational videos requiring their responding and reflective skills?
(3) How do children perceive educational videos requiring their listening and memorization skills?

Participants

The study included 40 kindergarten students, ages 4 to 5 learning English as a foreign language. They were enrolled at a private school in Lisbon, where the research project was held.

Procedure: interview

The research instrument used in this study consisted of a semi-structured interview with the 40 participants who were involved throughout the research (Oliver-Hoyo & Allen, 2006). Data were recorded, transcribed and anonymized. We used the NVivo software version 12 in order to review, analyze and organize words to produce a word cloud (Guizzo, et. l. 2013). The interviews were conducted between January 14th to June 17th, 2019.

Data collection Procedure

Each lesson was divided in two parts (20 minutes for the first part and 25 minutes for the second part). In the first part of the lesson, we showed four educational videos in English, selected from different children's channels on YouTube. The first two videos required them to use their listening and memorization skills, while the other two required them to use their responding and reflective skills. The second part of the class was used to discuss the videos with the children. In order for us to understand the children's perspective regarding the videos, we conducted a semi-structured interview with the children's including four open-ended questions: (i) "Do you enjoy watching videos during the English classes?"; (ii) "Did you like the video? Why? Why not?"; (iv) "What did you like the most and the least?"; (v) "Can you remember some of the words used in the video?". This moment of reflection enabled us to understand which kind of video was most effective in terms of motivation, engagement and learning. In total, we displayed 184 videos, being 92 of them focused on the listening and memorization skills, while the other 92, were focused on children's responding and reflective skills.

On the last lesson of the project we asked the children if they could remember some of the words mentioned in the videos, or any particular moment throughout the 46 sessions.

Results and Discussion

1) Word Frequency

According to the data collected, we used NVivo Software version 12 to analyze word frequencies. We proceeded to include the transcription of the interviews in the referred software, and concluded that the words that showed a higher frequency on the words cloud (see Fig. 1). were the ones that were on the videos requiring responding and reflective skills, namely: "jump", "shut", "happy", "stop", "open" or "dance".

(Figure 1: Words cloud)

2) Motivation

Results showed that students were always enthusiastic about watching videos during the English classes, asking questions such as "are we going to watch those videos?", "Can we watch it again"?, "Please play the one with the invisible man.". Such behavior emphasized that students' motivation was in fact promoted by the use of educational videos.

3) Educational Videos

According to a wider analysis of the data collected throughout this study, and regarding the role of educational videos in kindergarten students' motivation, we came to the following results: (i) the content of the video represented a key factor regarding students' motivation; (ii) students also valued the actor's body language and facial expression. It was shown that students felt more engaged whenever the actor was moving actively rather than just staying in the middle of the video singing or acting; (iii) the actor's tone was also important regarding students' motivation. If the tone was dull while singing the chants, students were more likely to get distracted.

In a narrower sense, we concluded that the videos requiring children's reflective and responding skills were more effective in terms of motivation and language learning

because of several factors such as: (i) the use of bright and vivid colors and landscapes in the background; (ii) the outfit used for each video. Children valued the use of clothes similar to the ones they use. They also enjoyed it when the actors used unusual outfits matching the topic discussed in the video; (iii) Dancing, gesturing and pointing or talking to the camera. Such activities would make children respond to the video either dancing, mimicking or answering the actors; (iv) regarding the videos requiring their listening and memorization skills, data showed that in terms of motivation and language learning, they were not so effective. Although children enjoyed the chants and the animations in the first minute, they would quickly lose their focus. While the video was playing children started to chat and to play with each other. According to the data children couldn't memorize as much vocabulary, when compared to the other type of videos.

Conclusion

Our analysis suggests that the children's are motivated by the use of educational videos during the English class. Although we analyzed the use of two types of videos, one of them promoting responding and reflective skills, and the other one promoting listening and memorization skills, it was found that the use of videos promoting children's responding and reflective skills were much more rewarding in terms of language learning, memorizing vocabulary, and also student engagement. On the other hand, videos requiring listening and memorization skills were not as effective in terms of language learning and student engagement. According to our results this kind of videos were less valued due to the lack of interactivity and dynamics.

Considering that kindergarten is one of the most important educational stages in one's life, which plays an important role in adulthood (Coyle, Verdú, & Valcárcel, 2011), researchers and educators must continue to pursue the most efficient pedagogical approaches in order to promote a meaningful learning environment.

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Tendencies in Modern Higher Education System through ANT

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Abstract
The article considers modern tendencies prevailing in the higher education system while training technical specialists nowadays. According to the author, excluding the humanitarian courses from curriculum results in the complete dissolution of subjectivity in the impersonal world, which is deprived of 'living' knowledge, i.e., definite knowledge of a definite person. The application of such an approach is illustrated by the actor-network theory (ANT). It supposes subject integration with his moral imperatives and categories into the actor-network system being the social and technological unity of material and non-material components. Such depersonalization can be reckoned as a feature of the modern technologically computerized education. While studying a number of works by ANT founders, it turned out to be clear that such an approach eliminates any differences between natural and humanitarian, engineering and philosophical knowledge. As a result, the net emerges consisting of numerous actants. It is characterized by a collective action resulting in subjectivity disappearance in the net interaction, which requires from every participant his 'building-in' a model with the functions being delegated him in advance. The report concludes that an 'alive' component is disappearing from the higher education nowadays when the main stress is being made on the knowledge acquired a priopi, not a posteriori. It is high time thinking about the quality of the educational system preparing 'narrow-profile' specialists. They may act as 'bolts' in actor-network models that have lost their individuality and ability to any reflection.

Keywords: Higher Education, Specialist, Positive Thinking, Mind Experiment, Actor-Network Theory, Actant, Subjectivity, 'Alive' Knowledge

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1. Introduction

Modern society offers unlimited opportunities to a person to get some information and gain some knowledge in various scientific spheres. At the same time the culture of thinking, reading, understanding the text that has been read or heard disappears. The higher school as a public institution doesn't develop any critical thinking elements or teach to gain knowledge. As a rule, it gives the foundation of some behavioral patterns in digging necessary one. A human being is unable to reflect and define a volume of knowledge, skills and experience being crucial for his professional and public life as he turns into a part of socio-technical nets. However, there appears a false feeling of competence in the subject he studies or the activity he practices. The reason is the algorithm of almost any action or reply to any answer can be found in the Internet. There is a feeling that everything is known and we should just use the information provided.

This is the way to the information consumerism. Technological development reduces the off-line social communication time, for we tend to spend a lot of it on surfing the Internet. Virtual reality invades human lives faster and rougher. Messaging in chats and social nets substitutes real communication. We prefer video lectures or their short clips to auditorium ones. We try to follow all the news without missing them. As a result, we get the views and ideas imposed on us. The target of human existence shifts to earning money and consuming everything we can including information.

Nowadays the human society has closely come to a gloomy future version that was described in the novel "Fahrenheit 451" by Ray Bradbury. He is extremely prophetical in its warnings. The writer demonstrates the consumption society in the raw. It has lost a possibility to think independently, to analyze the events, and to make own conclusions.

"Books cut shorter. Condensations, Digests. …Classics cut to fit fifteen-minute radio shows, then cut again to fill a two-minute book column, winding up at last as a ten- or twelve-line dictionary resume. …many were those whose sole knowledge of Hamlet was a one-page digest in a book that claimed…

We must all be alike. Not everyone born free and equal, as the Constitution says, but everyone made equal. …Breach man's mind. Who knows who might be the target of the well-read man?" [Bradbury 2008, pp. 52-55.]

The author pays a strict attention to such problems as mass media social manipulation, excessive involvement into the technical progress, and substituting ethical values with consuming ones. The main idea of the novel is the impossibility of human future without the previous generations' experience, which is stored in books as its main sources and carriers. It can have the most crucial consequences for the society as this behaviour is able to lead to its complete destruction.

2. Body

Recently there has appeared a tendency in the higher school to exclude philosophy courses from the curriculum of technical students. The modern higher school administrations follow the example of P.A. Shirimsky-Shikhmatov, the Russian

Empire's Public Education Minister of the XIXth century, who believed that "philosophy usefulness is not evident, but its harmfulness is possible" [Nikitenko 2005]. They explain this fact by the statement that "positive thinking" formed by special disciplines does not require any critical thinking skills from students. The paradox is that today's and tomorrow's students have to create new technologies crucially influencing and transforming social life in general and individual life in particular without its due reflection. There is a contradiction to Auguste Comte's idea here: "Now, when human mind has created celestial, terrestrial, mechanical, chemical, organic, vegetal, and animal physics, it has to create social physics to complete the system of observation sciences" [Comte 1971, p. 562]. We can suppose following Comte's statement that natural sciences are unconceivable without a social component, i.e. the communicative action creating demand and calling them into being. It is clear that the main part of the surrounding world can't be measured or calculated exactly. That's why it will include philosophical metaphysical ideas, which don't exclude the social nature. The absence of any knowledge of philosophy leads to the complete dissolution of subjectivity in the featureless world that doesn't have any alive communication, but virtual "communicative actions".

The brightest example of applying such an approach is Bruno Latour's popular concept of actor networks as a result of communication practice. Following Auguste Comte's ideas, he suggests a transition from natural sciences to social philosophy. According to Latour, philosophical concepts are ridiculous due to the fact that they create "constructs" that are necessary for understanding the surrounding world [Latour 2006]. He simplifies the construction process up to building and creating. As a result, subject of cognition with his moral values and imperatives dissolves in the heartless world of actors and networks. They represent a social and technological integrity of material and non-material components. The complete depersonalization and dehumanization are unfortunately becoming the features of modern computerized and informatized education, but it is not to its credit.

At the end of the XVIIIth century, Immanuel Kant suggested separating the spheres of theoretical and practical mind application, i.e., science and morality [Kant 2003]. As a result, the field of rationality moved to subject and his activity. However, Kant's theory introduced epistemological subject as an ultimate abstraction that could be only transcendental one overcoming the empirical borders. I think it is fruitful to mention Edmund Husserl's idea of intentionality in connection with the above. It takes forming the idea of interaction of subject's consciousness and the cognized object as its fundamental one. The objective interpretation of subject's feelings is revealed in the flow of phenomenological entity. This approach includes intersubjective connections relative to formal and transcendental logical explanation of cognition. It gives an opportunity to build and conduct mind experiment with any object.

The Russian writer Vladimir Odoevsky in his novel "Russian Nights" made one of the first mind experiment in Russian literature tradition in 1844 [Odoevsky 2014]. He introduced apocalyptic descriptions of future due to technical and medical achievements that had led to the earth overpopulation. He thought that the only outcome could be collective, i.e., last suicide for all humanity. The number of earth inhabitants had increased so great, that they slowly destroyed all constructions to use land in agricultural purposes. It is necessary to understand here that Russia was an

agricultural country at that time, and the main disasters were starvation and a lack of land for processing in agricultural purposes. Their lives were full of struggle for survival, and suicide, considered as a great sin by the Christian church, turned into an exploit to help others to survive. The people, who tried to save their lives, were treated as criminals. Odoevsky projected this scenario could result in the philosophy of hostility to life. He finished his novel with "Messiah of Despair" as Earth explosion destroyed the planet and humanity. Thus, he was against western way of scientific and cultural development for Russia, calling to keep its identity and spiritual uniqueness. Nevertheless, as we can see, these were only suppositions, that might turn into reality in future.

This example demonstrates that similar models become more actual in the modern world. The reason is subjectivity dissolves in the objectivity flow in the actor-network approach. It causes grading human cognitive abilities to a subject "allocated" in the social world. This subject is no more a researcher, a scientist or a scientific community separated from the social world. According to Michel Callon, "allocated" subject of cognition doesn't reflect the reality, but participates in its creation. Innovations are collective, not personal ones. "The cooperative does not propose the alternative solution to a general problem but a particular solution to a series of very specific problems" [Callon 2007, p. 334]. There is no sense to oppose those who make statements and those who realize them, i.e., the final knowledge turns out to be impersonal. It is spread further by social nets based on modern technologies.

The borders between subjectivity and objectivity disappear in the actor-network theory, i.e., cognition as a process stops its being because of blurring its epistemological foundations. After studying a number of works by the actor-network theory founders, it turned out to be clear for me that such an approach eliminates any differences between natural and humanitarian, engineering and philosophical knowledge. There is no necessity in them as any actant (i.e., "involved in the activity") of the network combines heterogeneous components and relations without any strict hierarchy, i.e., a hybrid reality appears. Its feature is an interaction of alive objects, social and theoretical constructions, etc. on equal rights. There appears a network that consists of a number of actants. Its main feature is a collective action. The coordination of functioning network elements is due to interelement connections that help to interact all its components.

3. Conclusion

Thus, an 'alive' component is disappearing from the higher education nowadays when the main stress is being made on the knowledge acquired a priopi, not a posteriori. It is high time thinking about the quality of the educational system preparing 'narrow-profile' specialists. They may act as 'bolts' in actor-network models that have lost their individuality and ability to any reflection. What future will they have? Will they be able to adapt to the rapid changes of the modern technically innovative world as they don't possess enough knowledge to overcome the borders of their narrow professional sphere? I think these questions don't get any answer as the applied character of the modern higher education system doesn't provide a specialist all range of competences for critical thinking of the perceived information to turn it into "alive" knowledge. As a result, the higher school function is not to teach skills of independent work anymore. It doesn't teach methods and mechanisms of self-education during a

specialist's professional life or ways of searching solutions for professional tasks. It doesn't form the professional scope of views or the depth of thinking. It is characterized by a collective action resulting in subjectivity disappearance in the net interaction, which requires from every participant his 'building-in' a model with the functions being delegated him in advance.

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No Child Left Behind: Bridging The Literacy Achievement Gap of Looked-After Children in Secondary School Through Speaking and Listening

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Abstract
This paper explores the key challenges that children in care and children who have suffered adverse experiences face in their education and solutions to these challenges. Using a mixed methods approach, the researcher conducted interviews with American secondary school teachers, a focus group with members of the USA's Legal Centre for Foster Care and Education, an interview with EL Education's Chief Academic Officer, and action-based research with 9th grade/year 10 students at Codman Academy Charter School in Boston. The research identifies key steps that can be taken by educators to develop the spoken and written literacy skills of children that have had adverse childhood experiences, ranging from oracy-centred lesson planning, curriculum design and school pastoral support to positive reinforcement. It demonstrates the potential that this approach has to engage these children when educators utilise and apply their own speaking and listening skills effectively.
No child left behind: bridging the literacy achievement gap of looked-after children in Secondary School through speaking and listening.
''But now I realise that the only way to find your voice is to use it'' Austin Kleon (2014)

Keywords: Looked-After, Oracy, Expeditionary Learning, Literacy

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Introduction

Looked-after children (referred to as foster children in the USA) are significantly behind their peers academically. The Department for Education's statistics show that in 2018, 82.5% of looked-after children did not pass their English and maths General Certificate in Secondary Education (GCSEs) (The Department for Education, 2019).Furthermore, only 6% of looked-after children in England entered higher education (The Department for Education, 2018). The USA's National Working Group on Foster Care and Education's 2018 report on the educational outcomes of children in foster care reported that 70-84% of 17 to 18 year-olds in foster care said that they wanted to go to college (National Working Group on Foster Care and Education, 2018). However, even in the USA there is a great discrepancy between the students' desire and their fulfilment of this desire as between 31.8% to 45.3% of young people in foster care who graduated from high school in the USA enrolled in college (Ibid). This is in stark contrast to the American national average. The statistics in the UK are particularly concerning as there is a lack of cogent evidence that the low attainment levels can be attributed to a high level of absence from school. Only 10.6% of looked-after children are persistently absent from school, moreover the Department for Education's statistics show that looked-after children are even less likely than all children to be persistently absent (The Department for Education, 2019). This brings into question what the barriers to learning are when looked-after children attend school.

The mutual dependence of speaking, listening, reading, and writing skills means that poor speaking and listening skills can lead to poor written skills and vice versa. The listening and speaking skills of looked-after children have often been negatively impacted by their adverse childhood experiences. Adverse childhood experiences comprise of a number of experiences including psychological, physical and sexual abuse and household dysfunction ranging from substance abuse, mental illness, domestic violence and criminal behaviour (Felitti et al, 1998). The Department for Education's 2019 statistics show that 63% of looked-after children in England are in care due to experiencing child abuse or neglect, 14% are in care due to family dysfunction, 8% are in care as their family is going through a temporary crisis that diminishes the parental capacity to adequately meet some of the children's needs, 7% are in care due to absent parenting, 3% of them are there due to their parent's illness or disability, 3% are there due to their own disability and 1 % are there due to low income or socially unacceptable behaviour (The Department for Education, 2019). These situations primarily under the umbrella of adverse childhood experiences.

Poor speaking and listening skills is one of the factors that not only underpins the low statistics that we see in the education attainment levels of looked-after children but is often a reason behind their higher school exclusions, challenges in engaging effectively in the classroom and challenges in communicating with their care givers (sometimes culminating in them moving from foster home to foster home and from school to school).

Traumatic memories remain in the brain and when triggered lead to the brain responding from the amygdala (which is the less rational part of the brain that triggers fight or flight responses) rather than the prefrontal cortex which is the rational part of the brain (O'Neil, L Guenette, F and Kitchenham, 2010). This can be triggered by any

and everything, from a discussion about a topic in a school lesson, to a conversation between students and teachers to a classroom setting. This has implications on a traumatized students' interpretation of what others are saying and how they in turn respond.

Background to the question

In 2015 the UK's GCSEs experienced some of the most significant reform that we have seen in recent education history. The 2015 English GCSE reform replaced the English Speaking and Listening GCSE with a Spoken Language GCSE that does not count towards students' overall English GCSE grade (unlike its predecessor), removed the differentiated approach of a foundation, intermediate and higher English GCSE paper replacing it with one paper that students of all levels complete and introduced a 100% exams-based English GCSE. These changes have led to a growing concern over the level of prominence oracy and project-based learning are being given in secondary school students' education and the challenges that these changes present for students that have significant literacy challenges that make written exams particularly difficult for them. This situation is compounded by the current challenge that teachers are facing in addressing students' literacy at a time when the Department for Education's 2018 statistics show that 27% of pupils finish primary school without having reached the expected standard in reading (The Department for Education, 2019). Sound reading and comprehension skills are vital for students' engagement with the work that they are expected to complete in Secondary School.

Looked-after children that are recovering from traumatic experiences and have moved schools and foster homes during the academic year are particularly disadvantaged by the removal of the GCSE coursework that they could take to their new schools and the exclusion of their spoken language exam results as part of their overall English GCSE.

The GCSE changes can lead to a tendency to overlook oracy in the planning and delivery of English GCSE lessons making it increasingly important to ensure that the discourse about oracy and the development of students' listening and speaking skill does not become lost in the process of these changes. With this in mind, I decided to centre my Walter Hines Education research on the benefits of oracy-centred strategies for the development of the literacy skills of looked-after children using the topic: *no child left behind – bridging the literacy achievement gap of looked-after children through speaking and listening*.

I travelled to the USA in October 2019 for my research. I spent one week in Washington DC where I visited the USA's Legal Center for Foster Care and Education and one week in Boston, Massachusetts where I visited Blackstone and Russell Elementary schools and Codman Academy Charter Public School.

<u>School 21</u>

School 21 is a 4-18 free school in Stratford. At the heart of the school's approach is an emphasis on a whole-school approach to oracy. School 21's focus is on four strands of oracy: physical, linguistic, cognitive and social/emotional as reflected in the diagram below. This oracy-centred approach manifests in an approach to the

curriculum, assemblies and parents' evenings that positions students (as opposed to teachers) to do most of the talking. School 21's success led to the creation of Voice 21 who have shared the ethos and good practice of School 21 in schools across the United Kingdom the USA, Canada and Australia. School 21 has been rated as outstanding by England's Office for Standards in Education Children's Services and Skills (OFSTED) who regulate schools in England. Of note, is OFSTED's statement that ''*No pupil is left behind because teachers do not allow them to be held back by gaps in their reading, writing or mathematical skills*'' (OFSTED, 2014). OFSTED's statement is reflective of the role of oracy-centred tasks as a learning tool for the engagement of students that have significant gaps in their reading and writing skills that could lead them to be left behind their peers academically from one academic year to the next.

EL Education

The EL (formerly called expeditionary learning) education model centres on pedagogy that centres around the concept of students learning through doing. It utilises problem-solving, project-based learning, exploratory talk and field work. The model was developed through a collaboration between Outward Bound USA and the Harvard University in the 1990s. The impact of EL Education in the USA is reflected in the fact that its Language Arts Curriculum has been downloaded more than 10 million times by educators (EL Education, 2019) and that EL Education's Detroit students' 2019 state tests scores demonstrated ''the greatest single year improvement in state tests in the history of the exam'' (EL Education, 2019). This reflects the ability of EL Education's approach to lead to the significant and accelerated acquisition of skills that students (particularly students that are starting from the point of having significant literacy proficiency gaps) would normally take longer to acquire. As looked-after children are often significantly behind their peers in the year group teaching strategies that lend themselves to rapid and significant improvement within an academic year are vital to their success.

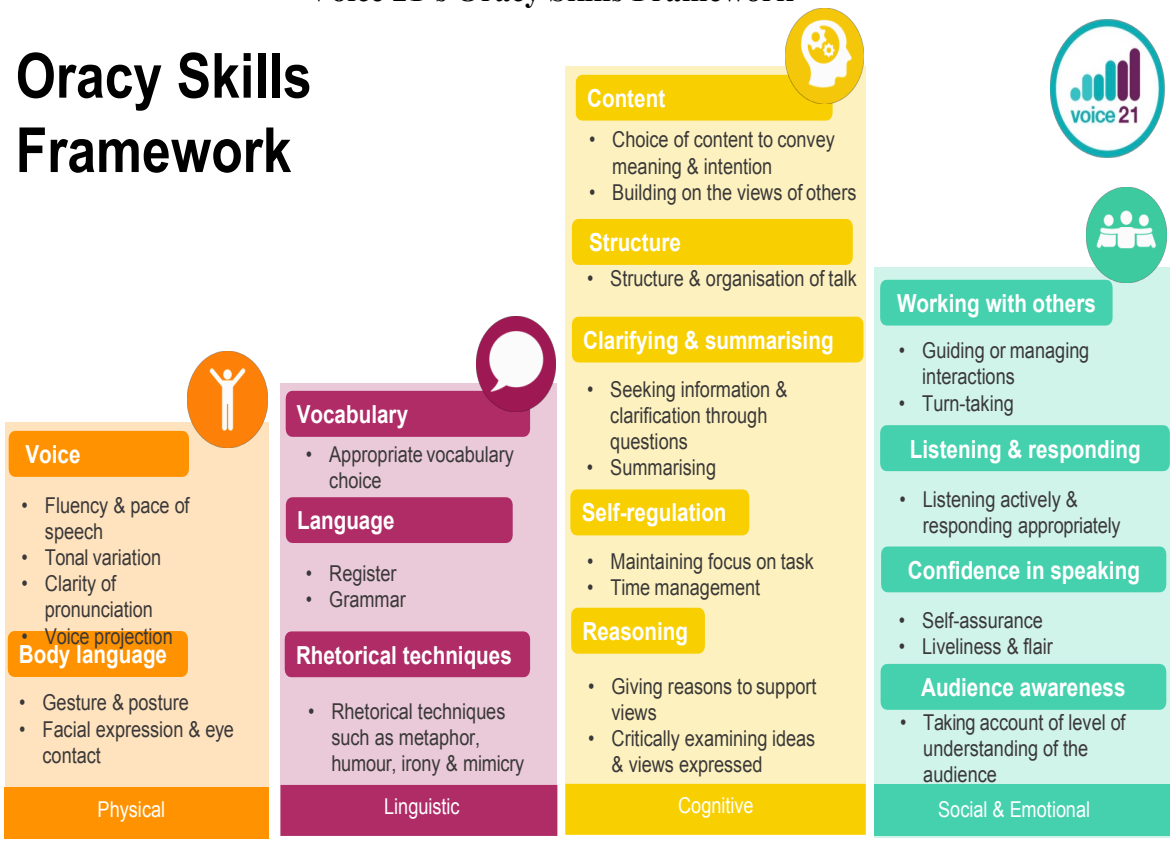
Ron Berger is one of the founders and the Chief Academic Officer of EL Education. Berger's approach to education is highlighted in his written work such as *Leaders of Their Own Learning*. It champions an approach that centres students as participants and not just as spectators in the classroom. His work presents a blueprint that schools such as School 21 have applied to their own whole-school approach making both the Voice 21 model and EL Education model models that complement each other in many ways and have a commonality in purpose.

I was interested in seeing the benefits of EL Education's approach for the speaking, listening, reading and writing skills of children that have had adverse childhood experiences. As the aforementioned statistics on reasons why looked-after children are in care demonstrate, most looked-after children are in care due to adverse childhood experiences, consequently, I chose to visit an EL Education school with extensive experience of working effectively with children that have had adverse childhood experiences. Codman Academy is one of EL Education's schools which has a number of students that have had adverse childhood experiences furthermore, four in five students at the school are economically deprived (Ward, 2019). It also has a rich culture of oracy that involves a partnership with Huntington Theatre.

Research aims

- To expand my understanding of the key challenges that looked-after children face in their education in the USA.
- To explore American foster care specialists' and educators' perspectives on the challenges that children that have had adverse childhood experiences face in in school.
- To explore American teachers' and foster care specialists' perspectives on the most effective strategies to address these challenges.
- To explore students' perspectives on oracy-centred teaching strategies based on Voice 21's oracy framework.

Table 1
Voice 21's Oracy Skills Framework



Methodology

First half of research visit: Washington DC

A focus group with members of the USA's Legal Center for Foster Care and Education

The USA's Legal Centre for Foster Care and Education work with steering groups that advise the USA government on legislation that can address the various needs of foster children. They also engage in regular research and annual reporting on the status of the education of foster children in the USA and advocate for foster children

in court. I wanted to start my research with a grounding and understanding of the challenges that foster children face in their education from the perspectives of these experts that advocate for them. The participants of my focus group were Kathleen McNaught, the Director of Education Projects at the American Bar Association, Emily Peeler, the Overseer of the American Bar Association's Education and Permanency Projects (permanency projects are aimed at providing foster children with permanency in their foster home placements and schooling) and Kirstin Kelly, the Assistant Director of the American Bar Association's Education projects.

Second half of research visit: Boston, Massachusetts

An interview with Ron Berger one of the founders and the current Chief Academic Officer of EL Education and a written questionnaire from EL Education's Head of Curriculum Christina Riley.

Ron Berger worked in partnership with Outward Bounds and Harvard University in the 1990s to develop EL Education's expeditionary learning model. Christina Riley is EL Education's Head of Curriculum. She has worked with the organisation since 2013. I arranged an interview with Ron Berger and created a typed questionnaire for Riley, to gain a deeper understanding of their vision for EL Education, how EL Education aims to develop the speaking, listening, reading and writing skills of students and its potential benefits for children that have had adverse childhood experiences.

Interviews with 5th grade to 11th grade Humanities teachers at Codman Academy and the Head of School

Codman Academy has an integrated History and English curriculum. I arranged interviews with 5th grade to 11th grade Humanities teachers at Codman Academy and the Head of School in order to gain a deeper understanding of how they develop the speaking, listening, reading and writing skills of their students, the challenges that they encounter when teaching students that have had adverse childhood experiences and the strategies that they employ to support these students in their English lessons.

Action-based research with 9th grade students followed by voluntary student task feedback questionnaires

Individual students in two 9th grade Humanities classes were asked to prepare a recap of the key points that they have learnt in a Humanities lesson of their choice to the rest of their class and to answer questions from their peers about their lesson recap. I designed the task to embed the physical, linguistic, cognitive and social and emotional elements of Voice 21's oracy framework. The task was followed by voluntary student feedback questionnaires. My aim was to observe how the students engaged with the tasks and utilised elements of Voice 21's framework and to identify problems and potential solutions to student challenges with the task.

Whilst the number of students that engaged in the task and completed voluntary feedback on the task was fairly small, the validity and reliability of this element of the research as a fairly representative sample of Codman Academy's 9th grade Humanities' students is supported by the random nature of the class selection.

Codman Academy did not select the class based on students that they identified as being the most eloquent or ‘‘well-behaved’’. Their selection of the classes that I worked with was based on the student class timetable availability for my visit dates, my requested year group and subject.

Results And Discussion

The focus group with members of the USA’s Legal Center for Foster Care and Education

I explored a number of questions with members of the USA’s Legal Centre for Foster Care and Education. The main points have been summarised below.

Table 2
Focus Group with the USA’s Legal Centre for Foster Care and Education

Q1. *What do you think are some of the key challenges that **foster children** face in the area of their education?* • High rates of student mobility in students moving from home to home and school to school leading to a change of curriculum (there is not a national curriculum in the USA), teachers and friends. • The after-effect of the children’s traumatic experience impeding on their ability to focus and concentrate at school. • The nature of the experience that they have experienced with their biological caregivers prior to their entry into care in which their educational needs were sometimes not being properly met. • A lack of expertise from child welfare staff (who are trying diligently to prioritise the children’s pressing home placement needs) in educational needs and the information needed to advocate effectively for the children in the area of their education. • The after-effect of trauma leading to behaviour that results in higher school suspensions sometimes caused by educators’ lack of understanding of the reason for the children’s behaviour. • A lack of clarity in the assessment of their special educational needs. Sometimes students recovering from trauma are misidentified as having special educational needs or under-identified as having special educational needs. • Systems co-ordination challenges leading teachers to be unaware that a student is in care. • School’s application of a broad-brush approach to the management of foster children’s education in way that does not give due consideration to their unique challenges. • Trauma-informed curricula and trauma-sensitive environments are being cultivated by individual schools however, there are many schools that have not engaged with this as yet.
Q2. *What do you think are some of the key challenges that **schools** face in educating foster children?* • Schools lack of understanding of the foster care system for example, an understanding of all the key figures that are involved and the processes when children are in care. Oftentimes, the general understanding that schools have centres solely

around the fact that the children have been placed in care and not on what happens beyond this.

- Foster parents' lack of knowledge of the key contacts, key support that schools offer vulnerable children etc. that prohibits them from engaging in quality advocacy on behalf of the children.
- A new USA law allows foster children to remain in their original foster school even if it is in a different area to their new foster home. This can sometimes create a logistical challenge in that the distance from the potential foster parent's home has unfortunately caused some potential foster parents to decline taking in some children or to end a home placement. Schools' provision of transportation does help when it is available but is not always available. This can be particularly challenging when the children want to participate in the full school life for example, after school extra-curricular activities.
- The higher rates of school expulsion and suspension that require students to stay at home creating challenges for foster parents (for example, at work) that has on occasion contributed to foster parents having to reconsider the continuation of the home placement.
- Challenges arising from the multi-faceted nature of the categories and types of foster care.

Q4. *In terms of the speaking and listening skills of looked-after children, can you share your thoughts on whether this is an issue?*

- All foster children are different, so it is difficult to generalise an answer to this question.
- The members of the focus group are not educators and do not assess the speaking and listening needs of foster children. However, as lawyers the members of the focus group have received training on how to communicate with the children to ensure that they feel safe enough to communicate their feelings, advocate for themselves and tell their story. They have found this to be effective when they take statements from the foster children that they advocate for in court.
- Being able to communicate in itself is something that foster children are often able to do just as well as other children. The key challenge for them is more in the area of trusting the other person enough to share their views and feelings due to the impact of trauma.

Q5. *Do you in any way think that the training you received could also be useful for practitioners that work within schools?*

- Similar training with an emphasis on trauma-sensitivity, how to approach kids who have experienced, abuse and neglect, how to not re-traumatize them but at this same time be able to give them an opportunity to express how they're feeling and what they're thinking could be useful for educators.
- Members of the focus group recalled examples of the benefits of effective communication between foster children and their teachers in anecdotes in which foster children recall their foster homes and schools changing and their experience of a teacher that did not give up on them that made a key difference to their lives.
- A challenge in the educators' work is that oftentimes foster children do not want their foster status to be divulged to their schools as they are concerned that it may lead to teachers or students treating them differently.

Q6. *What are some of the solutions that are currently being implemented in the USA that have had a positive impact?*

• Washington DC's child welfare agencies' daily school teacher check and connect strategy with foster students that requires each school building to have a member of staff who is responsible for checking-in with a foster child every school day. • Trauma-informed schools. • The Compassionate Schools model.[1] • Having the buy-in of the school leadership to prioritise these children, for example, giving them reductions on school resources, field trips etc. • The American law that requires schools to immediately enrol foster children regardless of administrative delays in their receipt of their full student records.
Q7. *What would you factor-in in considering how we measure the success of an education strategy for these children?* • Grade improvement. • School attendance improvement. • Decreased levels of truancy. • Decreased levels of entry into disciplinary measures. • Decreases in school placement moves. • Higher higher education entry levels. • Different children stay within care for different ranges of time so it can be difficult to apply a generalised approach to measuring what success if for each child.
Q8. *What do you think, is the key question (in your opinion) that we should be asking when it comes to the education of foster children?* • Who is really responsible for making education decisions for this child? • Who is needed to advocate on behalf of the child? • Are we adopting a pragmatic approach to problem-solving that does not involve just contacting other professionals but also asking the child, for example, when there are systematic challenges, for example, where the school can't even piece together the kids' education history, have we asked the child? • If we have identified the right people, are they be going to be engaging meaningfully, with the student and having their voice be part of that decision-making process? This is particularly important when working with older children.

Interview with Ron Berger one of the founders and the current Chief Academic Officer of EL Education and a written questionnaire from EL Education's Head of Curriculum (Christina Riley).

Respondents' responses summarised in the below table:

Table 3

Interview and Questionnaire with EL Education's Chief Academic Officer and Head of Curriculum

Q1. *In your opinion what is the most significant achievement that EL Education has made in the area of students' literacy?* Ron Berger

[1] The Compassionate Schools Project champions a whole-school approach that is geared towards supporting students that have experienced trauma. It is ''the most comprehensive study ever undertaken of a 21st century health and wellness curriculum in an elementary or secondary school setting. The Group Randomized Trial was started in 2016 and a follow-up is scheduled to run through 2021. Fifty schools, over 625 teachers, and more than 6250 students will be included in the study'' (The University of Virginia, 2019).

''I would separate our deep-whole model approach from our new broader curriculum approach.

a) So, in the adoption of our whole model I think we've brought a much more rigorous and challenging vision of literacy into a project-based learning model than had existed before. Oftentimes project-based learning is not tuned well for student literacy skills and so, completion of the project becomes the goal in a way that means literacy skills are not attended to deeply. Kids might not be getting the level of challenge and skill development literacy. So, I think we've spent 25 years figuring out how to join those two well. So kids who are doing important meaningful projects are also getting really good literacy instruction as a part of that.

b) From our curricula impact, I think:

1. we are now able to reach schools that were struggling. That could never do our whole model with the way they are now, it was way too challenging a change for them and yet by taking on the curriculum they are seeing immediate gains, even though small but significant gains for kids within a year.

2. Giving kids more voice, more action, more opportunity to grapple with much harder material that teachers would have assumed was too hard for them: that we're seeing very good results. I mean I can give a very specific example, we're working with every student in Detroit right now, every student is using our curriculum, so we're working with all the schools and I had dinner with one of those principals in one of the most struggling cities in American (as you can imagine locationally). She said a year ago there were only three students in her school that were on grade level in reading out of the entire school and two of them had transferred in that year so they actually only had one student who had been there for a year who could read at grade level, and after one year of using the curriculum now she had 76 students that were at grade level. And it's still not-it should be way more than that in her school- but the difference was vast, just from having more challenging material and more student voice and ownership in the work. So, on a small level I'm really glad that the curriculum is reaching so many students and on a deeper level the schools that we work with that are using the whole model are doing great projects that are really literature rich''.

Christina Riley

- Changing the culture of classrooms: from teachers doing most of the talking to students doing more of the talking. This means students are spending more time processing and thinking for themselves rather than being told everything by the teacher.
- Students being more effective learners and ethical people who contribute to a better world. The aim of the curriculum is beyond literacy – we want students to become good citizens of the world.
- Higher quality writing preparing students to be college and career read.
- 2018-2019 literacy scores from Detroit, Michigan, and Shelby County, Tennessee.

Q2. *What are your thoughts on oracy-centred teaching strategies?*

Ron Berger

- ''Well, I think that verbal skills for students are just as important as reading, writing and mathematics skills. For their success in university, for their success in their career, for their success in life, the ability to express themselves well verbally is arguably more important than their ability to do mathematics. There is nothing more important than those skills. We take them for granted. We don't assess them typically,

we don't test them, schools are not held accountable for them, so people forget how important they are.

- So, I feel like our whole vision in EL of trying to transform the classroom to elevate student voice and have students do more of the talking and thinking and have teachers do less of the talking and thinking''.

Christina Riley

- The Read-Think-Talk-Write framework is a fundamental design principle of the EL Education curriculum. In order to process, and to formulate and refine ideas for writing and tasks, it is essential that students are given the opportunity to discuss their reading and thinking. Protocols are one of teaching strategies used in the curriculum to ensure all students discuss their thinking.
- Discussion and presentation skills are crucial for college and career readiness, which is reflected in the college and career ready speaking and listening standards, which are taught and assessed thoroughly in the EL Education curriculum.
- Providing every student with the opportunity to speak and be heard demonstrates to students that what they say has value, and therefore learning becomes more meaningful and personal.

Q3. *Do you think that EL Education's Language Arts Curriculum has advantages for students that come from disadvantaged backgrounds? If so, what advantages do you think it has?*

Christina Riley

- Having high expectations of students: the curriculum requires students to read, think, talk, and write at their grade level.
- Student-engaged assessment: the curriculum supports students in setting goals and tracking their progress towards those goals, which is an effective strategy to engage all students in taking responsibility for their own learning.
- Supporting students in developing social and emotional skills (SEL): SEL is embedded in the curriculum. As students read engaging texts they analyse and evaluate the responses and interactions of characters in fictional stories, and real people in informational texts, in order to identify positive models. Students also analyse what it looks and sounds like to practice habits of character to be effective learners and ethical people.
- Authentic and meaningful tasks: each curriculum module culminates in a performance task, which is a synthesis and celebration of their learning throughout the module and is a product created for an audience beyond the classroom and school. This provides engagement, and purpose throughout the module for all students.

Q4. *What do you think are challenges that children from under-privileged backgrounds face with their education?*

Christina Riley

- Access: to food, sleep, books, language, travel beyond their community and high-quality education through systemic issues.

Q5. *What do you think are some of the solutions to addressing the challenges that children from underprivileged backgrounds face?*

Christina Riley

- At the systems level: financial resources for public schools in historically under-served communities to be able to invest in teacher professional development and high-quality curricula, and funding for programs to support students in providing for their basic needs – food, warm clothing, etc.

- At the school and classroom level: Taking an asset-based approach to education – recognizing and valuing the community and what students are bringing in with them.
- Having high expectations of students. Giving them the opportunity to read, think, talk, and write at their grade level.
- Supporting students in developing social and emotional skills (SEL).

Q6. *What is the key question that teachers should be asking (in your opinion), when addressing their students' literacy skills?*

Ron Berger

- ''We need to be watching that kids have a love and comfort with reading, writing and speaking. Because all the testing that we do won't matter if kids feel like they don't like to read, they don't like to write, they don't like to speak in public. If we can't get beyond that, well there's not a lot of hope for us. So, we have to build in kids both a love and also a sense of competency and agency that they can express themselves. A sense that they can get knowledge from reading and they can express themselves verbally and in writing and they're capable. The sense that they're capable people who can do that is key, I think. That doesn't show up any test but it's what we need to be looking for and if students are not showing that level of love and confidence we have to figure out how do we get them to think I love reading or a love writing, or I want to express myself, or I can do that, or I'm willing to speak up. I think we need to look for a spirit in kids that shows that they're willing to take on harder challenges in reading, writing, speaking and that they have strategies when they struggle. We can't fix everything right away but we can get an ethic or spirit in kids that when they're encountering harder texts, or harder written tasks or when they're asked to speak, and they're a little intimidated, that they don't give up, that they have strategies and ways to move forward when they're stuck''.

Christina Riley

Are students being presented with mirrors as well as windows? You should have a window into other people's lives but you should also have a mirror to see yourself.

Interviews with 5th grade to 11th grade teachers at Codman Academy and the Head of School (Thabiti Brown).

Q1. *What are the most effective strategies that you use to develop the **listening and speaking skills** of your students?*

The Head of School:

- Experiential learning. This centres on the idea of learning by doing. So we put them in experiences where they have to speak out loud in order to be able to successfully complete their projects e.g. the ESU's Shakespeare Competition, The August Wilson Monologue competition and the Poetry-out-loud competition. Students' involvement in these activities are added to their Humanities credits.

11th grade/year 12 teacher:

- Group discussions, whole-class discussions. Embedding a discussion element to project –based learning for example presentations or a speech.

10th grade/ year 11 teacher:

- Fieldwork, internships, entering students into monologue presentation competitions (for example, the August Wilson completion) and working with the Huntington Theatre Company.
- Peer modelling.

• Every Friday students work on theatre projects which focus on oracy and body language and how we communicate with other people. They're not doing writing in those spaces. It's all about, how do you communicate verbally? How do you communicate with your body language? How do you tell stories? • They write half the theatre play themselves and present the play at the end of the year. 7th and 8th grade/year 8 and 9 teacher: • Pair discussion tasks. Situating students as experts sharing their knowledge with their peers. Embedding oracy into project-based learning tasks e.g. a monologue presented in the character of the historical figure that is the centre of the project. • Cultivating the culture of the class in a way that allows room for students to be vulnerable enough to engage in oracy-centred tasks. 5th and 6th grade/year 6 and 7 teacher: • Class, peer and group work, peer modelling. • Careful differentiation of students for group tasks to allow quiet students to have an opportunity to express themselves.
Q2. What are the most effective strategies are that you use to develop the **reading and writing skills** of your students? The Head of School: • Through experiential learning that pushes young people to learn through doing. This is embedded in the written tasks that students are given in each lesson, between lessons and for their assignments. 11th grade/year 12 teacher: • A scaffolded approach to written tasks that breaks down what the task entails and what the expectations are, enabling students to engage more effectively. • Positive reinforcement that involves reminding students of good written tasks that they have previously completed. • The EL Education's crew ethos of teamwork that is reflected in proactive older students guiding younger students on tasks that they have successfully completed in previous years. 10th grade/year 11 teacher: • The students write half of their theatre play themselves in small groups via an oracy-centred process. They don't start writing the script is until after they've gone through the process of generating ideas together and creating sketches of scenes and tableaus. They identify what the scene looks like without actual language but with body language. Then they start to refine it, through video tape reflections of the scene followed-by the creation of a relevant script. 7th and 8th grade/year 8 and 9 teacher: • Using the scaffolded EmPOWER (Evaluate, Make a Plan, Organize, Work, Evaluate and Re-work – this was developed by Bonnie Singer and Anthony Bashir) approach to the sequencing of written tasks. 5th and 6th grade/year 6 and 7 teacher: • Same as above.
Q3. *What are the key challenges that you've faced in English lessons (over the course of your career) when teaching children that have had adverse childhood experiences?* 11th grade/year 12 teacher: • The students can be closed off emotionally and demonstrate feelings of ''I'm

not deserving of anything or I'm not wanted here'' which can transfer into their academics: ''I'm not deserving of good grades'', ''I'm not worthy of this''. ''Someone won't notice this if I do well''. • Their resilience or their desire to improve isn't always there. They can easily get down on themselves. They feel ready to give up. • They don't feel like they're good and this can be really challenging, even if they really are good at completing the work. Once they develop that belief about themselves it's really challenging to get them to change that. 10th grade/year 11 teacher: • The skills gap which is compounded year after year. 7th and 8th grade/year 8 and 9 teacher: • If the culture of the classroom is not in place, to help that child to feel safe then like it really doesn't matter how amazing the lesson is. We know if students are triggered parts of their brain shut down and learning cannot happen. 5th and 6th grade/year 6 and 7 teacher: • The lesson content itself can sometimes be triggering and they'll disengage and not want to get involved and sometimes if you don't know their background it can just look like they just don't want to do their work.
Q4. What strategies have you used to address these challenges? 11th grade/year 12 teacher: • One-to-one work, positive reinforcement, careful task instructions and reminding students of the good work that they have produced. 10th grade/year 11 teacher: • Using the schools' structural provision of support. Getting support from the school's Student Support Team to support students who have reading disabilities, oracy difficulties and social-emotional disabilities that impact on their learning. 7th and 8th grade/year 8 and 9 teacher: • Key focus is on creating a classroom culture that is conducive to the success of the child. 5th and 6th grade/year 6 and 7 teacher In dealing with emotionally triggering topics: making sure that you are mindful that they are bringing their own experiences and having some conversations before engaging in areas that might potentially be troubling.

Action-based research with 9th grade/year 10 students followed by voluntary student task feedback questionnaires

Student questionnaire feedback results.

Codman Academy went to great lengths to accommodate my request for this element of my research and allocated approximately 25 minutes of the remaining time in the two 9th grade humanities lessons to the completion of this task. There were time constraints as the students were completing a test that overran and their teacher needed to have time at the end of the lessons to give them their homework instructions, consequently, there was no ice-breaker or lead-up to the delivery of the lesson recap tasks. The children and the teacher did their utmost to engage well with the task despite these limitations. Eight students across both 9th grade Humanities classes completed and presented their lesson recaps. One student had prepared hers but was too shy to deliver it, I presented it to the class on her behalf. The results of the

key questions are summarised below. Four students that did not present their lesson recaps provided feedback on their peers' presentations. Please find the anonymous student responses summarised below:

Table 4
Action-based research with 9th grade students at Codman Academy Charter School

Q1. *On a scale of 1-10. 1 being not confident and 10 being very confident. How confident were you about your ability to complete the lesson recap task?* • 1 = 1 student. • 3= 1 student. • 5 = 1 student. • 7= 3 students • 8 = 2 students. • 10 = 1 student. The majority of the 9 students (7 students) selected a score of at least 5 for this question.
Q2. How do you think your lesson recap went? • Very good • Great (2 students). • Pretty good. • Good (4 students). • It went well. All 9 students expressed a good level of satisfaction with their lesson recap.
*Q3. What was your biggest challenge when **planning** your lesson recap?* • Trying to make the speech long enough. • Knowing how to start. • Finishing it. • Focusing. • Picking which lesson to present. • Timekeeping. • Explaining a historical situation. • No challenge. • One student did not answer this question.
Q4. How were you able to **solve** this challenge, if so, how? • Problem -Focusing: Yes. I presented. • Problem -Knowing how to start: Yes. I just kept typing until I felt it was good enough. • Problem - Trying to make the speech long enough: Yes, by writing and explaining each answer. • Problem - Explaining a historical situation: Google. • I let Sylvia read it for me. • Others did not answer this question. The overriding solution that the students have given on how they overcame their initial challenges with the task is by doing. Their decision to use this approach to problem-solve demonstrates the school's culture that encourages students to learn by doing.
Q5. Did you find listening to other students' lesson recaps helpful? If so, why? If not, why not?

- Yes, they explained colonialization and bias/unbiased: **student that didn't present.**
- Not really and because it just was helpful: s**tudent that didn't present.**
- Yes. It was nice to let us get important info from our class: **student that didn't present.**
- Yes, because they explain what I have a hard time… **student that didn't present**.
- Yes: **student that presented**.
- Yes – I re-learned it: **student whose lesson recap I presented**.
- No x 2: **students that presented.**
- Yes, because it was a good way to understand what they thought: **student that presented**.
- Yes, because it was better for me to hear a peers' voice instead of a teacher's: **student that presented**.
- Yes, listening to other people's definitions was helpful: **student that presented.**

8 of the 10 students that completed this question stated that the lesson recaps were helpful with 7 providing specific reasons why. The students' comment about it being a ''good way to understand what they thought'' and ''Because they explain what I have a hard time…'' highlight the fact that students not only see their teachers as a source of information in lessons but their peers and that they have an interest in hearing what other students have extrapolated from a lesson (this interest could particularly be high in hearing what the students with a higher level of subject proficiency have interpreted from the same material that they viewed) individual non-verbal written tasks do not provide them with an opportunity to do this. This is particularly interesting given that the students had just completed a written test in which they were unable to hear the thoughts of their peers.

Q6. What did you think about the presentations of the other students?

- Very good: **student that didn't present.**
- They were really thought out: **student that didn't present.**
- They did a good job: **student that didn't present.**
- They did good, just be more louder: **student that presented.**
- It was good (x2): **student that presented.**
- Wonderful: **student whose lesson cap I presented.**
- A lot more information: **student that presented.**
- It could have been better: **student that presented.**
- Good (x2): **student that presented**.
- They were okay: **student that presented.**

8 of the 10 students rated their peers' presentations as at least 'good'.

As the students had just completed a test for this subject they would be conscious of the key assessment points that their Humanities lessons were designed to prepare them for and particularly attentive to answers to some of the questions that they were asked in the written test. This adds to the level of validity of their assessments of their peers' lesson recaps and makes their positive feedback of particular note. In future research it would be interesting to explore the written test results of the students that prepare oral feedback on what they have learnt whilst engaging in revision for a written assessment and to see whether preparing to explain the concepts verbally makes it easier for them to process the key points that they needed to include on their written assessment.

Discussion

The key challenges that looked -after children and children that have had adverse childhood experience face in the area of their education and ways of addressing this.

As the USA has a decentralised education system each state is allowed to set its own curriculum. This presents significant challenges of discontinuity to foster children when they move to different states. A limited understanding of the personal situations of foster children, for example, from the perspective of the impact of their adverse childhood is an underlying issue that both members of the Legal Centre for Foster Care and Education and the teachers at Codman Academy underscored as a barrier to learning. Educators' lack of understanding of the effect of the trauma that many foster children have experienced contributes to higher school suspensions and misconceptions of the behaviour of children that are recovering from adverse childhood experiences, for example, the example the fifth and sixth grade Codman Academy teacher gave of the dangers of the misinterpretation of a student response that has been caused by the emotions triggered by an emotive topic as a student being unwilling to work. Teachers' lack of understanding of the foster care process (for example, the process through which foster children leave residential children's homes and are placed in a foster home, the process through which some children return to their biological parents' home) can limit their ability to fully appreciate the extent of the anxiety, emotional strain and fear of rejection that foster children are experiencing during this rollercoaster period in their lives and bringing to schools and the anxiety and limitations that their foster parents are experiencing.

The underlying theme in the strategies that Codman Academy's fifth grade/year six to eleventh grade/year twelve teachers apply to address the challenges that children that have had adverse childhood experiences have at school is a careful and differentiated approach to every element of their teaching, from their introduction of emotive topics, to their cultivation of safe classroom environments for the children to feel comfortable enough to be vulnerable in, to their use of differentiated text (particularly for students who speak English as a second language, a vast number of unaccompanied child refugees in care speak English as a second language). These strategies enable Codman Academy to utilise oracy-centred strategies in a way that engages rather than intimidates its vulnerable students.

The level of confidence that Codman Academy's students have when it comes to oracy-centred activities is reflected in the results of the action-based research that I completed. As an English teacher, I appreciate how challenging it is to get students to engage in presentations at the best of times, nevertheless presentations in front of a teacher from abroad after completing a long test. The students' engagement with the task and their positive feedback, coupled by the random selection of the class is a testament to the oracy-centred culture that the school has. The students' high confidence level in their ability to complete the their lesson recap task reflects the sound teaching that they were given in the lessons and Ron Berger's vision of EL Education's students having ''a sense of competency and agency that they can express themselves''. Their positive reflections of their lesson recaps after completing them reflects EL Education's Head of Curriculum's vision for the children to not only have windows through which they see others but mirrors through which they see themselves and the benefits of Codman Academy's teachers' emphasis on strategies

that build the self-esteem of their students. As I designed the lesson recap task using the key physical, linguistic, cognitive, social and emotional strands of Voice 21's oracy-framework, the results of this task reinforced the degree to which EL Education's education ethos and Voice 21's education ethos complement each other and serve a similar purpose.

Conclusion

My impressions

My research visit to the USA has shown me the broad range of factors that contribute to the low education attainment levels of foster children that many educators are not necessarily aware of. The range of complex external factors that are outside of the power of foster children highlights the needs for schools to take particular and deliberate care to empower looked-after children by: showing them that their voice matters and is valued, demonstrating an appreciation of their personal strengths and potential and cultivating a sense of belonging and acceptance. Oracy-centred literacy strategies have a strong potential to support teachers in doing this when approached with a considered and differentiated approach to the cultivating of the group classroom dynamic, lesson planning, delivery and assessment. EL Education's approach to English curriculum planning and its teachers' approach to teaching provide a good model for UK schools in their quest to do this in their own schools.

Codman Academy's Huntington Theatre programme entails students working with teacher actors to learn about the interplay between physical and verbal communication whilst developing their written literacy skills by writing half of their final play. It is a strategy that schools in the UK can also utilise, for example through a collaborative cross-curricular approach to the development of students' verbal and written literacy that involves schools' English and Drama departments working together or by allowing students to engage more in the scriptwriting of school plays. Furthermore, the vast range of tactics that EL Education uses from the perspective of its English Curriculum Design to its teachers' lesson planning, delivery and assessment are transferable to UK English lessons from year 6 to year 12.

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Systematic Work with Learning Environments: Training Student Representatives to Improve Learning Conditions in Their Classes

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Abstract
In Norwegian schools, student councils have a long tradition, and law enforces students to participate in democratic processes. However, it is a challenge to get the student council to work according to purpose, that students are to influence their own learning environment. One challenge is that students often see the student council, as a place where they can report all their wishes, be it a coke machine or pizza for lunch. Another challenge is that it may be difficult for the student representative to get the opinions of all students in their class. To meet these challenges, we have tried out an alternative way of working with student councils in primary and lower secondary schools, applying a systematic approach to working with the learning environment. In this approach, the student representatives ask their class 1) What is important for you to be okay in school? 2) What do you as class do well, what are you satisfied with? 3) Is there something that is difficult for your class and that makes you not feel okay in school? All students in class write answers to the questions that the student representatives bring to the student council, which discuss possible areas the class need to focus on improving, and what they could do. Suggestions from the student council is then brought back to class by the student representative, and they decide on what to work on. In this way, the students actively contribute to improve their own learning environment.

Keywords: Participation, Student Councils, Agency, Self-Efficacy

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Introduction

Student and youth councils and all political committees are natural parts of the Norwegian democratic tradition and legislation. All these institutions are based on elected representation in order to promote and hear different voices before decision-making and action. Ever since 1919, student councils have existed in Norway. Gradually extending and gaining political influence, law enforced student councils in 1964 (Hareide, 1972). Today the Education Act defines how student councils shall be organized (1998, §11-2; § 11-6), and what type of topics student councils can engage in, like physical environment and student participation in work with the school environment etc. (1998, § 9a).

In spite of having student councils established by law, students' actual impact has been thoroughly inquired and investigated, both in 2011 and again in 2019 (NOU 2019:23). One of the issues that has been criticised is that often representatives only speak on behalf of some students in the student groups, and not all, as they are supposed to (NOU 2011:20). In 2019, a new paragraph in the Municipality Act §5-2 e, enforced youth councils as political committee in order to strengthen and lift youngsters' opinions into local governments and authorities. Despite law enforced student and youth councils, their function, students' actual contribution and true school-democracy and participation are still being questioned, discussed and tried improved.

Currently, new curricula are being implemented that emphasize student participation and democracy as interdisciplinary topics (The Norwegian Directorate of Education, 2019). In addition, a new Education Act is proceeded in order make room for alternative ways of organizing student participation and improve practice (NOU 2019:23, §2-4). Student council paragraphs are suggested promoted and gathered from chapter 9 and 11 to chapter 2 titled: "Participation, school-democracy and school rules". If the suggested Education Act is decided on, the word "council" will be replaced with "student", and the word "shall" will be used to exemplify and emphasise all important issues students ARE to be truly involved in. In addition, the new Education Act will give room for optional and more efficient ways of organizing and gaining true participation compared to traditional student council, and the approach presented here is one way of organising student democracy.

The current study is a development from an ongoing action research project in the southern region of Norway, where a fivestep approach to achieve mastery and motivation is applied. The method promotes everyone's opinion about what is important, what their success factors are and what obstacles they may have, for then to find solutions to possible obstacles. Seeing positive effects of systematically motivating and strengthening groups of students together, the five-step-method was adapted in one student council autumn 2019 for a pilot study focusing on developing a better learning environment for all. According to a national survey conducted two years ago, youngsters' struggle psychologically (Bakken, 2018). It is therefore of outmost importance for them to have a good learning environment at school, and this is something that student representatives and student councils work with.

Our research question is as follows: *How can schools facilitate for student representatives to make the classes they represent actively engage in improving their*

own learning environment? To answer this question, we have investigated what experiences and discussions the fivestep approach implemented in the student councils led to, and students' evaluations of how this approach worked. In the following, the theoretical foundation for the approach will be presented, as well as details of the intervention, results, and finally a discussion of the findings and some final remarks on how this study contributes to the field.

Theoretical foundation

The approach applied in the current study builds on different theoretical aspects. First and foremost, the fivestep method adjusted here builds on Ryan and Deci's self-determination theory (2000), claiming that in order to be motivated, the basic needs of autonomy, competence and relatedness must be met. The feelings of autonomy and competence are also related to the concepts of agency and self-efficacy (see figure 1).

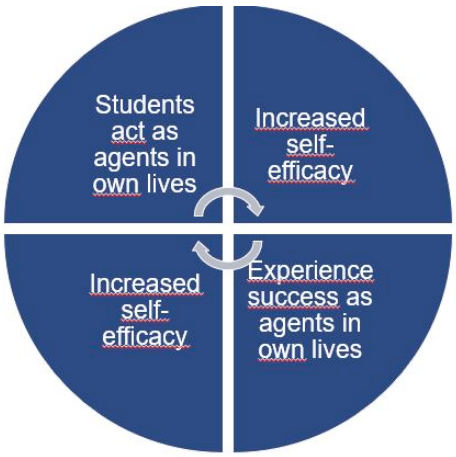

Figure 1. Agency and self-efficacy (Based on Bandura, 1997 and 2006)

When students act as agents in their own lives, they are likely to experience an increased belief in their own abilities to master, or their self-efficacy (Bandura, 1997; 2006). With increased self-efficacy, the students are more likely to experience success as agents in their own lives. This again may lead to increased self-efficacy, making it more likely that the students dare take responsibility for new tasks, and act as agents in their own lives.

Second, the method builds on Antonovsky's healthpromoting theory (2012), saying that in order to deal with stress and develop resilience, it is important for individuals to experience a sense of coherence. This is achieved through comprehensibility, manageability and meaningfulness, meaning that individuals understand situations, they believe that they have resources to deal with the situation, and they see the value of their own contributions. This theory also relates to Bandura's theory of self-efficacy (1997; 2006), that if one believes in one's own resources, the expectancy to master something is increased, which again makes it more likely that one succeeds. This is related to the concept of manageability in Antonovsky's theory.

The third theory which is basis for the adjustment of the method to a student council context, is the theory of deliberative democracy, or consensus democracy (Baldersheim & Rose, 2014). In a deliberative democracy, meaning is created and

solutions are found through collective processes. However, underneath this practice is an assumption that there is consensus in the group about what is best for the community, and this is not always the case. In Habermas' discourse theory, it is emphasised that it is important to accept that different opinions exist about what is best for the collective (1984; 1987; 1996). This is an important aspect to include when student representatives are to apply the fivestep approach in their classes.

Methodology

This study investigates how schools can facilitate for successful student participation and student democracy by examining a fivestep approach applied as a form of deliberative democracy. The aim of the study is to find out whether this type of approach may help students actively engage in making a better learning environment. In order to find some answers to this, we report some of the reflections from the students and the student representatives. In addition, both student representatives and all students in the classes filled in assessment forms, which we present here. First, the intervention will be described, then the measuring instrument or the assessment form, then the sample, and finally there will be some ethical considerations regarding the study.

Intervention

The intervention consisted of three meetings in the student council, and in addition, the student representatives were given tasks to fulfill between the meetings. The tasks the student representatives were given were based on the fivestep method as illustrated in figure 2 below.

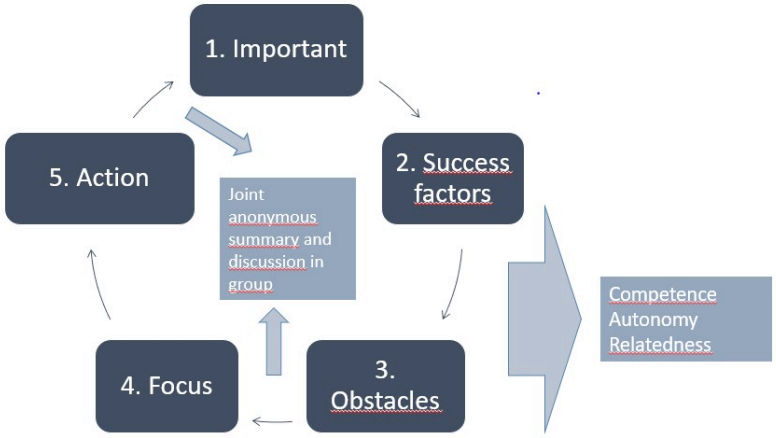

Figure 2. The fivestep approach to working with student participation

In the first student council meeting, the student representatives were presented with this method, and they carried out the first three steps to become acquainted with the method. They answered the following three questions anonymously, writing on empty papers: 1) What is important for you to be okay in school?, 2) What are you as a group good at, and what are you satisfied with in school? and 3) Is something difficult for you as a group, something that makes you not feel okay in school? The answers were collected, and it was demonstrated how to make a summary of the notes. The

student representatives were given instructions to ask their classes to write individual answers to the same three questions, and then make a summary of this for the next student council.

In the second student council meeting, the student representatives gave summaries of their classes' responses. Following this, the student council discussed what they thought their group needed to focus on improving, and what specifically they could do. The student representatives were instructed to return to their classes and give them the same summaries that they presented in the student council, and carry out the same type of discussion, where they discuss what they need to focus on and what they could do to manage this. If the class had little suggestions, the student representative could refer to examples discussed in the student council, and come up with suggestions to choose between.

In the third student council meeting, the student representatives reported what their classes had decided to focus on, and they gave an assessment of how well they felt the class had followed up on this. Different alternative continuations of this type of student council work were suggested.

Measuring instrument

The student representatives filled in an assessment form with the following questions: 1) Has the fivestep approach helped you carry out student council work (alternatives: Yes, no, I do not know)? 2) Do you as student representative find the method easy to apply (alternatives: yes, partly, no)? 3) Has the method made it easier for you to understand what your class is concerned with (alternatives: yes, no, I do not know)? 4) Do you think that your class found good focus areas and plans to carry out something (alternatives; yes, no, I do not know)? If yes, explain if you can. 5) Give examples of what your class has chosen to focus on and has worked with. 6) How do you think your class followed up the plan? And 7) How satisfied have you been with the fivestep approach (alternatives: very dissatisfied, dissatisfied, satisfied, very satisfied, I do not know). In addition to filling in this form, the student representatives were asked during the final student council about what they felt about using this method as student representatives.

The rest of the students in the classes filled in another assessment form with the following questions: 1) Do you think the fivestep approach has helped you as a group to feel better in school (alternatives: yes, no, I do not know). If yes, explain if you can. 2) Give examples of something you have focused on. 3) Has the class managed to follow their own plan (alternatives: yes, partly, no)? 4) How satisfied have you been with the fivestep method the student council have applied (alternatives: very dissatisfied, dissatisfied, satisfied, very satisfied, I do not know).

Sample

All student representatives from 8th, 9th and 10th grade in a lower secondary school participated in the student council when the approach was applied. The analysis of the themes in the student reflections is based on the students' summaries of the answers they received from their classes. There were three groups of 8th grade students, two groups of 9th grade students and two groups of 10th grade students. Each group had

two student representatives that participated in the student councils, resulting in 14 student representatives in total. Out of these, we only have assessment forms from the 8 student representatives in the 9th and 10th grade due to circumstances we could not control. Data from classes is therefore limited to 9th and 10th grade, resulting in a sample of 73 students in total.

Ethical considerations

Everything students wrote was completely anonymous, and the student representatives were informed that it was voluntary to contribute to research. They were also instructed to give their classes the same information, and tell their peers that they could write «Not for research» if they did not want to participate in the study. Also on the assessment forms, the students were to cross out whether it was okay that their reflections were used for research and teaching purposes. As everything that was collected was anonymous the study did not need to be reported to the national centre for research data.

There are some challenges with the validity and the reliability of this study, whether we can trust and generalise the findings here (Jacobsen, 2005). The fivestep method was only applied once in the groups, and the students might not have remembered much of the method when they answered the assessment forms, as they were filled out some time after the intervention. The fivestep method was introduced to them by their newly and easy-trained student representatives. For this reason, they may have found it hard to define whether the method had worked satisfactorily. This is also a very limited study as only one student council and one school has been involved. It is therefore difficult to generalise based on the findings. Still, the results and analyses in this study give an indication that this is an approach worth exploring.

Results

To answer the question of how to facilitate for students engaging in creating a good learning environment, we have analysed what themes occur in the student reflections: What is important for them, what are they good at and what do they experience as difficult. In addition, we include examples of what they decided to focus on and what specifically they decided to do. Following this, we will present the students' assessments of the method.

Typical issues in student reflections

When answering the question of what was important for them to be okay in school, many students answered friends, respect, and to be kind and include others. They were concerned with having a good learning environment without bullying. Much of this was mirrored in the answers to question two dealing with success factors, meaning what they were good at already and what they were satisfied with. They reported that they were good at including, being kind and supporting each other. In addition, one of the student representatives reported that they were good at discussing. On the third question, dealing with obstacles, meaning what may be difficult or prevent them from being okay, they typically answered conflicts and drama between classmates. They also mentioned that noise in class made it difficult to concentrate

and work well. One of the student representatives reported that most students in the class found it difficult to raise their hand.

When discussing possible focus areas, three themes occurred: 1) Everyone has friends or is included, 2) Less disruption or noise in class and 3) Make it easier to raise hands. The first theme also included showing respect, being kind and avoiding conflicts and drama. When discussing what to do to make a change, the students suggested that they could include others by smiling and saying «hi» to others. They could avoid bullying each other and invite each other to conversations or gatherings of different types. When it comes to the second focus area, they suggested that everyone needed to take responsibility to be quiet, and that they could think before they spoke, and speak one at the time. In order to make a safe atmosphere to raise hands in, they suggested that they could avoid giving comments to those who spoke in class. These were the focus areas and actions the different classes decided on as well.

Results of assessments

When the student representatives were asked how it was to work in this way in the student council, they mentioned particularly that they profited from hearing what their classmates found important to bring before the council. They also underlined the advantage of getting to know what their classmates regarded as success factors in their classes. Finally, they emphasised how the method resulted in valuable discussions both in their own classes but also in the council: “Good with discussions, both in class and here”.

The student representative’s responses on the assessment form are presented in table 1 below. As the number of respondents is very low, the results are presented as numbers and not percentages.

Table 1: Assessment from student representatives grade 9 and 10, N = 8.

Question	**Yes**	**Partly (Q2)**	**No**	**I do not know (Q1, 3, 4)**
Has the fivestep method helped you carry out student council work?	3	-	2	3
Do you as student council representative find the method easy to apply?	2	5	0	-
Has the method made it easier for you to understand what your class is concerned with?	4	-	2	2
Do you think that the class has managed to choose good focus areas and action plans?	3	-	1	3

From the assessment, we see that the student representatives have different perceptions of how the method has worked. Three report that it has helped them carry out the student council work, two say it has not helped, and three do not know. The student representatives show more agreement on the second question, on whether they found the method easy to apply. Two answered «yes» and five answered «partly». Half of the student representatives answers positively to the question of whether the method has made it easier for them to understand what their class is concerned with,

whereas two answered «no» and two «I do not know». To the final question here of whether their class managed to choose good focus areas and action plans, three answered «yes», 1 answered «no», and 4 either did not know or did not answer. Out of the 8 student representatives, 6 were satisfied with the fivestep method, only 1 was very dissatisfied, and 1 did not know.

The assessments from the students in the classes reveal that many students were uncertain about how this method worked for them. The results are presented in percentages in table 2 below.

Table 2: Student assessment of the fivestep method applied in classes, N = 73

Question 1 and 2	**Yes**	**Partly (Q2)**	**No**	**I do not know (Q1)**	**No answer**
Do you think that the fivestep method has helped you as class to be more okay at school?	10%	-	26%	51%	14%
Has the class managed to follow their own plans?	14%	53%	19%	-	15%

Note. On questions 2 and 3, two students circled two options. In these cases both answers are included.

Only 10% answered «yes» to the question of whether the fivestep method helped them as class to be more okay at school, whereas 26% answered «no» and 65% either answered «I do not know» or did not answer at all. When answering the second question of whether they managed to follow their own plans, more students had a positive response as 14% answered «yes», 53% answered «partly», and only 19% said «no». Fifteen percent did not answer. To the question of how satisfied they were with the method, 7% answered that they were «very dissatisfied», 1% answered «dissatisfied», 28% answered «satisfied» and 1% «very satisfied». More than half of the students, as much as 63% either answered «I do not know», or gave no answer at all.

Discussion

This study has investigated how a fivestep method applied by student representatives may facilitate for student participation and how students may engage in making a good learning environment. Some of the advantages of using this type of method is that it gives everyone opportunity and time to express their inner thoughts anonymously and silently, as everything is written down on an unnamed sheet of paper. Many students find it is easier to be both honest and bold under these circumstances. Not having to fear reactions or pointed fingers, delicate matters concerning many students appear. Discussion topics not often risen before, tends to be revealed. As the student representatives reported, they gained insight into what their peers were concerned with. This is something that supports their roles as student representatives, and make it easier for them to be agents that believe that they can succeed with making a change, and actually make a change (Bandura, 1997; 2006).

The results from the assessments are somewhat vague, as many of the students in the classes were uncertain about how they felt about this method. This may be due to a

very short and limited intervention. They may have had problems remembering the method. The student representatives also received little training and time to carry out the method. However, 6 out of 8 student representatives were satisfied with the method despite of limiting circumstances. Sixty-seven percent of the students in 9th and 10th grade reported that they managed or partly managed to follow their plans, regardless of the short intervention. Following plans usually means doing something different or doing something in a different and often better manner. Succeeding with following plans also meets the basic needs of competence and autonomy (Ryan & Deci, 2000), which may result in increased self-efficacy and agency (Bandura, 1997; 2006). Starting off this case study, we hoped to improve decision-making, produce better practice and initiate action. Since many students actually did change their practice, this is an indication that applying the fivestep method through student councils made a change.

Carrying out a class project such as this may also meet the need for relatedness (Ryan & Deci, 2000). The class decide on a joint focus and makes a plan they are to follow up as a group. The fact that they do this together also makes it more likely that the aindividual students feel a success, as they may get encouragement and trust from each other. They observe others following the plan, and feel that they succeed as a class (Skaalvik & Skaalvik, 2015; Schunk & Meece, 2006; Bandura, 1997). This is one of the advantages of carrying out the fivestep method through student councils. With a focus on improving the learning environment, everyone can share a possible success.

A central aspect of applying the fivestep method through student councils is that the student representatives are empowered to take charge of a process and lead their peers. It also empowers the students in class. An empowerment process is about making individuals more conscious about recognising and becoming conscious about one's own situation. It is also about understanding how to affect one's surroundings (Tveiten, 2017) which is one of the aims of applying the fivestep method. There is however a risk in starting this type of process if the student representative does not manage to take responsibility, if there are serious conflicts in the class or if the class does not reach a consensus. These are examples of risks pointed out in deliberative democracies by Habermas (84; 87; 96). How can a quite inexperienced and fresh student representative handle this? Perhaps it is not up to the student representatives to handle all these types of challenges alone.

Even though we want to empower students to take responsibility of their own learning environment, adults sometimes need to guide and support them in order to make the empowerment process successful. When applying this approach in this pilot study, the student representatives were left with all the reflections from their peers on their own. This practice could perhaps be changed. An alternative would be that the reflections are handed over to their teacher, who brings the reflections to the adult in charge of the student council. At the next student council meeting, the adult in charge gives the class reflections to the representatives, who are given time to make summaries and present in the meeting. Then the adult could be more attentive to possible challenges in the reflections, and go through the reflections before handing them out. Another important aspect here is that the students cannot solve all challenges themselves. It is important that the adult following up the student council helps the student representatives sort the reflections. Together they could decide what should be

brought to the schools leaders, what should be brought to the teachers, and what should be dealt with by the students themselves.

Conclusion

This pilot study has illustrated how a systematic approach may be applied to make students actively engaged in improving their own learning environment. Central in this approach is identifying what is important, success factors and obstacles, for then to discuss what the class needs to focus on and how to do it. The study exemplifies how a deliberative democracy may be implemented in a school context. The findings show that the majority of the student representatives were satisfied with applying the method. This tells us that this new way of doing student representative work must have made sense and meaning to them.

To conclude, the fivestep method described here may be a useful tool for student representatives to handle their role and make a difference. They get insight into what their peers are concerned with. In addition, they are supported through the process of making a change by attending student council meetings where an adult leads them through the process, and discuss possible challenges along the way. As the majority of the students in the classes reported that they had followed their plans, at least partly, we may also conclude that by applying this approach, the student representatives made their peers actively engaged in improving their own learning environment. Still, this is only a limited pilot study, and further investigation is needed to explore the potential of this approach to facilitate for participation and student democracy.

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Systematic Work with Motivation and Life Mastery Skills in Upper Secondary School: An Action Research Study from a Norwegian Context

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Abstract
Due to high drop out and falling motivation in upper secondary school, we started a project where we work with motivation and life mastery skills in the classroom. The purpose of the method is that the students are to take more responsibility of their own lives and learning process, and through this achieve increased intrinsic motivation. We applied a method where students identified what their goals were, what helps them lead towards these goals, what stops them, what they needed to focus on and how they were to carry this out. These questions were discussed in class, then the students wrote individual reflections. The method is based on Deci and Ryan's self-determination theory, stating that in order to be intrinsically motivated, the basic needs of autonomy, competence and relatedness must be met. In this study, we have analysed reflections from 79 students thematically, converting qualitative data into quantitative data presented through bar diagrams. The analyses reveal that many students experience low motivation, fear and low confidence as obstacles, and they report that they need to focus on getting more rest, concentrating in class, doing more homework and structuring their time better. A majority of the students report that they followed their plans when using this method, at least partly, so we argue that the method presented in this study may support students in developing a strategy for mastering their learning and life better, which again may result in increased motivation. For more information about the project, see https://samm.uia.no/en/frontpage/.

Keywords: Motivation, Self-Determination, Resilience, Life Mastery

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Introduction

Lack of student motivation is a significant challenge in Norwegian upper secondary school (The Norwegian Directorate of Education, 2017/2018), and according to numbers from a survey carried out in the southern region of Norway in 2016, as many as 30 % of boys and 10% of girls from socalled low-status socioeconomic background have considered dropping out of school (Berntsen, Kristiansen, Møller &Vardheim, 2016). The same survey showed that about half of the girls in this region now and then felt that everything is a struggle, and about a fourth of the boys felt the same. This "youngdata" survey, as it is called, carried out two years earlier, showed the same tendencies, that stress-related problems are common among juveniles (NOVA, 2015). One of three reported that they worried much and felt that everything was a struggle, and youngsters from low-income families report more mental health issues than other youngsters. One of the responses to the problem of dropout has been to introduce a new upper limit for absence. The new upper limit is 10 % absence, and if students exceed this limit, this leads to a fail grade. In spite of the good intentions, the new rule seems to have resulted in less absence, but paradoxically, to more fail grades in total (Ogre & Gjellan, 2017). This is the context in which the current study is carried out.

Many studies have confirmed the link between school results, employment and mental health challenges, and social benefits and disability benefits are almost only used by people who have not finished upper secondary school (Falch, Johannesen & Strøm, 2009). Hyggen and Gjerustad's studies have also shown that there is a link between struggling with mental problems and not succeeding in reaching educational goals and aspirations (2013). Another study by Furuberg and Myklebø shows that young people with most need of support from social services have not finished upper secondary school, and often they have complex challenges related to drug issues and problems with their mental health (2013). Reduced life quality is an important cause of absence due to illness and social benefits among young people (Major et al., 2011). Mental health issues also increase the risk of not succeeding with upper secondary school (Aase, Bentsen & Møller, 2015), so we might ask ourselves, what comes first? Do young people develoop mental health issues because they drop out of school, or did they drop out of school due to mental health issues? Whatever came first, all the elements mentioned here show that it is important to take young people's mental health seriously and support them to complete their eductiation to avoid the consequences of dropout.

In today's western society, young people have much freedom and there are many choices to make, which is positive. At the same time, there is an increased focus on individualisation, and everyone has to perform in order to succeed and get access to different opportunities. There are many requirements for young people, and studies show that young people experience more stress now than before and they worry about making the wrong choices (Schraml, 2013; Wigsnæs, 2015). As both national and international research shows, students also perceive school as more performance-oriented the older they get (Skaalvik & Skaalvik, 2011; Patric, Kaplan & Ryan, 2011). The type of performance-oriented culture that young people report that they experience has a negative effect both on learning, motivation, mental health and the teacher-student relation (Skaalvik & Frederici, 2015). So this performance-orientation

that we experience in today's school may be the cause behind the problems in today's school described above, such as low motivation and dropout.

In general, there are many projects in school to prevent dropout and follow up students that struggle. What separates the project presented in the current study from others is that the approach applied here focuses on facilitating for student autonomy in order to enhance motivation, rather than on what different actors in the students' surroundings are to do for them. We focus on the fact that the students *themselves* own the solutions to what they can and should do to solve problems they have, and that this will help them gain increased motivation (Langeland, Horverak & Fagerhaug, 2018; Horverak, Langeland & Fagerhaug, 2018; Horverak & Aanensen, 2019; Horverak, Aanensen & Langeland, 2019; Horverak, 2020). They are to identify their own individual goals and success factors in addition to potential obstacles, so that it becomes clear what each individual student needs to do to move in the right direction. This leads us to the following research question: *How can students be supported to develop strategies that can give them increased motivation and make them take responsibility for their own lives and learning?*

To answer this question, we have carried out an intervention where we applied a method that builds on Ryan and Deci's self-determination theory (2000) and Antonovsky's healthpromoting theory. Ryan and Deci claim that in order to experience intrinsic motivation, the basic needs of competence, autonomy and relatedness must be met. The feeling of mastery is a result of experienced competence and belief that one can master different aspects and life events, what is called self-efficacy (Bandura, 1977). According to Antonovsky (2012), understanding one's surroundings and believing in one's capability to handle challenges, which is equivalent to self-efficacy, are important healthpromoting factors that lead to a sense of coherence, which again enhances resilience and ability to handle stress. We believe that applying a method that combine self-determination theory and healthpromoting factors can strengthen children and young people's motivation.

For children and young people in school, the possibility of self-determination and participating in planning one's own life is necessary in order to experience autonomy, inclusion, a sense of coherence and a good learning environment. This is important for experiencing relatedness, which again may strengthen their motivation. In the method applied in this project, the students participate actively in forming their own lives through identifying what is important in life, as well as identifying obstacles and finding solutions to these. In the following, the intervention is described more in details. Then, the student reflections' are presented – what the students find to be their goals and obstacles, and what they need to focus on. Finally, we discuss the method and potential challenges and necessary adjustments.

Methodology

We define our project an action research study (Postholm, 2007) and have carried out an intervention based on the need for increased motivation in school. The intervention consisted of applying a motivation method covering four sessions (illustrated in figure 1 below), which was carried out once during the autumn semester. The students identified goals, success factors and obstacles, they chose focus areas and made action plans, and then they evaluated and adjusted their plans twice. An essential aspect of

the method is that the students write their answers anonomously, so that they dare being open and honest, also to themselves, without having as a goal to achieve external praise or criticism.

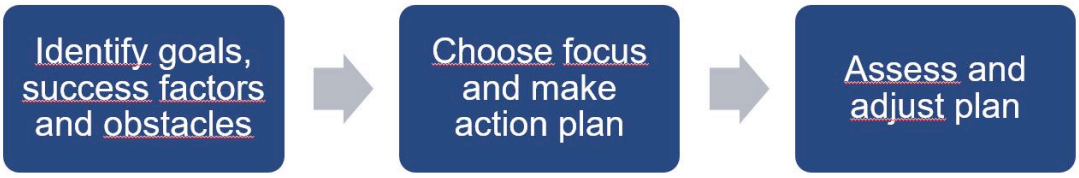

Figure 1. The motivation method

The first session of the intervention started with a discussion in plenum of the question «What does your world look like today?» Then the students were to answer the following questions: 1) What do you want to accomplish? 2) What leads towards your goals? and 3) What stops you? The students wrote anonymous answers to the questions in a book with personal codes they chose themselves instead of names. In the second session, the teacher showed examples from the students' reflections to the class, so they could see what was specific for this class, what they wanted to achieve and what stopped them from reaching their goals. Then the students were to answer the following questions: 4) What do you choose to work on? and 5) What specifically will you do to manage this? First, they discussed these questions to find solutions to obstacles together, then they wrote individual answers. In the third and fourth session, the students assessed whether they had followed their plans and they made necessary adjustments.

Sample

The selection of participating teachers and groups was based on voluntary participation and included three schools. Table 1 shows the distribution of the participating students and teachers included in the project.

Table 1 *Participants in the motivation project*

School	**Teacher**	**Group**	**Participating students**	**Total number of students**
School 1	Teacher 1	3 YFA	14	22
School 1	Teacher 2	1 STA	20	25
School 1	Teacher 2	1STM	11	18
School 2	Teacher 3	1STA	24	26
School 3	Teacher 4	3STA	10	20
Total number of students			**79**	**111**

Note. YFA = Preparatory studies for higher education after two years of vocational studies; STA = General studies; STM = General studies with specialisation in media and communication.

In total, 4 teachers and 5 groups of students participated in the project, which resulted in 79 informants. The participant number reflects how many students answered on a final questionnaire (71 % response rate), but in some sessions, more students attended. All students participating were preparing for higher education.

Results

The current study investigates how to facilitate for working with life mastery skills in the classroom, and the following analysis reveals how the motivation method applied in this project works in practice. The analyses show tendencies in students' reflections regarding goals, success factors, obstacles, chosen focus areas and actions.

When asked about their goals or what they wanted to achieve in life, many students answer job, money, studies and family (see figure 2 below). Some are concerned with achieving competence and good grades. One student expresses: "I want to marry, have two children, a nice house, become police or investigator, be happy and be able to make my children happy". This sums up many of the elements mentioned in the answers to question 1.

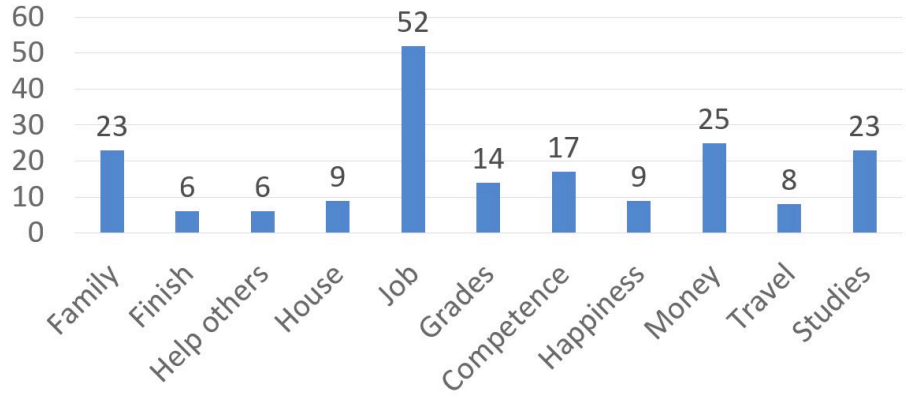

Figure 2. Goals.

On question two about success factors, the students did not understand that they were to give examples of qualities or skills they had that could help them towards their goals. Instead most of them report what they need to do, for example make an effort (55 students) and pay attention in class (14 students).

When it comes to obstacles, the students give varied answers, but there are some common elements.

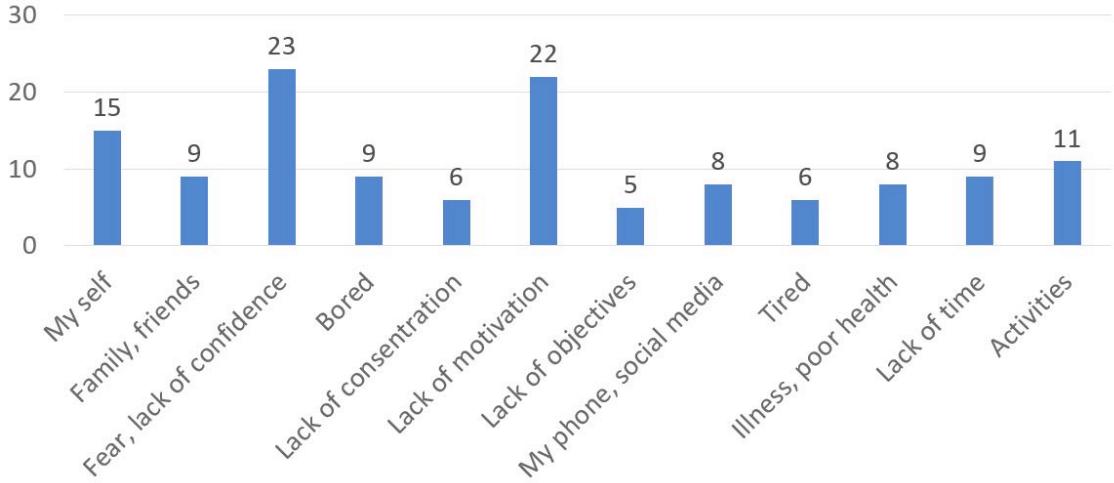

Figure 3. Obstacles.

As much as 23 students mention fear or lack of conficence as an obstacle, and 22 students mention lack of motivation. Fifteen students write "myself" when answering this question, and a few mention illness or poor health, lack of objectives and consentration and that they are bored. All these elements are internal factors. A minority mention more external factors such as lack of time, after school activities and friends and families as obstacles.

When asked about what they want to focus on, 27 students answer that they will try to be more focused or consentrated (figure 4 below). As much as 23 students write that they need more rest. Other important focus areas they mention are grades, homework, good education, structure, motivation. Some write that they want to decrease their screentime, be more social and follow up after school activities.

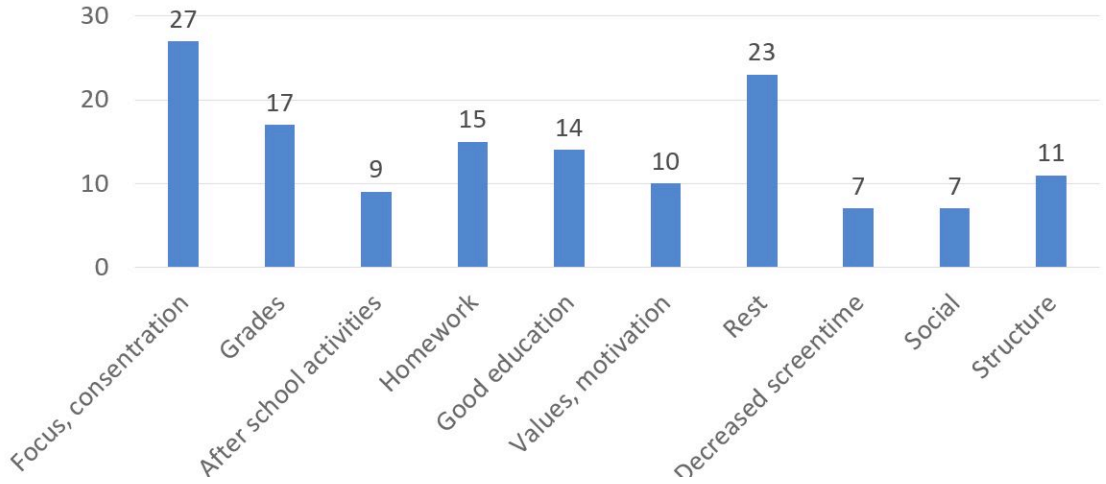

Figure 4. Focus

The students' plans for working with their individual focus areas are illustrated in figure 5 below.

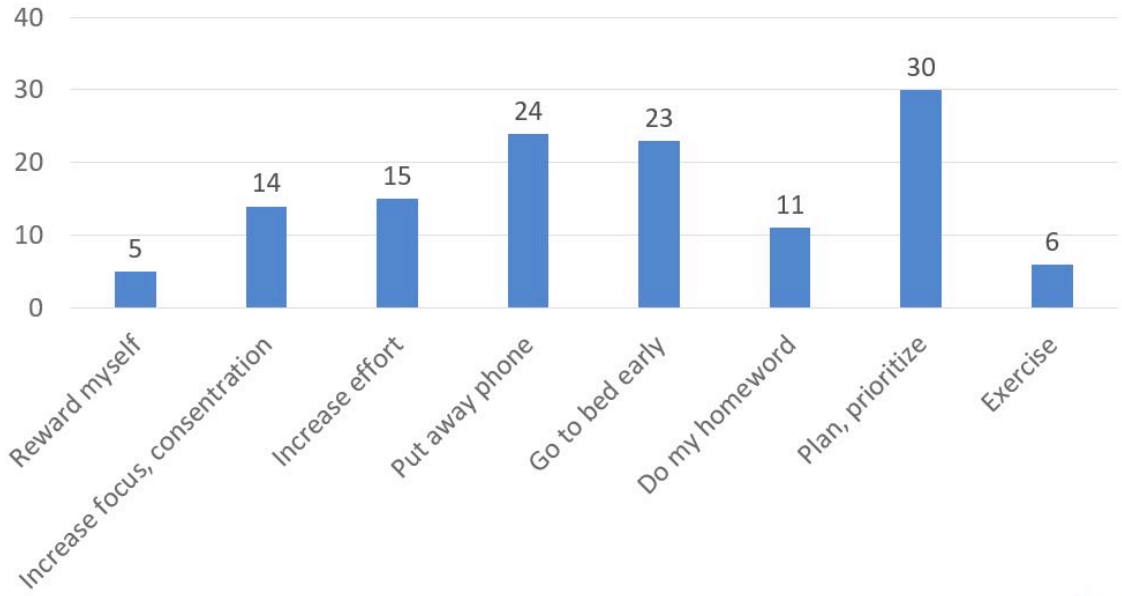

Figure 5. Action.

Thirty students say they need to make their focus a priority and plan well, 24 students write that they need to put away their phone, and 23 decide to go to bed early. Increased focus and increased effort are also mentioned as part of their plans. Others write that they will do homework, exercise and give themselves rewards.

As part of the intervention, the students assessed whether or not they followed up their plan (table 2).

Table 2. *Assessment of own follow-up, N=79.*

Time	**Follows plan**	**Partly follows plan**	**Does not follow plan**	**Uncertain / No answer**
T1	41	21	15	2
T2	41	13	18	7

Note. T1= Test 1, meaning assessment in session 3, T2= Test 2, meaning assessment in session 4.

Of the 79 participants, about half of them (41 students) followed their plans at both assessment times, and quite a few more reported that they partly followed their plan (21 students at T1, 13 students at T2).

Discussion

This study investigates how to facilitate for students developing strategies for taking responsibility of their own lives and learning. The students express obstacles such as lack of motivation, fear and low self-esteem, as well as problems with social media, boredom and exhaustion. They choose to focus on making more efforts, keeping focus, doing homework, create structure in their lives and get more rest. About half of the students that participated report that they managed to follow their own action plans, something that can be interpreted to mean that the students managed to use the motivation method. Succeeding with following own plans may make the students feel that their basic need of autonomy and competence are met, basic needs that are important in order to achieve motivation (Ryan & Deci, 2000).

One may of course question the validity of the study, whether we can trust the results (Jacobsen, 2005), since the analysis is based on the students' own reflections and reports. The students may report that they follow their own plans, but we do not know if this is really so. Since the teacher cannot identify who has written what, it is likely that the students have written the truth, but we cannot know for certain. Independently of the students' reports, or self-assessments, the analysis of the student reflections show that they managed to describe their own situations, what was important to them, what stopped them, and what they needed to change, and also that they actively participated in planning strategies to focus on important wishes and goals.

There is a risk that this method becomes too instrumental and performance-oriented, limited to dealing with identifying goals and measures needed to reach specific goals. If this happens, there is a risk that instead of facilitating for increased motivation, the method adds to the pressure to perform, which again may result in lower motivation (Skaalvik & Frederici, 2015). Question 2 dealing with success factors is therefore significant to avoid this type of instrumental and performance-oriented thinking. It is important that the students see their own victories and experience self-

acknowledgment independently of feedback from others. Goals are often related to, and a result of, the needs of society, but maybe, in line with Antonovsky's theory (2012), a focus on what competences and capacities individuals have may contribute to increased meaningfulness and sense of coherence. Identifying resources available, in oneself or one's surroundings, may also lead to increased self-efficacy (Bandura, 1977) and participation, which again leads to increased intrinsic motivation (Ryan & Deci, 2000).

Concepts such as self-efficacy and motivation are also of current relevance in the new curricula for Norwegian schools, which focus on developing life mastery skills (The Norwegian Directorate of Education, 2019). It is emphasised that students are to gain competence in making responsible choices and this includes understanding and influencing factors in life, and learning to deal with success and failure and different types of challenges. This may be a response to the problems we described initally in this article, problems as dropout, mental health issues and low motivation (The Norwegian Directorate of Education, 2017/2018; Berntsen et al., 2016; Ogre & Gjellan, 2017). In line with the new core curriculum in Norwegian schools, the goal of applying the motivation method described in the current study is to strengthen the students' resilience, and to facilitate for honest identification of challenges in a safe environment, as well as planning and being an active agent in one's own life and learning. This may increase the students' life mastery skills and resilience.

One question that may arise is whether it is always the students', or the teachers' responsibility to handle different challenges that occur in the reflections. As pointed out in a report on the "youngdata" survey mentioned previously, low degree of social support may increase the risk of mental suffering (NOVA, 2015). Some of the obstacles the students mention in their reflections may be serious and sometimes the students may need help to deal with their challenges. This may also be outside of the teachers' area of competence, and it is therefore necessary with a plan for collaboration with other professionals in these types of cases. Sometimes the students can find solutions on their own, sometimes they can find solutions together with peers or with their teachers, but sometimes they may need help from other professionals, like school nurses or a psychologist perhaps. Another question is related to anonymity and how to identify students with major issues requiring instant help. In such cases the teacher along with other professionals need to find methods of identifying these students and offer necessary assistance. Living life can be compared with climbing in the mountains. Sometimes it is easy to find a way, and other times, one may need some help or guidance on the way towards one's individual or personal destination.

Conclusion

The findings presented in this study show that the motivation method presented here has potential to support students in developing strategies to take responsibility for their own lives and learning as many students seem to have benefitted from the intervention. The students report many intrinsic factors that stop them from achieving their goals, such as low motivation and low self-esteem. The most important message from this study is that we need to facilitate for young people to find their own solutions to their obstacles, and to support them in identifying what they can deal with on their own, and what perhaps needs more professional assistance.

Even though the findings are interesting, there is a need for more systematic research on the motivation method described here. This is an initial pilot study with a limited sample, and further research on the effects of the approach would complement the current study. Research on effects of this type of approach in a longterm perspective is also needed. One of the challenges with measuring effects of the approach is that the method should be adjusted to the individual groups and their needs. The implementation may therefore differ from group to group as the needs are different.

Based on the findings and reflections presented here, some adjustments in the method are needed with more focus on individual success factors, and perhaps less focus on goals to avoid a too instrumental approach. In a school infused with goal-thinking and criteria-lists for grades, it is perhaps impossible to avoid instrumental thinking. Therefore, we believe that more focus on values and success factors may be a key to make the students feel more engaged and motivated, and with new curricula in Norway, there may be possibilities to make a change in school to create an environment that facilitates for good mental health and life mastery skills.

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«Kids Do Well If They Can» - Guiding Principles in Health Promoting Work in Kindergartens And Schools

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Abstract
In the programme Health Promoting Kindergartens and Schools, we work across various educational contexts, and our goal is to facilitate for good mental health where individuals thrive and can develop their potential. The background for this programme was increased mental health challenges among young people. We believe it is important to have a common set of values to create an environment that embraces difference and promotes a positive development. We have developed a set of guiding principles which are as follows: 1) There are no difficult children, only children who are going through difficulties. This principle is inspired by Ross Green's saying «Kids do well if they can», and it expresses a professional responsibility to act according to what children and young people express through words or action. 2) We see development as a possibility, meaning that it is always possible to influence a situation. 3) We develop solutions together, meaning that children and young people are supported to be actors in their own lives depending on age and matureness. 4) We know that we are all part of the context, meaning that we must be conscious of our own attitudes and understandings when meeting with others. To ensure that the different participants in the programme work according to the same principles, we gathered different professionals from the education and health sectors, and used a method called Dialogue Cafe to discuss the four principles. In this presentation, we will elaborate on this process, and how the four guiding principles were understood.

Keywords: Health Promotion, Mental Health, Guiding Principles

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Introduction

For many years, the southern region of Norway called Agder has been facing challenges when it comes to living conditions. Since the report *Surt liv på det blide Sørland* (Depressive life in the happy South) revealed poor living conditions in terms of high use of prescription drugs like sedatives and sleeping pills, high suicide rates and many young disability pensioners among more (Røed, 1993), this has been a focus area in policy making. Particularly serious today is the combination of low employment with a high proportion of part-time work (Agder County, 2020). Still, there are also many disability pensioners of working age and many who are on the threshold of disability pension. In addition, many children and adolescents report mental symptoms. These are expressions of exclusion and living conditions that are important to take seriously. The reasons why it is like this in Agder are compound. The same are the answers to how one can deal with these challenges.

Half of the most common depression and anxiety disorders and most of the developmental disorders are detected in childhood, teenagers or early adolescence (Kessler et al, 2005).

Early debut in mental illness is a matter of great concern because this is associated with prolonged first episodes and high relapse rates (Fergusson, Boden & Horwood, 2007).

After one episode with depression, the chance is 50% to get another one and after two episodes, the chance of getting another depression has increased to 75%. After three episodes, the relapse rate is up to 80-85%. The relapse rate is especially discouraging for children and teeagers. We know that early effort gives the society a great return (Heckman, 2012). We also know that the society get a greater return from universal measures (Holte, 2017; 2018), and in the project Health Promoting Kindergartens and Schools, this is what we focus on, universal measures that all children and young people benefit from.

James Heckman, the American economist and Nobel Prize winner, says that we must invest early to get the greater return, as we can see illustrated in the figure below. He wants us to invest in children instead of the stock market.

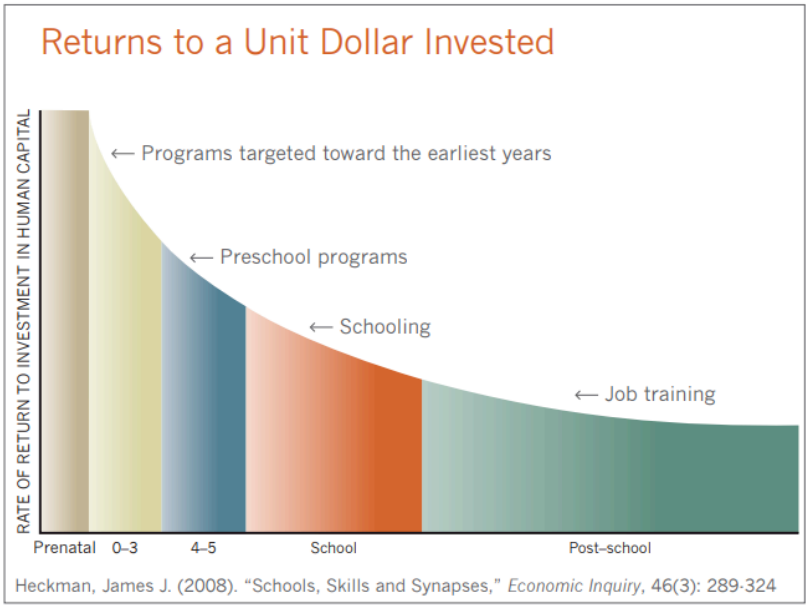

Figure 1. Returns on investments, from Heckman, 2008.

This shows that early efforts also have an economic aspect. Still, most important is the fact that we can help more children develop a good mental health if we start at an early point.

This article investigates how we can improve mental health for children and young people between 0 and 24 years of age through competence building in the project "Health Promoting Kindergartens and Schools". This is one of several projects that constitute The Programme for Public Health in Norway. The World Health Organization - WHO defines mental health as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (WHO, 2004). This is a definition that complies well with how we work with mental health in our project.

In the following, the reason why we need a health promoting programme in the southern region of Norway is elaborated on, as well as the project "Health Promoting Kindergartens and Schools". Second, the following research question is discussed: How can we as different professionals work together to create a safe and supporting environment for children and young people to thrive and develop?

The health status in Norway

The health status of the population of Norway as described in 2018 was generally good (Norwegian Institute of Public Health's report: Health Status in Norway 2018). In 2017, life expectancy was 84.3 years for women and 80.9 years for men. Most children and adolescents in Norway thrive and have good mental health. Quality of life studies show that the vast majority are satisfied with their lives. However, many people are diagnosed with mental disorders during their childhood or adolescence, sometimes as chronic or lifelong conditions. The report *Psykisk helse i Norge (Mental Health in Norway)* (Reneflot et al, 2018) states that about 7% of pre-school children

and school children have symptoms of a mental disease and that about 5% of children and youngsters between 0-17 years are every year treated in mental health care.

Absence of mental health is a burden on children. It may lead to drop outs in upper secondary school and illness. Depression and anxiety are common problems (Institute of Public Health, 2016, 2018). Mental health issues also have consequences for society in general, such as high social security costs, working disability and mortality. This costs Norway more than 290 billion a year, which equals almost a tenth of our GDP (Gross Domestic Product) (Holte, 2018). Depression is the most expensive disorder in terms of social security costs, working disability and mortality. Only 13 % is health related costs, the rest is indirect costs (Holte, 2017).

Ungdata (young data) is a cross-national data collection scheme, designed to conduct youth surveys at the municipal level in Norway. It is regarded as the most comprehensive source of information on adolescent health and well-being at the municipal and national levels. The survey is an important tool in municipal planning and developmental work related to public health and preventive measures aimed at young people like we do in Health Promoting Kindergartens and Schools. The key numbers for our region Agder, in the southern part of Norway, show that 83% are happy with their parents, 94% says that their parents know who they spend time with and where they are and 9 of 10 have at least one close friend (Ung I Agder, 2019). Furthermore, it indicates that half of the teenagers in Agder have at least one close friend they meet through the internet and that 7% has been bullied in one way or another. 9 of 10 are happy in school and 9 of 10 think they will complete upper secondary school.

Even though quite many young people report positive answers on this survey, the developmental features in young people's everyday school life in Agder from 2016 to 2019 indicate that less of the young people in Agder feel happy in school and more are bored or feel nervous about school. They use less time on homework, but still more than half say they get stressed by schoolwork. When it comes to mental health, most young people in our region say they have a good mental health. For those who specify symptoms on mental health disorders, it is most common to point out stress-related symptoms. They worry too much. There are more girls than boys that specify this. However, the number has increased for both girls and boys from 2016 to 2019. This also corresponds with the national numbers. In 10th grade and 1st year in upper secondary school, the increase is higher among the boys. We also know that the number of those who commit suicide is much higher among boys than among girls (Reneflot et al, 2019).

Health Promoting Kindergartens and Schools

«Health Promoting Kindergartens and Schools» is one of four projects in "The Programme for Public Health" in Norway. In the public health area, the absence of mental health, as earlier referred to as the state of well-being, is the biggest challenge in about half of the municipalities in Norway (The Office of the Auditor General Monitors, 2015). The same municipalities also replied that they do not know how to handle this challenge. Therefore, the overall goal of the programme is to strengthen the municipalities' capacity and competence so that they can work with promoting children and young people's mental health and quality of life based on what good

practise and research show. As kindergartens and schools are arenas where children and young people stay most of the week, it is crucial that these arenas promote health and coping for everyone. Public health and life skills are now also priority topics in both kindergartens' and schools' curricula (Norwegian Directorate for Education and Training, 2017; 2020).

In the project Health Promoting Kindergartens and Schools, we work across various educational contexts, and our goal is to facilitate for good mental health where individuals thrive and can develop their potential. The background for this programme was increased mental health challenges among young people as described above. We believe it is important to have a common set of values and framework to create an environment that embraces difference and promotes a positive development.

As earlier referred to, it is important to work with universal measures, measures that are directed towards all the children and youngsters, and not only a selection of them. The figure below shows the contribution of learning supportive and behaviour supporting measures in Norway.

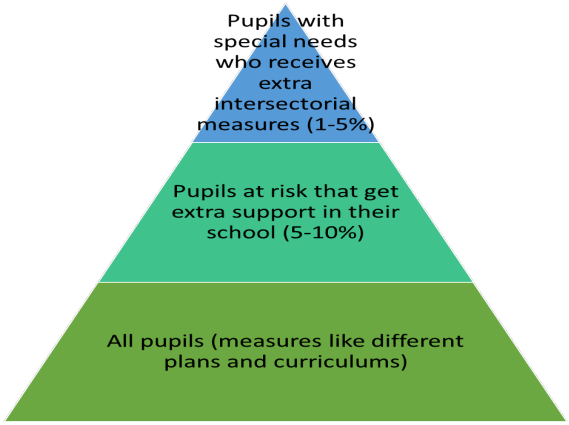

Figure 2. Response to intervention (from Buffum, Mattos & Weber, 2009).

Today, we use most of our resources working with the upper parts in the pyramid where only 1-5 % of the target group is. Arne Holte, a well-known professor in Norway, points out that the society gets most paid back when working in the lower part of the pyramid (2018). In this part we find the preventing and health promoting measures, such as those we work with in Health Promoting Kindergartens and Schools.

Methodology

Competence on health promotion is a fundament in Health Promoting Kindergartens and Schools, a fundament that is intersectoral and across municipalities. In order to enhance competence and consensus across different sections in society that work with children and young people, we have developed four guiding principles directed towards the adults that work with our target groups. The intension behind these principles is to make different professionals reflect upon their practice in meeting with the individual child or teenager.

The four principle are as follows:

1. **There are no difficult children, only children who are going through difficulties.** This principle is inspired by Ross Green's saying, «Kids do well if they can», and it expresses a professional responsibility to act according to what children and young people express through words or action. This principle was already familiar to many participants as it had been presented in the region by RVTS Sør (a regional specialist centre for working with trauma, violence issues and prevention of suicides).
2. **We see development as a possibility,** meaning that it is always possible to influence a situation.
3. **We develop solutions together,** meaning that children and young people are supported to be actors in their own lives depending on age and matureness.
4. **We all influence the context we are part of,** meaning that we must be conscious of our own attitudes and understandings when meeting with others.

To ensure that the different participants in the project work according to the same principles, we gathered different professionals from the education and health sectors, and used a method called «Cafe Dialogue» to discuss the four principles. Each principle was written on a big poster and put out on a table with a «cafe host». This person stayed at the same table throughout the session and facilitated for the participants that came to that table to elaborate on what this principle meant for them in their daily work. The participants were divided into groups with approximately 7-10 persons, and all of the groups had to go from table to table until the four principles were discussed by all groups.

The participants answered the question; "What does this Guiding Principle mean for me in my practice"? The café dialogues made each participant reflect upon what each principle meant to them in their daily work as a preschool teacher, teacher, assistant, school nurse, principal, leader of the child care, in the school or health sector in the municipality and other relevant institutions. In the following we will report the reflections the café dialogue resulted in, including some quotations from these reflections.

Results

The first principle, "There are no difficult children, only children who are going through difficulties", deals with how we view the child or the human being. It reflects our professional responsibility to act according to what children and young people express through words or action. In different ways, the dialogue showed that language use is an important aspect when meeting children and young people, as pointed out in the following quote: "How we use the language is crucial". Other comments concerned the professionals' attitude when meeting with the child, e.g. one person said that one "must be curious at the child…why does the child behave like it does…". It was also pointed out that it was important for colleagues to observe and support each other, and to create meeting points for reflection in order to be more conscious on how behavior effects those around.

The second principle, "We see development as a possibility" is a solution-oriented principle meaning we can always influence the situation. During the discussion on this principle, it was emphasised that: "Positive focus is a good starting point for

development". Another element that was emphasised was that it is important to facilitate for strategy training and intrinsic motivation. Several also pointed out in different ways that "We must be honest and find alternative ways and options through a close adult/child-collaboration".

The third principle, "We develop solutions together", reflects the importance of different kinds of collaborations in order to let children and young people be supported to be actors in their own lives depending on age and matureness. When working with the third principle, it was said that "The leaders have to facilitate for more interdisciplinary and intersectoral collaboration". Many participants also emphasised the importance of parental involvement, which the following quote underlines; "A larger degree of parental involvement, also in the upper secondary school". Finally, it was said that we must "Mirror the teenagers, use them as experts and develop methods for this".

The fourth principle, "We all influence the context we are a part of", means that we must be conscious of our own attitudes and understandings when meeting with others. The last quotations reflects this: "I have to start with me: the man in the mirror". Other reflections on this point was that "I must be open for guidance» and «I must practice 'difficult situations'". This last quote illustrates the need for training working with the guiding principles in practice.

Discussion

In order to work health promoting in kindergartens and schools, there is a need to focus on competence building as well as instrumental measures and last, how to implement these measures. The guiding principles developed in the project Health Promoting Kindergartens and Schools is an important and common platform that may support those who work with children and young people to develop a common understanding and competence. Establishing a common "language" for how we work with relationship building toward our target groups despite what professional context we work within is crucial. Doing the café dialogue together with different professionals and leaders from different sectors and municipalities was useful as the importance of leadership was pointed out in several ways.

Relationship building is one of the areas that are emphasized in the national Framework for kindergartens and in the national Curriculum for schools (Norwegian Directorate for Education and Traning, 2017; 2020). At the same time, working with this kind of compentence is a complex concept with many interacting factors (Roland, 2016). How we relate to our feelings is one side of this complex concept. All feelings are important in one way or another, we just need to learn how to deal with them. The relationship between the teacher and the pupil is essential in developing good learning environments, which is important to create a health promoting environment.

Working with values and guidelines is challenging. The process in finding four inter-sectorial and inter-municipal principles to work with across different educational contexts took longer time than estimated. The guiding principles had to match and fulfil the values and the competence work that already were established within our municipalities, though on different levels. Up till now, this has been the biggest challenge. For example, one of the measures in the project is called SAMM, "a

Systematic Approach to Mastering life – the fivestep Motivation method", and this method is applied on all levels from primary school to adult learning contexts (Horverak, Langeland & Fagerhaug, 2018; Horverak & Aanensen, 2019; Horverak, 2020). When working with children from the age of 6 to adults at the age of 24, the perspective and the role of the teacher differ in the various contexts. This may cause problems when trying to define a common language and set of guiding principles, as a 24 year-old obviously may take more responsibility than a 6 year-old, and the concept of "child" is perhaps not suitable for 24 year-olds. The shift of different representatives from the municipalities was another challenge that lead to a lack of continuity, ownership and progress. All this contributed to why it took a long time to find a set of common guiding principles that work for all our municipalities and contexts.

In order to support the implementation of these principles in schools and other relevant institutions, we have developed a prototype of a web site that will make this kind of reflection and practise easier. There are for instance small videos showing different situations that can appear in the kindergarten or in the school. To make this easy, especially for the pre-school teachers and the teachers, each principle is linked up to the national curricula both for kindergartens and schools. The challenge that we are facing now, is how to make room for the training of the different key persons in our municipalities, and then how to make time for the training within each municipal.

The challenges described here are probably common for many similar situations. When dealing with children and young people and mental health issues is school, different professionals with different backgrounds and viewpoints need to collaborate. They need to find a common language and they need time and meeting points to create a common understanding. What is important is to keep the children and young people in focus - what they benefit from - and for the adults to keep their separate interests and indifferences in the background. Doing this, one may succeed in promoting health in schools and kindergartens through universal measures.

Conclusion

This study investigates why we need a health promoting programme in the southern region of Norway, and how professionals can work together across different disciplines and sectors to create a good environment for children and young people. Although many young people in Norway are happy and satisfied, there are those who struggle. Compared with national numbers, the results from surveys show that young people in this southern region struggle more than others. This study shows that creating interdisciplinary and cross-sectional gathering points to discuss important principles could be one way of creating a common understanding to meet children and young people with. This creates a safe environment where they may feel that the adults believe in them, and where their contributions and opinions count, not only the adults' opinions.

As mentioned, it may be challenging to implement these types of principles in contexts with different regulations and systems. This study demonstrates one way of working with such a process and make all relevant actors engaged in the process. Further work is needed in the implementation process. There is also a need to

investigate how working with principles such as these actually influences children and young people's health, whether it is health promoting.

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Educational Receptivity: Karol Wojtyla's Philosophy of Community as a Means Towards Embracing Differences

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Abstract
Karol Wojtyla is one of the 20th Century philosophers who personally witnessed the tragedy of World War II in the hands of the Totalitarian Regime: Nazism and Communism. These experiences lead Wojtyla to philosophize on the value of the person. Wojtyla did not stop simply on rediscovering the meaning of what it is to be human; more than that, he also highlights the importance of community and participation. There, he shows that dialogue is one of the authentic attitudes to participate in a community. This philosophy of Wojtyla continues until he became Pope John Paul II, particularly in his encyclical letters (qualitative method). Nevertheless, the central theme of these writings is receptivity. Which, for Pope John Paul II, is the means towards engaging differences insofar as it calls both sides to participate in meaningful dialogue through intellectual humility. By "Differences," Wojtyla means diversity of knowledge as having a unitive aspect as long as it aims to contribute to learning the truth. "Educational receptivity" in this sense, is therefore framed within the context of teaching-learning because without receptivity, there can be no learning. Without this, a student can never learn from his/her teacher/s regardless of what is being taught to them, and teacher/s can never learn from their students once they are being corrected or questioned by them. Thus, this theory can be applied in any field of education, for it is universally applicable in character, for instance, in interdisciplinary education where positive sciences are engaging dialogue with humanities.

Keywords: Attitude of Opposition, Education, Participation, Receptivity

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Introduction

One of the hardest things that man can accept is the reality that he is, by nature, a *limited being*—a being who is not flawless and perfect. Therefore, it is normal for man to experience pain whenever his mistakes are being pointed out. Yet, the most important thing is how he will react to this *pain* of being corrected. In most cases, the person being corrected may lose his/her temper or may have a grudge or a feeling of resentment against the one who corrects him/her. We can see this through the examples of some world leaders who shun their critics and deny the criticisms being made against their leadership. Worse than that, they prevent *truth tellers* to prevail in their midst, because these kinds of leaders are narcissistic in a sense that they do not want their *faults* to be exposed before the people that they serve. They thought that doing so will make them better leaders and improve their method of leadership. Truth be told, the acceptance of mistake is not an easy thing to do, because it reveals to yourself the *truth* that you need to improve and you can do better than what you are doing now.

In the field of education, both the teacher and the learners need to possess a positive attitude whenever they are being corrected. In most cases, the learners are the ones who are being corrected for their mistakes. But the teachers must also be corrected whenever they commit mistakes in the topic that they are trying to explain. The responsibility is, therefore, greater to the one who teaches, for it is his/her duty to teach what is right and be accurate about what he/she is talking. The challenge is far greater whenever he/she commits a mistake. For it needs *humility*, or in this case, *receptivity* to the learners who are trying to correct him/her. In this picture, one can realize what does it mean by educational receptivity. It means that the *teacher* and the *learners* are ready to be humble *before the truth,* which both of them are trying to seek. Besides, an arrogant person never accepts the truth for he can never reach it since he/she is full of himself thinking that he/she is the measure of truth. With this in mind, this study seeks to explore this theme of education through philosophy.

In the ancient history of philosophy, at least in its Greek foundation, Plato reports that Socrates insists that *all that Socrates knows is that he knows nothing.* (Plato *Apology*, 21a-e) This advocacy of Socrates serves as one of the foundations of philosophy and indicates a characteristic that a philosopher must possess. The implication of this *Socratic ignorance* means for the philosophers to become *humble* before knowledge and wisdom. Otherwise, they are not true lovers of wisdom. Indeed, this remains true in the field of education. As educators, we were once a student, and in the process of learning, we all testified to the vital role of *humility*. Especially whenever our researches are being criticized in order to create a greater outcome.

History also proves that the field of philosophy and the field of education are effective allies. In fact, many notable philosophers are also great educators: Alfred North Whitehead, Bernard Lonergan, John Dewey, and Rudolf Steiner, to name a few. Thus, it is not surprising to see a philosophical teaching being employed in the realms of education. This time it is not about the principles of education rather, it is about a philosophical theory being applied in the field of education. Not only that, this article will also explore the field of education in light of Karol Wojtyla's philosophy of community, who is widely known as Pope John Paul II (now St. John Paul II).

On top of that, Wojtyla is not known as a philosopher of education like that of Whitehead and others. He is renowned in the field of philosophy as a *Thomist-Phenomenologist*, or precisely a *personalist* who wrote extensively on the topics under the *philosophy of the human person* and *moral philosophy*. Hence, it is necessary to pose the question (1) how can his philosophy of community become a valid theory in the field of education? And (2) how can *embracing differences* become possible through Wojtyla's philosophy of community?

Wojtyla's Philosophy of Community

Wojtyla's philosophy of the *community* is an aspect of his philosophical teachings that garnered the interest of many scholars in different parts of the world. But how did Wojtyla launch this theory? He did this when he was discussing the human person, he taught that the concept of community is an indispensable part of human existence. Wojtyla, therefore, recalls the lesson from the traditional philosophy of man: "the nature of man is supposed to be rational and he is the person in virtue of the function of reason; but at the same time he has the 'social' nature." (Wojtyla 1979, 267) Wojtyla remarks that his philosophical discussion on human action and the human person will never be complete if he will disregard the importance of man's intersubjectivity. (Wojtyla 1979, 261) Since for Wojtyla, the human person, reveals his *interior realities* through his actions, it follows that his *participation* "together-with-others" in his community unveils also his personality.

Wojtyla starts his philosophy of the community by distinguishing its two types namely, the *community of being* and the *community of acting*. *The former* refers to "the communal existence of human beings and the *bonds* that are formed among them on account of their communal existence." (Wojtyla 1979, 278) An example of this can be seen in the relationship between the teachers and the school administrators. The bond between them is a type of *communal existence*. *The latter* pertains to "the aim that brings men to act together." (Wojtyla 1979, 279) For instance, in a teachers' association, all teachers belonging in that association have a specific goal that brings them together, that is, to educate the learners. Following this, Wojtyla asserts that any person who belongs in a *community of acting* "is in a position in his communal acting to perform real actions and fulfill himself in them; the possibility of this performance and the fulfillment it brings about are determined by participation." (Wojtyla 1979, 279) In other words, man has a duty to participate in the community, especially in a community of acting, which has a common goal.

Participation and Alienation

The community is formed by means of participation. Participation means "more or less equivalent to having a share or a part in something." (Wojtyla 1979, 268) All members in the community should have a share in their community. As such, Wojtyla remarks that "participation as an essential of the person is a constitutive factor of any human community." (Wojtyla 1979, 276) Also, Wojtyla reminds us that the community is the sphere where intersubjectivity happens. The interaction between the person and his neighbor forms the community through their shared goal in contributing to the common good. Besides, Wojtyla claims that "participation emerges as a dynamic factor of the person and the action and also as the basis of every authentic human community." (Wojtyla 1979, 283). Yet, no matter how great

are the goals of participation, its primary enemies are *individualism* and *objective totalism*. The former "sees the individual [as] the supreme and fundamental good, to which all interests of the community or the society have to be subordinated." (Wojtyla 1979, 273). In effect, individualism "limits participation, since it isolates the person from others by conceiving him solely as an individual who concentrates on himself and on his own good." (Wojtyla 1979, 273-274) While the latter, which is the reverse of individualism, is *objective totalism,* which "relies on the opposite principle, and unconditionally subordinates the individual to the community or the society." (Wojtyla 1979, 273) In individualism, we see selfishness as the internal principle dominating the community, while in *objective totalism* is a tool of *oppression* against the person, since the community in this sense, becomes the *sole important* goal that must be achieved even at the expense of the well-being and welfare of the people belonging to it. These two results to *alienation* which "becomes imminent when participation in the community itself sets constraints and overshadows participation in the humanness of others, when that fundamental subordination of my own good to that of my fellowman which imparts the specifically human quality to any community of men becomes defective." (Wojtyla 1979, 297)

Common Good

Participation can never be separated from the common good. But what does Wojtyla means by common good? The common good may be understood as the good of the community; however, this is an open-ended understanding since it may imply a single-sidedness of the common good. Hence, Wojtyla asserts that the common good must be taken in both subjective and objective dimensions of it. "Its subjective sense is strictly related to participation as a property of the acting person; it is in this sense that it is possible to say that the common good corresponds to the social nature of man." (Wojtyla 1979, 281-282) In other words, the common good affirms both the contribution of man as an *individual* subject and their *collective* contribution in the community. However, the common good must always have the priority in participation since it is the common goal of all persons belonging in that community. Nevertheless, "the priority of the common good, its superiority over the partial or individual goods, does not result solely from the quantitative aspect of the society; it does not follow from the fact that the common good concerns a great number or the majority while the individual good concerns only individuals or a minority." (Wojtyla 1979, 282) Recall that for the person who is willing to participate, "the awareness of the common good makes him look beyond his own share; and this intentional reference allows him to realize essentially his own share." (Wojtyla 1979, 285)

Authentic and Non-Authentic Attitudes

Wojtyla notices that there are factors which affect man's participation. These are identified as *authentic attitudes that* forms the individual to participate in the common good of the community, while there are also *non-authentic attitudes* that hinders man to participate in the common good of the community. In *authentic attitudes* one can find the ***Attitude of Solidarity***. According to Wojtlya this attitude is "the natural consequence of the fact that human beings live and act together; it is the attitude of a community, in which the common good properly conditions and initiates participation, and participation in turn properly serves the common good, fosters it, and furthers its realization." (Wojtyla 1979, 284-285) He explains that this attitude

boosts the person's confidence with what he can contribute to the community. Hence it "means a constant readiness to accept and to realize one's share in the community because of one's membership within that particular community." (Wojtyla 1979, 285) Also, this reveals to man that he is duty-bound in the community where he lives. Thus, Wojtyla notes that "in accepting the attitude of solidarity man does what he is supposed to do not only because of his membership in the group but because he has the benefit of the whole' in view: he does it for the 'common good.'" (Wojtyla 1979, 285) Nevertheless, having this attitude does not mean that the person will take all the responsibilities and obligations of every member in the community. The equal distribution of tasks according to expertise is highly encouraged by Wojtyla, as he points out "the attitude of solidarity means respect for all parts that are the share of every member of the community. To take over a part of the duties and obligations that are not mine is intrinsically contrary to the participation and to the essence of the community." (Wojtyla 1979, 285)

Coupled with this is the ***attitude of opposition,*** which "does not contradict the attitude of solidarity, by contrast, it complements it. Wojtyla emphasizes this point by saying that "opposition is not inconsistent with solidarity. The one who voices his opposition to the general or particular rules or regulations of the community does not thereby reject his membership; he does not withdraw his readiness to act and to work for the common good." (Wojtyla 1979, 286) In short, for Wojtyla, to oppose is a condition of the right participation. Without it, participation can never be realized, and the common good can never be the aim in a community. Hence, Wojtyla stresses that "this opposition aims then at an adequate understanding and, to an even greater degree, the means employed to achieve the common good, especially from the point of view of the possibility of participation." (Wojtyla 1979, 286) That is why one should never silence someone who opposes because doing so is counterintuitive to the goal of the community. Thus, Wojtyla reminds that "those who in this way stand up in opposition do not intend thereby to cut themselves off from their community. On the contrary, they seek their own place and a constructive role within the community; they seek for *that* participation and *that* attitude to the common good, which would allow them a better, a fuller, and a more effective share of the communal life." (Wojtyla 1979, 286) Nevertheless, one may think that this opposition seems to be self-serving and *totally subjective*. Wojtyla admits that it is relative, but it can never be *totally subjective*. He clarifies that "the attitude of opposition is *relative* on the hand, to that particular view one takes of the community and of what is good for it, and on the other, it expresses the *strong need* to participate in the common existing with other men and even more so in the common acting." (Wojtyla 1979, 286) Besides, if this community is not fascist nor hegemonic, it will always allow opposition and criticism from all sides and all aspects, seeing it as an opportunity towards better governance of the people that is why "the structure of a human community is *correct only* if it admits not just the presence of a justified opposition but also that practical effectiveness of opposition required by the common good and the right of participation" (Wojtyla 1979, 287)

Now that it is clear what Wojtyla means by *attitude of solidarity* and *attitude of opposition,* it must be asked what is the end of these two? The goal of these two attitudes is to arrive at the third authentic attitude which is the ***Sense of Dialogue***. Wojtyla believes that *dialogue is* "operative in the formation and the strengthening of interhuman solidarity also through the *attitude of opposition*" (Wojtyla 1979, 287) For

him, without dialogue, the community is bound to destroy its own personalistic principles. He explains that "this principle of dialogue allows us to select and bring to light what in controversial situations is right and true, and helps to eliminate any partial, preconceived or subjective views and trends. Such views and inclinations may become the seed of strife and conflict between men, while what is right and true always favors the development of the person and enriches the community." (Wojtyla 1979, 287) In this way, the community can negotiate their concerns with the goal of respecting the truth and dismiss any taint of self-serving goals.

If there are authentic attitudes that pave the way towards participation, there are also non-authentic attitudes that hinder participation. The first is **conformism,** which "denotes a tendency to comply with the accepted custom and to resemble others, a tendency that in itself is neutral, in many respects positive and constructive or even creative." (Wojtyla 1979, 289) It is a type of pseudo-participation because the conformist exhibits "an attitude of compliance or resignation, in a specific form of passivity that makes the man-person to be but the subject of *what happens* instead of being the *actor* or *agent* responsible for building his own attitudes and his own commitment in the community. Man then fails to accept his share in constructing the community and allows himself to be carried with and by the anonymous majority." (Wojtyla 1979, 289) This is unacceptable for Wojtyla, because what happens is that the person only shows a "a mere semblance of participation, a superficial compliance with others, which lacks conviction and authentic engagement, is substituted for real participation." (Wojtyla 1979, 289) Obviously, this must be rejected because it allows *injustice* in the community to happen since it is also a form of tolerating evil by conspiring through mediocrity. Without a doubt, the conformist "favors situations marked by indifference toward the common good." (Wojtyla 1979, 290) One must be reminded that conformity "brings *uniformity* rather than *unity*. Beneath the uniform surface, however, there lies latent differentiation, and it is the task of the community to provide for the necessary conditions of turning it into personal participation." (Wojtyla 1979, 290) As a matter of fact, "when people adapt themselves to the demands of the community *only superficially* and when they do so only to gain some immediate *advantages* or to avoid trouble, the person as well as the community incur irremediable losses" (Wojtyla 1979, 290)

The second is the worse form of conformism which is **non-involvement** an attitude that is "characterized by a disregard for those appearances of concern for the common good which also characterizes conformism" (Wojtyla 1979, 290) It is a total apathy towards the common good since in this attitude is "a kind of substitute or compensatory attitude for those who find solidarity too difficult and who do not believe in the sense of opposition." (Wojtyla 1979, 291) Hence, Wojtyla points out that "in the case of *conformism* he attempts to maintain appearances, but in that of non-involvement he no longer seems to care about them." (Wojtyla 1979, 291)

Educational Receptivity

Educational receptivity is a term that I personally draw from the lessons of Wojtyla's philosophy of community, specifically in its goal towards dialogue that is made possible through the *attitude of solidarity* and *attitude of opposition*. Also, I took the term *receptivity* from his encyclical letter *Fides et Ratio* which he written as Pope John Paul II. In that letter, Wojtyla made Mary as the model of *receptivity* for

philosophers because of her *exemplar humility*. Wojtyla says that "…just as in giving her assent to Gabriel's word, Mary lost nothing of her true humanity and freedom, so too when philosophy heeds the summons of the Gospel's truth its autonomy is in no way impaired." (John Paul II, 1998, §108). Thus, every philosopher in Wojtyla's mind can only be so if they follow the footsteps of Mary's humility. Applying this in education and pedagogy: educators and learners can only *know the truth* if they first become *humble before knowledge* besides, "the human knower has no immediate access to self-knowledge; rather, one comes to know through an honest and *humble* 'encounter and arrangement'" (Meconi 2002, 72) Indeed, "Mary's reception of reality is a reminder that philosophy is not for the proud." (Meconi 2002, 72) So too, *education* can never be realized by someone who is full of himself and arrogant before knowledge we must therefore remind ourselves that "open to receiving Wisdom, Mary perfectly accepts the Divine's visitation…This feminine *receptivity* acts to highlight the first role of the philosopher: the openness of the soul to truth not yet its own." (Meconi 2002, 74) This is not exclusive only to philosophers as degree holders, since anyone can be called a philosopher so long as they are open to truth and exhibit *receptivity.* Hence, educational receptivity simply means an attitude of *being humble in order to receive knowledge through education*. With this, it can allow one discipline to participate and make a dialogue to another. Since a *receptive educator* is also a philosopher, and the philosopher "is not a self-satisfied possessor of knowledge, but a *seeker* of it." (Schindler 2016, 84) His vocation is to have "the wisdom to remain always open to better understanding, the knowledge that one's knowledge is never so definitive and comprehensive that there would no longer be a need for fundamental inquiry." (Schindler 2016, 84) For this, an *educator* remains open to the reality that he does not monopolize knowledge and that his specific discipline is co-equal with other disciplines for "genuine intellectual simplicity, being truly poor in spirit, manifests itself not in the a priori rejection of all knowledge or its possibility, but in the recognition that there is always more to know, that one's knowledge can always grow and deepen." (Schindler 2016, 84) With this in mind, the philosopher, who in this case is being represented by an *educator*, "resembles a child, who is especially characterized by a kind of innocence with respect to knowledge, a spontaneous lack of presumption regarding what he knows, and so a desire to find out, more and more." (Schindler 2016, 84)

Conclusion

A class, whether virtual or actual, is considered as a community. (see Wojtyla 1979, 281) The community for Wojtyla must be an acting *together-with-others* and not acting only for the sake of self-serving ends. Hence, Wojtyla requires that a person in a community must have the *attitude of solidarity* and *attitude of opposition* that paves the way towards the *sense of dialogue*. Through these authentic attitudes, the person can participate in a community and prevent alienation. These attitudes are attainable only by a person who is *receptive* and humble. Otherwise, that person will end up in non-authentic attitudes like *conformism* and *non-involvement* since these two are products of self-exaltation. In other words, correct participation is a product of *receptivity*. Receptivity is an idea of Wojtyla in his work *fides et ratio,* wherein he made Mary as the model of *receptivity* because of her humility before Truth. It, therefore, implies that for Wojtyla, the people are called into receptivity for them to know. Thus, applying this in the field of education, I coined the term *educational receptivity* that pertains to an *attitude of humility,* which results from the *desire to*

learn. Philosophers are called into humility, but being a philosopher is not limited to degree holders of philosophy. Hence, educators are also philosophers, for that they are also called into receptivity—educational receptivity. Through this, educators are able to break barriers and embrace the differences of their fellow scholars from other disciplines. Indeed, this allows the sharing of knowledge and learnings of one discipline to another so that they come up with an innovative step to further develop their fields, whose beneficiaries are the learners. Besides, they are learners too, and without *humility,* they will never be able to trust the teachings of other disciplines. In short, *educational receptivity* allows *embracing differences* by virtue of humility that developed from the principles of Wojtyla's philosophy of community applied in the field of education.

In the actual field, this is also vital, take for instance in the recent article here in the Philippines, an experienced Human Resources (H.R.) officer responded to a series of *rants* in the social media from fresh graduates of *Ateneo de Manila University,* one of the top universities here in our country. These fresh graduates are *ranting* about not getting hired despite being a graduate of a well-known university. The H.R. officer narrated his experience from graduates of this university and the rest of other universities included in the the top four in our country. He stated that "Truth be told, when I was new, I told myself that I will only hire applicants from the 'Big Four' schools. I thought that I knew the values that they taught." Bergantin (2002) At first, his preferences in hiring are only those coming from the top four universities in our country, he admitted that he has a bias that time in terms of hiring. Yet as years go by he realized that he was wrong, he revealed that, "Suffice to say, I ate my words day in, day out. I was a tad disappointed with a number of applicants who walked in our office reeking of self-entitlement. Some were borderline arrogant." Bergantin (2002) learning from this, the H.R. officer concluded that what he prefers to hire now, are those who are *humble enough* because they are the ones who are *open to learning* instead of those who are *arrogant* who thought that they do not need any more knowledge since what they have learned from the classroom are already sufficient for them to work greatly. Hence, the H.R. officer remarks that

"As I interviewed and worked with more and more applicants, I have grown to like and prefer those fresh graduates from lesser-known universities**.** I'd even look forward to interviewing those who came from the provinces. The difference lies in their attitude. These kids who did not have the privilege of going to prestigious schools are out to prove themselves, they have a drive and sincerity like no other. They are humble, patient, and hungry for knowledge and recognition. They want to make a name in the industry but they know that it's a tough climb to the top. Their humility makes them believe that there are no handouts in life, hence, they complain a lot less and have reasonable demands. They have the grit without the ego. Whatever they supposedly lacked in college, they make up with enthusiasm and the desire to learn." Bergantin (2002)

This article proves the importance of *educational receptivity*, it shows that even after graduation, it demands the learners to remain *humble* and to have an unending *desire to know*. Otherwise, they are bound to destroy the foundation which their educators inculcated into their character. Hence, the world demands now a learner who did not only earned high grades, but more important than that is that they were formed to

have a great attitude. In this case, humility, which is acclaimed as “the mother of all virtues.”

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A Case Study of Assignments Through an Online Mentoring Program

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Abstract

Behind ubiquitous information in the 21st century is the desire for understanding and mastering the information. As with any application-oriented learning method, it is necessary to truly appreciate its domain before mastering its core knowledge and applying it flexibly in practical operations. Student hands-on exercise is a commonly used teaching model across all disciplines in today's higher education, and this mode of learning has also been deeply engraved in the hearts of students. However, there is a potential crisis here, that is, blindly pursuing practical operations and ignoring primary education in such a field and the promotion of competency. This problem is particularly prominent in highly practical subjects, such as film visual effects, which not only require a solid understanding of film language and software skills, but also logical thinking ability to cope with the needs of dealing with digital images, colors, natural light, physics and mathematics, and production pipelines in the high stand contemporary film industry. Thus, an in-depth understanding of the big picture in the subject and its standards before getting hands-on is essential for students' learning. This paper is to showcase a hybrid course assignment and distribution through an externally funding project - the VFX Online Mentoring Program, which was supported by three Academy award-winning visual effects studios and 6 UK higher education institutions with a total of 88 participating students. Additionally, as an extended project, the program is currently open to undergraduate students of all levels and disciplines in St. John's University, New York.

Keywords: Online Mentoring, Visual Effects, Industry Pipelines

Introduction

In today's society, competition is fierce in all walks of life. In order for entering the area that students have dreamed of, they are actively preparing all the necessary skills and knowledge for their future. It is no exaggeration to say that today's university graduates are in such fierce competition as in an invisible “workplace war”, which impacts all disciplines, including highly practical subjects. Film visual effects require broad knowledge across multiple disciplines and solid technical skills in operating those industry-standard applications. More than that, the film industry standards are also set very high. Without understanding the industry standards and requirements, graduates can hardly even find entry-level positions in the visual effects industry. As educators, this is no doubt a reminder that we not only need to equip our students with the hard skills required by the industry, but also the soft skills they need to develop for future professional development.

Sun Tzu - An ancient Chinese strategist once said that if you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle (Gagliardi, 2014).

Over the past three decades, computer-based effects have transformed the way high-end films are made. Today, the visual effects industry is very well established in the US and the UK. As one of the typical iconic representatives in the motion picture industry, Hollywood blockbusters and the U.S. film industry can be seen as the driving force behind the global film industry. NextGen Skills Academy (Livingstone and Hope, 2011), U.K information of professions examined that the visual effects budget has proportionally grown from approximately 10 percent to a maximum of about 50 percent in recent film productions. From fascinating sci-fi scenes to classic narrative stories of Hollywood films, it is hard to imagine a Hollywood blockbuster over the last decade has not benefited from the creative expertise visual effects. Data from research firm (Dergarabedian P, 2018) reveals that the 2018 summer North American box-office figures broke a record with a U.S. domestic total of $4.8 billion, suggesting box office and streaming are synergistic. All ten of the 10 highest grossing films in the U.S. were either VFX movies or computer-animated films, and many of the most popular streaming shows were also VFX heavy.

Although many world-class visual effects companies are the U.S. and U.K. based, higher education in this filed is not as successfully established as the thriving industry. NextGen (2011) states that the industries suffer from an education system that does not understand their needs. In addition, the NextGen has also claimed that there were already many universities courses purporting to provide specialist training for video games and visual effects, but most of these courses flawed, eventually leaving those graduating from them with poor job prospects. Due to the current status of higher education in film visual effects, film visual effects facilities struggle with the lack of finding qualified new graduates. As a long-term impact, visual effects companies have to recruit skillful artists from overseas. The U.S. Citizenship and Immigration Services (USIS) has indicated visual effects occupation on the O-1 and O-2 visa applications; the U.K. Home Office has also listed visual effects on the U.K. Shortage Occupation List.

VFX online mentoring program design concept and implementation

The following sections aim to demonstrate a case study of the VFX Online Mentoring Program (Website) that opened for 88 undergraduate students and their course leaders from six UK HE institutions in 2017. As an extension of the project, the VFX Online Mentoring Program 2020 (Website) is currently open to undergraduate students recruited from film production, 3D animation, computer science, communication design and art majors at St. John's University, New York.

Key design concept

Biggs (2003) states that "Learning is constructed by what activities the students carry; learning is about what they do, not about what we teachers do." As a critical reflection, I partly agree with this view. The notion of student-centered teaching is the right direction to go, and we should provide students with a good learning experience. However, this does not necessarily mean educators should be entirely driven by students. Nowadays, employability is one of the main aims in many universities, and the industry standards in film visual effects are very high and defined explicitly by the industry. However, students are not necessarily clear about this. It may be a potential danger if we despise what teachers do and drift along purely by students on their learning path.

VFX Online Mentoring Program is a hybrid training program, which contains a series of online and in-class sections in one semester, including online live session and in-class hands-on tasks. The program aims at in-depth knowledge of film visual effects productions, pipelines, and in-studio team collaboration and external peer cooperation. As an additional online learning and supporting platform, the program runs parallel to three other in-class VFX relating courses in our institution, thereby we can effectively combine the two teaching platforms seamlessly, so as to maximize the combination of theory and practice of the courses. The ultimate purpose of the project is to foster collaboration between the university and industry and help our students to maximize the learning of the subject.

Although the funding project is intended for teaching purposes, if it has been considered as a research project at the program design stage, we will naturally generate a series of questions about the course development, and motivate us to find corresponding solutions that eventually lead to defining assignments and learning outcomes and inspire students to be "actors in the learning process" (Bain, 2004).

Sequence assignment is one of the common ways of course assignments. At the planning stage, the instructor should think about the order of assignments to build skills in a logical sequence. Armstrong states that students benefit from sequencing: completing assignments that build on one another and culminate in a substantial project (Armstrong, 2019).

Learning outcomes

Learning outcomes should be measurable in terms of timing and course achievements. The instructor gets students to exercise their imaginations while also accomplishing the learning objectives of the course.

By the end of this program, participating students will be able to:

1. Recognize the visual effects industry and standards, pipelines and workflow.
2. Make effective use of problem-solving in terms of on-set and in-studio visual effects operations, implement and evaluate give tasks scientifically and creatively.
3. Work on VFX tasks collaboratively and take responsibility for meeting deadlines and demonstrate a synthesis of the theory and applications.
4. Create high-quality VFX shots and demonstrate the necessary technical breakdown efficiently in demo reels.

VFX online mentoring program assignments

The project has been direct support by three world-leading VFX facilities: The Moving Picture Company (MPC) London Headquarters; Framestore Visual Effects London Headquarters; (Oriental) DreamWorks (Shanghai). By providing detailed information about inner-workings of VFX Facilities, including VFX pipelines, standards, VFX roles and operational collaboration between departments, etc., the program covered a series of valuable professional information. Through this learning opportunity, participating students have gained in-depth knowledge and understanding of how VFX facilities work and hard skills and soft skills required by potential employers.

Assignment one: pre-recorded online self-learning videos

The program participating students and their course leaders can access up to 27 exclusive pre-recorded self-learning videos that covered a series of critical stages of visual effects production pipelines and operations inside world-leading VFX facilities, including departments and VFX pipelines, concept art, VFX editorial, rotoscoping and cleaning plates, match moving, matte painting, 3D layout, previsualization, 3D animation and modeling, FX, technical director, lighting and look development, VFX supervisor, 3d rendering, compositing, VFX producer, VFX recruitment (Video Examples). All pre-recorded videos have included a unique type of VFX productions. MPC videos focused on VFX in high-end feature films. Framestore videos demonstrated not only VFX in high-end feature films but also VFX productions in TV commercials. (Oriental) DreamWorks videos showed a number of critical tasks for 3D animated feature films. The different types of themes gave learners an excellent opportunity to compare how various VFX productions are operated in large-scale VFX companies.

Assignment two: online Q&A sessions

An online live Q&A session was scheduled at the end of each learning week (Live Session Examples). In 2017, we invited 15 senior professionals, including Head of Departments from MPC and Framestore to answer potentials questions that participating students might have based on the learning contents of each learning week. Students could directly ask specific questions and instantly receive answers from participating professionals and artists via Adobe Connect. The online Q&A sessions provided an excellent opportunity for all students to engage with the program interactively. Additionally, all Q&A sessions were recorded and available on the program's official website to all students who were not able to attend the live Q&A sessions but watch the recorded Q&A videos at a convenient time.

Assignment three: hands-on projects

The in-class assignment has included 2D and 3D tasks.

Team allocation
Participating students were grouped up, and each group contained 5 to 6 students. Although participating students are from various disciplines. We ensured each group to maintain two students, who are film production-related majors, one of them was appointed as a group leader to took responsibility for comprehensive team management and relating tasks of the team.

2D VFX work concept and tasks
Group members of each group shared a live-action plate, which picked up from an old black and white movie. Each group would design a shot matching lighting, camera perspective, interactive action details with the movie footage, and seamlessly integrate a new character filmed in front of a green screen into the live-action footage.

2D tasks were aiming at green screen filming and compositing. Operating tasks required group work, including brainstorming, team collaboration, shot analyses, lightmap creation, in-studio filming, on-set data collection, and individual work, including rotoscoping, clean plates, green screen keying and final compositing.

A 2nd year undergraduate student work example:
[2D VFX work example]

3D VFX work concept and tasks
In accordance with the concept of 2D VFX work, 3D VFX work follows the similar concept but location shooting. 3D VFX work was focusing 3D CGI on seamless integration with live-action footage. Each group can pick up different locations and design their unique shots. Group members of each group share the same live-action footage and on-set data information, including camera data, lighting setup and HDR image captured during filming.

3D tasks on-set filming required group work, including on-set live-action filming, lens grid filming, camera lens data collection, on-set photogrammetry and HDR image capture, etc. Individual tasks for each group member included camera match moving, 3D character design, modeling, lighting simulation, texturing, camera match moving, animation, rendering and final live-action compositing tasks.

A 3rd-year undergraduate student work example:
[3DVFX work example]

Assessment strategies and coursework feedback

Due to the nature of e-learning and in-class learning, students' assessments in this program can be challenging. As far as online learning is concerned, Watson and Sottile (2013) claim that while it’s not clear whether online students do, in fact, cheat more than face-to-face students. Indeed, online learning is more difficult to regulate than in-class learning. The strategies for adapting assessments for each student in this project include: Part one: an online exam, students are required to take the online exam in class.

Part two: an individual practical submission.
The online exam accounts for 50% of the total score, and the actual practice submission accounts for another 50%. In addition, the practical submission assessment criteria are subdivided into five scoring categories, which are shown as follows:

Team Collaboration (5%);
Individual (VFX) Shot Design (5%);
3D Assets Creation (15%);
2D & 3D CGI Compositing (15%);
Shot Analyses (10%);
Figure 1 shows the integrated assessment details for the VFX Online Mentoring Program and an in-class VFX course.

Assessment Categories
VFX Online Mentoring Program (online)
VFX3209: Film Visual Effects Principles (in-class)

Assessment Categories	Score Distribution	Student Score
VFX Online Mentoring Program (Online Exam)	**50%**	?%
		+
VFX 3209: Film Visual Effects Principles (Practical Submission)	**50%**	
Practical Submission Assessment Categories & Score Distribution		
Team Collaboration (on-set & in-class)	5%	?%
Individual (VFX) Shot Design	5%	?%
3D Assets Creation (professional problem-solving approaches & final quality)	15%	?%
2D & 3D CGI Compositing (Scientific understanding of the digital images & Professional problem-solving)	15%	?%
Shot Analyses (on-set report & creation analyses and implementation)	10%	?%
Student Final Total Score		**?%**

Figure 1: Shows the assessment category details and score distribution in each category

Assessment and coursework feedback are inseparable from the course assignments. In many cases, I use a mixture of two approaches giving student coursework assessment feedback. Written feedback and video recording feedback:

Written feedback can provide a clear and logical description of student learning performance and progress. Video recording feedback can quickly provide a clear visual indication of errors in practical coursework submissions. Due to the heavy use of professional applications in our subjects, video recording feedback can prevent unnecessary confusion and lengthy written feedback for demonstrating issues in each student's coursework.

Sustainable learning

After completing the program, participating students are still able to access the project online data system and all videos, including recorded Q&A sessions until they graduate. This allows students to reference and refresh the knowledge obtained in this project. Overall, the idea and approaches experimented in the VFX HE Online Mentoring Program are fully adaptable and can be utilized in similar higher educational subjects across different countries.

VFX HE Online Mentoring Program learning contents can be seamlessly embedded into a series of internal VFX courses at participating institutions. The project can be opened automatically to undergraduate 2nd and 3rd-year students in film, animation, art and design majors.

We believe the project online learning system can provide a valuable background learning platform for our students.

In addition, all participating academics (course leaders) from HE institutions also can freely access the project learning data. As educators who have a direct impact on many aspects of students, we hope that the voice of the industry can be passed directly to these course leaders in order to promote their continuous improvement in the construction and development of related subjects.

Conclusions

Today's modern film and game industry are getting more complicated than ever before. Visual stories that represented to audiences through media platforms are the results of the collective effort of teamwork. Production pipelines play a critical role in balancing production quality and efficiency. For students, "understanding how production pipelines work increases their chances of employment. One of the most common failings of interviewees is lack of understanding of the production process" (Dunlop, 2014). Visual effects and 3D animation in higher education at the university level traditionally covered creative education as well as software and technical training. However, artists require a solid understanding of production pipelines and in-depth education in scientific factors, especially in high-end feature film and TV commercial productions in order to efficiently deal with various assets from colleagues, teams and departments in daily production work. The lack of education in these critical factors about VFX productions leads a large number of students trapped into a situation of focusing on fast-updating software and eventually became skilled operators, rather than a creative artist with a critical mind. As academics, we probably should think about whether this is what we expected from our next generation.

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Academic Staff Personal Variables and Utilization of ICT Resources for Research Teaching and Records Management in Higher Education

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Abstract
There is currently an academic debate among researchers regarding the influence of age and gender on ICT utilisation generally among lecturers. This study was designed to contribute to this debate and open up new paths to areas on which researchers have focused little or no attention. This study examined lecturers' variables (gender, age, educational qualification and rank) and the utilisation of ICT resources for teaching, research, and records management in higher education. The study adopted a descriptive survey design. The study's population comprised of 9,604 lecturers at the University of Calabar. A total of 313 lecturers who were available in their offices during data collection responded to a questionnaire which was designed by the researchers. Major findings showed that the extent of lecturers' utilisation of ICT for teaching, research, and records management is significantly low. Also, staff' educational qualification, rank, gender, and age significantly influence the utilisation of ICT for teaching, research and records management. Also, the utilisation of ICT resources decreased with lecturers' educational qualifications, rank and age; male lecturers were more competent in the use of ICT resources than females. It was concluded that lecturers' variables play a significant role on the extent to which they utilise ICT resources for teaching, research and records management in higher education. This study creates a new path of innovation in education on which prospective researches could focus.

Keywords: Age, Gender, ICT Utilisation, Qualification, Rank, Teaching, Research

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Introduction

The field of education has been affected by the penetrating influence of ICTs worldwide. ICT has made an impact on the quality and quantity of teaching, learning and research in institutions of higher learning. The role ICT plays on the human population generally and education particularly, cannot be overemphasized. As such, lecturers in higher education should not ignore this important role. This is because lecturers who utilize ICT services maximally would be able to boost their knowledge-base and use ICT in the planning, presentation, and delivery of effective lessons. The optimal use of ICT could also improve the efficiency of lecturers in carrying out research beginning from sourcing literature materials, data collection and analysis, to the preparation of research reports, correspondence and publication (Odigwe et al., 2020; Owan & Bassey, 2019). On the other hand, those who do not utilize ICTs services adequately may become outdated, lacking current information and skills needed in their areas of speciality. This may compel them to depend on traditional methods of instructional delivery, records management and research. The introduction of ICT, especially the internet, has brought great changes to the world which have affected the way man communicates with others.

The utilization of ICT in the classroom facilitates effective teaching, reinforces lecturers' ability to cater for learners with diverse learning needs, fosters learners' active involvement and participation in the instructional process, and promotes good grasp of lesson contents. This helps them (lecturers) transfer their ideas, feelings, and thoughts to learners, which in turn, contributes to the good academic performance of both students and educational institutions. In the 21st century, there is a growing concern in educational institutions regarding the use of ICTs to promote teaching and inculcate good skills in the learners. People are now able to interact with others across the globe without distance and time constraints due to the growth of ICT (Owan et al., 2020). Today, information is freely sourced and received at the speed of light. Access to modern and ‘state of the art’ libraries are now possible through the internet where quality, current and reliable research information can be obtained (Nwankwoala, 2015). ICT has been reported to increase lecturers’ activeness in the delivery of quality and productive teaching in the classroom (Gusen, et al., 2005). Thus, lecturers with a high level of ICT competence are more effective than those with moderate and low levels of ICT competence respectively, in areas such as communication, research/publication, record-keeping/management and classroom instruction (Akpan, 2014). This implies that the level of ICT skills possessed by lecturers significantly enhanced their service delivery and job efficiency.

The integration of ICT resources into the classroom context has attracted a lot of attention globally. A study has shown that universities with very good ICT resources, achieved on the average, better results in teaching subjects than those with poor ICT resources (Ayeni & Ogubameru, 2013). Therefore, lecturers are expected to give considerable attention to the selection and use of appropriate ICT resources to stimulate students' interest in meaningful learning. Recognising the need to integrate ICT tools and services into education, spurred many scholars in the past have attempted to explain the role and importance of ICT in education variably (Abdul-Salaam, 2012; Archibong, et al., 2010; Basri, et al., 2018; Buza & Mula, 2017; Collis & Moonen, 2001; Ghavifekr & Rosdy, 2015; John, 2015; Jumbo, 2019; Maisamari, et al., 2018; Munir & Khan, 2015; Owulu, et al., 2016). Though there is a gradual

increase in the use of ICTs in Nigeria and many African countries, much is already known concerning how ICTs are used in advanced nations of the world in performing sophisticated tasks. In Africa, it is clear that teachers' and students' accessibility to ICT in some schools are at the 'grass-root' stages due to the inadequate supply of ICT resources (Chiware, 2006).

Consequently, there is a shortfall in lecturers knowledge on the use of many simple ICT gadgets in almost all developing nations, which affect their educational standard towards global competitiveness (Maisamari, et al., 2018). In Nigeria, some universities are faced with different challenges on the utilisation of ICT among lecturers (Sani et al., 2016). One of such challenge is that many senior lecturers are without basic ICT skills and knowledge of computer operation (Abdulrazaq, 2016; Ehikhamenor, 2002; Ejinkeonye & Usoroh, 2016; Emeasoba & Nweke, 2016; Maisamari, et al., 2018) which affect the quality of their service. This has also made available ICT services and resources to be underutilized. At a time when technology has developed so much that personal computers are affordable, it is quite disheartening that many staff do not own these gadgets and only a few owners tend to be using them appropriately. Through interaction with some staff, it was discovered that most lecturers seldom utilise ICT resources because they believe that such tools are meant for younger generations. It was based on these prevailing issues that a need for a study to assess the personal variables of lecturers and how they possibly influence the utilization of ICT resources in higher education was conceived. Lecturers' variables such as, gender, age, educational qualification and rank were considered due to the perceived variation in the use of ICT resources among lecturers with different characteristics.

There is a growing body of research on gender and the utilisation of ICT by lecturers in higher and secondary levels of education (Alba & Trani, 2018; Emeasoba & Nweke, 2016; Etim, 2019; Fomsi & Orduah, 2017; Kpolovie & Awusaku, 2015; Lubis et al., 2017; Manyilizu & Gilbert, 2015; Unegbu, et al.,2015). Gender disparity on the utilisation of ICT resources has also been widely studied (Alakpodia, 2014; Mahdi & Al-Dera, 2013; Onasanya, et al., 2010; Sanda & Kurfi, 2013), indicating the widespread attention that it has received. Most of these studies showed that there is a significant influence of gender on ICT usage by lecturers (e.g. Lubis, et al, 2017; Emeasoba & Nweke, 2016; Alakpodia, 2014; Sanda & Kurfi, 2013; Mahdi & Al-Dera, 2013; Soffer & Raban, 2013; Ramayah et al., 2013). More specifically, some studies have provided evidence suggesting or indicating that a higher proportion of male lecturers utilise ICT resources than female (Etim, 2019; Mahdi & Al-Dera, 2013; Manyilizu & Gilbert, 2015).

Some studies argue that significant differences exist in the utilisation of ICT tools between male and female lecturers (Alba & Trani, 2018; Fomsi & Orduah, 2017; Kpolovie & Awusaku, 2015; Onasanya et al, 2010); implying that gender significantly influences lecturers' utilisation of ICT. However, there was no indication of the extent to which ICT was utilised by male and female lecturers. In bridging this gap, a study showed that male and female lecturers utilise ICT tools at the same rate (Unegbu et al, 2015). Contrastingly, another study submitted that female staff utilise ICT resources more than males (Wong, et al., 2015). This indicates that there is an ongoing argument is ongoing in the literature among scholars regarding the effect of gender on ICT utilisation. Another problem that warranted the inclusion of gender to

the present study is that past studies paid more attention to the utilisation of ICT resources general without specifying the areas of utilisation. This study is the first to streamline utilisation into three functional areas of ICT application in higher education, while also contributing to the debate.

The attention of many scholars has been drawn to examine the influence of age on the utilisation of ICT in higher education (Alba & Trani, 2018; Albion et al., 2011; Amua-sekyi & Asare, 2016; Jegede, 2009; Lubis et al., 2017; Mazoya et al., 2015; Unegbu et al., 2015). Some studies held that age is a significant predictor of lecturers' utilisation of ICT in higher institutions of learning (Albion, et al., 2011; Lubis et al., 2017), others held to the contrary, that age does not significantly predict ICT usage (Alba & Trani, 2018; Amua-sekyi & Asare, 2016; Etim, 2019; Jegede, 2009; Mazoya et al, 2015; Unegbu et al., 2015). It can be inferred from the literature that age is widely known to be uncorrelated with the utilisation of ICT. Howver, the few opposite findings from a relatively few studies present a case that warrants further research in the area of age and ICT utilisation. Age was considered in this study as a response to this call, to clarify the inconclusive arguments with a piece of new evidence from the perspective of Africa. To the researchers' knowledge, other personal variables of lecturers such as rank and educational qualification have not received any attention from previous studies. Thus, little or nothing is known yet about their effect on the utilisation of ICT resources. After a thorough literaure search, we conclude to best of our knowledge, that this study is the first to examine the effect of lecturers' educational qulaification and rank on ICT utilisation, specifically for research, teaching and records. Against this backdrop, this study was designed to fill some of these gaps and extend the works of previous studies while also contributing to the ongoing debate.

Statement of hypotheses

The following null hypotheses were formulated and tested in this study.

1. The extent of lecturers' utilisation of ICT resources for teaching, research and records management respectively, is not significantly high.
2. Lecturers' educational qualification has no significant influence on the utilisation of ICT resources for teaching, research and records management.
3. There is no significant influence of lecturers' ranks on the utilisation of ICT resources for teaching, research and records management.
4. Lecturers gender does not significantly influence the utilisation of ICT resources for teaching, research and records management
5. There is no significant influence of lecturers' age on the utilisation of ICT resources for teaching, research and records management in higher education.

Methods

The design adopted for the study was a descriptive survey design. This research was carried out in one federal university in Nigeria (University of Calabar). The population of this study comprised 9,604 currently employed lecturers distributed across 16 Faculties (Academic Planning Unit, University of Calabar, 2019). This population range from graduate assistants to Professors of the university. Multi-stage sampling technique was adopted by the researchers in selecting the sample of the study. In achieving this, 31% (five faculties) of the available 16 faculties in the

University of Calabar were selected. From each selected faculty, four departments were randomly selected using the simple random sampling technique. In each of the selected departments, only the lecturers that were intact in their offices at the time of data collection were given the questionnaire to complete. A total of 313 lecturers were available in their offices during the data collection process and constitute the sample of this study (see Table 1)

Faculties	No. of departments selected	No. of lecturers studied
Arts	4	58
Education	4	87
Medicine	4	39
Physical Sciences	4	56
Social Sciences	4	73
Total	20	313

Source: Field survey (2019).

Table 1: Sample distribution of the study showing the number of lecturers selected from five faculties in the university

The instrument used for data collection was a questionnaire entitled: "Academic Staff Personal Variables and Utilization of ICT Resources Questionnaire (ASPVUICTRQ)." This was designed by the researchers and structured into two sections. Section A elicited the demographic information of respondents while Section B was designed with 21 four-points Likert-scale items measuring lecturers utilisation of ICT services for teaching (7 items), research (7 items) and records management (7 items). The instrument received face and content validity from three psychometric experts in the Department of Educational Foundations, University of Calabar, Calabar. Test-retest reliability method was used in ascertaining the internal consistency of the instrument, with a coefficient of .893 affirming that the instrument is reliable. The researchers visited the selected departments after obtaining permission from departmental heads. With the help of some non-lecturers in the general offices of each selected department, the researchers were able to locate the offices of all academic staff. Those at their offices at the time of data collection who were willing to participate, were given copies of the instrument to fill. Staff were duly informed of the importance of the exercise and the need to provide honest responses to the instruments. The respondents were also assured that the data requested would be treated with total confidentiality. Respondents were not allowed to take copies of the instrument home to avoid issues of loss and retrieval difficulties.

Results

Respondents' demographic information

A total of 313 lecturers participated in the study, males were 141(45.05%) and 172(54.95%) were females. A total of 17 lecturers (5.43%) were less than 30 years old, 132(42.17%) were between 30 - 49 years and 164(52.40%) were either 50 years or above. Out of the 313 respondents, 19(6.07%) were Graduate Assistants, 28 (8.95%) were Assistant Lecturers, 91(29.07%) were Lecturer IIs, 96(30.67%) were Lecturer Is, 39 (12.46%) were Senior Lecturers, 25(8%) were Associate Professors, and 15(4.79%) were Professors. Furthermore, 14(4.47%) of the respondents were first

degree holders, 182(58.15%) were Masters' degrees holders, while 117(37.38%) had a PhD.

Hypothesis one

The extent of lecturers' utilisation of ICT resources for teaching, research and records management respectively, is not significantly high. This hypothesis was tested at the .05 alpha level using population t-test (see Table 2).

Variables	N	$\bar{X}$	SD	$\bar{X}$ diff	t calc.	Sig.
Utilisation of ICT for teaching	313	50.35	17.655	.348	.349	.727
Utilisation of ICT for Research	313	47.34	15.929	2.665	2.959**	.003
Utilisation of ICT for Records mgt	313	49.01	16.890	.987	1.034	.302
Overall utilisation of ICT resources	313	48.90	16.084	1.101	1.211	.227

**Significant at the .01 level; Test Value = 50.00; Df = 312

Table 2: Population t-test results showing the extent of lecturers' utilisation of ICT resources for teaching, research and records management in higher education

The results in Table 2 show that staff utilisation of ICT resources for teaching is higher than the level of expectation, while utilisation for research and records management are below the expected level. Comparatively, the results show further that lecturers utilise ICT resources more for teaching, before records management and research. However, the extent of utilisation for teaching is not significantly high ($t = 0.349$, $p = .727$). The extent of utilisation for research is significantly low ($t = 2.959$, $p = .003$), while utilisation for records management is not significantly low ($t = 1.034$, $p = .302$). Generally, the mean utilisation of ICT resources in higher education is 48.90 which is below the test value of 50.00 with a mean difference of 1.101. The t- and p-values of 1.211 and .337 indicate that the mean differences are not significant. Thus, we retain the null hypothesis and conclude that the extent of lecturers' utilisation of ICT resources for teaching, research and records management respectively, is not significantly high in higher education.

Hypothesis two

Lecturers' educational qualification has no significant influence on the utilisation of ICT resources for teaching, research and records management. Lecturers' educational qualification which is the independent variable of this hypothesis was measured across three nominal levels (First degree, Masters' degree, and Doctorate), while the dependent variables were continuously measured at the interval scale. The one-way analysis of variance statistical technique was considered most appropriate in testing the null hypothesis at the .05 level of significance (see Table 3).

Staff Qualification	N	$\bar{X}$	SD	SE
First Degree	14	70.93	11.809	3.156
Masters' Degree	182	55.82	15.533	1.151
Doctorate Degree	117	39.37	15.048	1.391
Total	313	50.35	17.655	.998

Utilisation of ICT	Source of variation	SS	Df	MS	F	Sig.
For Teaching	Between Groups	25494.543	2	12747.271	55.073	.000
	Within Groups	71752.499	310	231.460		
	Total	97247.042	312			
For Research	Between Groups	13165.803	2	6582.902	30.921	.000
	Within Groups	65997.973	310	212.897		
	Total	79163.776	312			
For Records management	Between Groups	19188.449	2	9594.224	42.602	.000
	Within Groups	69813.500	310	225.205		
	Total	89001.949	312			
Overall Utilisation	Between Groups	18912.863	2	9456.432	47.435	.000
	Within Groups	61800.266	310	199.356		
	Total	80713.130	312			

TABLE 3: One-way analysis of variance results showing the influence of lecturers' educational qualification on the utilisation of ICT resources for teaching, research and records management in higher education

The ANOVA section of Table 3 presents the specific and overall results of lecturers' utilisation of ICT resources in higher education. The results indicate that there is a significant influence of lecturers' educational qualification on the utilisation of ICT resources for teaching {F (2, 310) = 55.073, p <.05}, research {F (2, 310) = 30.921, p <.05} and records management {F (2, 310) = 42.602, p <.05}. In terms of the overall utilisation of ICT resources in higher education (where teaching, research and records management stood as proxies), the results in Table 3 reveals a significant influence of staff educational qualification on ICT utilisation {F (2, 310) = 47.435, p <.05}. Upon this discovery, the null hypothesis was rejected while the alternative hypothesis is upheld. This implies that lecturers of various educational qualifications, differed in their utilisation of ICT resources for various purposes (teaching, research and records management.

Hypothesis three

There is no significant influence of lecturers' ranks on the utilisation of ICT resources for teaching, research and records management. The independent variable of this null hypothesis is lecturers' rank which is further operationalized into seven levels including Graduate Assistant, Assistant Lecturer, Lecturer II, Lecturer I, Senior Lecturer, Associate Professor, and Professor. The dependent variables of this hypothesis (utilization of ICT resources for teaching, research and records management) was measured continuously at the interval level. One-way analysis of variance was employed as the statistical technique in testing the null hypothesis at the .05 level of significance (see Table 4). The result in Table 4 suggests that graduate assistants are the most effective in the utilisation of ICT services. This is followed by assistant lecturers, lecturer IIs, lecturer Is, senior lecturers, associate professors, and professors in that order. Although, a further test needs to be performed to ascertain whether the observed mean differences are significant or not. The analysis of variance results presented in Table 4 reveals that there is a significant influence of staff rank on the utilisation of ICT resources for teaching {F (6, 306) = 71.527, p <.05}, research {F (6, 306) = 33.698, p <.05} and records management {F (6, 306) = 58.245, p <.05}. When ICT utilisation is considered from a general perspective, the result in Table 4 indicates a significant influence of staffers rank on ICT utilisation {F (6, 306) =

60.173, p <.05}. By implication, there is a significant influence of lecturers' rank on the utilization of ICT resources generally, and specifically, in terms of teaching, research and records management in higher education.

Staff rank	N	$\bar{X}$	SD	SE
Graduate Assistants	19	71.68	9.615	2.206
Assistant Lecturers	28	70.64	11.295	2.135
Lecturer IIs	91	60.71	12.248	1.284
Lecturer Is	96	44.13	10.767	1.099
Senior Lecturers	39	37.10	11.896	1.905
Associate Professors	25	31.68	12.229	2.446
Professors	15	27.93	11.616	2.999
Total	313	50.35	17.655	.998

Utilisation of ICT	Source of variation	SS	Df	MS	F	Sig.
For Teaching	Between Groups	56769.473	6	9461.579	71.527	.000
	Within Groups	40477.568	306	132.280		
	Total	97247.042	312			
For Research	Between Groups	31496.047	6	5249.341	33.698	.000
	Within Groups	47667.729	306	155.777		
	Total	79163.776	312			
For Records Management	Between Groups	47452.209	6	7908.702	58.245	.000
	Within Groups	41549.740	306	135.783		
	Total	89001.949	312			
Overall utilisation	Between Groups	43686.275	6	7281.046	60.173	.000
	Within Groups	37026.855	306	121.003		
	Total	80713.130	312			

Table 4: One-way ANOVA results showing the influence of lecturers' rank on the utilisation of ICT resources for teaching, research and records management in higher education

Hypothesis four

Lecturers' gender does not significantly influence the utilisation of ICT resources for teaching, research and records management. This hypothesis was tested at .05 level of significance using the independent t-test statistical technique. The result of the analysis is presented in Table 5.

Utilisation of ICT	Staff gender	N	$\bar{X}$	SD	$\bar{X}$diff	Calc. t	Sig
For teaching	Male	141	58.72	16.703	15.241**	8.404	.000
	Female	172	43.48	15.331			
For Research	Male	141	53.28	15.843	10.824**	6.347	.000
	Female	172	42.46	14.295			
Records management	Male	141	56.73	16.267	14.044**	8.030	.000
	Female	172	42.69	14.645			
Overall utilisation	Male	141	56.25	14.925	13.370**	8.026	.000
	Female	172	42.88	14.444			

**Significant at the .01 alpha level; df = 311; Critical t = 1.968

Table 5: Independent t-test results showing the influence of staff gender on the utilization of ICT resources in higher education

The result presented in Table 5 indicates that male lecturers utilised ICT resources more than female generally and specifically, for teaching, research and records management in higher education. The overall results in Table 5 show that males utilise ICT resources for general purposes more than females with a mean difference of 8.036. A cursory look also at the results in Table 5 shows that all the p-values across the various dimensions are below the alpha level of .05 at 311 degrees of freedom. Based on this result, the null hypothesis was rejected while the alternative hypothesis was retained. The implication is that lecturers' gender significantly influences the utilisation of ICT resources for teaching, research and records management in higher education.

Hypothesis five

There is no significant influence of lecturers' age on the utilisation of ICT resources for teaching, research and records management in higher education. Staff' age in this hypothesis has three levels while the dependent variable was measured continuously. One-way analysis of variance was employed as the statistical tool for testing this null hypothesis at the .05 level of significance (see Table 6).

Staff age		N	$\bar{X}$	SD	SE	
Less than 30 years		17	67.47	15.637	3.793	
30 - 49 years		132	58.43	16.660	1.450	
50 - years and above		164	42.07	14.037	1.096	
Total		313	50.35	17.655	.998	
Utilisation of ICT	Source of variation		SS	df	MS	F	Sig.
For Teaching	Between Groups		24856.158	2	12428.079	53.221	.000
	Within Groups		72390.884	310	233.519		
	Total		97247.042	312			
For Research	Between Groups		13165.803	2	6582.902	30.921	.000
	Within Groups		65997.973	310	212.897		
	Total		79163.776	312			
Records management	Between Groups		19188.449	2	9594.224	42.602	.000
	Within Groups		69813.500	310	225.205		
	Total		89001.949	312			
Overall utilisation	Between Groups		18912.863	2	9456.432	47.435	.000
	Within Groups		61800.266	310	199.356		
	Total		80713.130	312			

Table 6: One-way analysis of variance results of the influence of staff' age on the utilization of ICT resources for teaching, research and records management in higher education

The results as presented in Table 6 show that in terms of the utilization of ICT resources generally, staff with ages less than 30 years had the highest mean ($\bar{X}$= 67.47), this is followed by those between 30 – 49 years ($\bar{X}$= 58.43), and those who are 50 years or above ($\bar{X}$= 42.07), in that order. A look at the analysis of variance section of Table 5, indicates that there is a significant influence of staff age on the utilisation of ICT resources for teaching {F (2, 310) = 53.221, p <.05}, research {F(2, 310) = 30.921, p <.05} and records management {F(2, 310) = 42.602, p <.05}. Treating utilisation from a general context, the result in Table 6 indicates that staff age

significantly influences their utilisation of ICT resources in higher education {F (2, 310) = 47.435, p <.05}. Based on these results, the null hypothesis was rejected while the alternate hypothesis is retained. This implies that there is a significant influence of lecturers' age on the utilisation of ICT resources generally and specifically, for teaching, research and records management in higher education.

Discussion of findings

It was discovered through the first finding of this study that the extent of lecturers' utilisation of ICT generally and for teaching, research, and records management is significantly low. A higher proportion of lecturers tend to use ICT tools for teaching more than records management and research. The reason for this finding may be attributed to either the poor availability and access to ICT resources or the unwillingness of many staff to adjust to societal dynamics. This finding agrees with the results of previous studies (Abdul-Salaam, 2012; Archibong, et al., 2010; Basri, et al., 2018; Buza & Mula, 2017; Collis & Moonen, 2001; Ghavifekr & Rosdy, 2015; John, 2015; Maisamari, et al., 2018; Munir & Khan, 2015) which concluded that there is a low level of ICT utilisation across different African countries.

The second finding of this study established that there is a significant influence of staff' educational qualification on the utilization of ICT resources for teaching, research and records management in higher education. This finding suggests that lecturers with higher educational qualifications are not good users of ICT facilities. This finding may have been like this because to attain a higher educational qualification, age has a critical role to play. Their age and rank may have been the reason responsible for this finding. In line with this finding, Onasanya, et al (2010) discovered that less experienced lecturers are more exposed to the use of ICT skills than moderately and highly experienced lecturers. The finding of this study also agrees with the results of Lubis, et al (2017) which showed years of teaching experiences and educational level of staff have no significant influence on the utilization of the technology.

The third finding of this study disclosed that a significant influence of lecturers' rank on the utilization of ICT resources for teaching, research and records management exist in higher education. This finding suggests that the utilisation of ICT services decreases as lecturers' rank increases. This finding was attributed to the increasing responsibilities that follows staff of higher academic ranks. For instance, as a graduate assistant, the duties available are relatively few; such a person may be running a Masters or doctorate programme requiring the attention of senior lecturers and is not allowed to teach students at any level. Thus, there is enough time for them to focus on other things such as the utilisation of ICT facilities for either leisure or other purposes (e.g., research). The same may not be said of an associate/full professor or a senior lecturer who has many doctorates, Masters and undergraduate students' research work to assess; has several lectures, conferences and exams scripts to treat; he may be assigned other duties to perform; must publish high-quality papers at his level; attend to other family responsibilities. From the above, it can be seen that there is little or no time left for senior staff to learn how to manipulate ICT devices. Again, an increase in lecturers' rank also moves with a person's age, which makes it possible for some high-rank lecturers to be older than many lower rank lecturers (not in all cases).

Through the fourth finding, it was recorded in this study that there is a significant influence of lecturers' gender on the utilization of ICT resources for teaching, research and records management. Male lecturers utilised ICT resources for teaching, research and records management more than females. The gender disparity recorded in this finding is attributed to the dual roles female African lecturers play in the school and most especially at home. Therefore, the time required for female lecturers to undergo ICT training could be competing with the time needed to take care of the children, domestic issues and attend to other academic demands. It should not sound surprising if male lecturers are using ICT services more than female lecturers. This tallies with the results other studies (e.g., Dholakia et al, 2013; Mahdi & Al-Dera, 2013) which also brought to the fore that female teachers reported less use of ICT in their instruction than male teachers. The finding, in this section, corroborates the results of some earlier studies which also showed that gender affects ICT utilization (Alakpodia, 2014; John, 2015; Mahdi & Al-Dera, 2013). The fourth finding, however, challenges the position of some earlier studies (Akpan, 2014; Alba & Trani, 2018; Amua-Sekyi & Asare, 2016; Kpolovie & Awusaku, 2015; Onasanya, et al, 2010) which disagreed and rather posited that gender has nothing to do with the utilization of ICT.

Lastly, it was shown through the fifth finding that there is a significant influence of staff' age on the utilisation of ICT resources for teaching, research and records management in higher education. Younger lecturers demonstrated higher utility of ICT resources in higher education than older lecturers. This finding is unsurprising since younger lecturers are less busy with academic work and may have little or no family responsibility to meet. This aligns with the position of Jegede (2009) that the development of ICT skills, as well as the understanding of ICT services, requires a lot of time and commitment. Only people with sufficient interest and time may be able to cope with such dynamics in ICT (Jegede, 2009). The fifth finding proved the position of Dei (2018) who believed that ICT purely obeys the law of diminishing returns and posited that the utilization of ICT depreciates as an individual grows older. The present study provided a clear piece of evidence that older lecturers are less effective in utilising ICT services, which aligns with the results Manyilizu and Onwuagboke (2015) which also indicated that age is a barrier and has an effect on the use of ICT. It is believed that young people are more desperate to have ICT programs because they are more curious. Contrary to this finding some studies rather show that age does not significantly influence the use of ICT resources (Alba & Trani, 2018; Amua-Sekyi & Asare, 2016; Mazoya, et al, 2015). In fact, in a study conducted by Jegede (2009), age was not found to affect the time used on ICT by higher education teachers in Nigeria. The variation in findings arrived at by different scholars may be attributed to factors related to the nature of respondents, actual constructs studied, instruments used or areas where these studies were carried out.

Conclusion

Based on the findings of this study it was concluded that academic staff personal variables play a significant role on the extent to which staff utilise ICT resources for teaching, research and records management in higher education. These characteristics can make or mar the rate at which staff interact with ICT tools in the school, home or both. Specifically, lecturers' educational qualification, rank, gender and age are very important characteristics that influence the utilization of ICT resources in higher education. By implication, this study has been able to contribute to the ongoing

academic debate on the influence of gender and age on the utilisation of ICT resources in higher education. The study also creates a new path for prospective researchers to focus on (in areas such as educational qualification and rank). Thus, this study will serve as a reference material to provide a foundation from where more research would be carried out in the future for innovations in education. Based on the conclusion of the study, we recommend as follows:

i. Higher education leaders should make sure that every lecturer has access to available ICT resources in the school.

ii. Lecturers across different ages, gender, educational status and rank should make conscious efforts to avail themselves of the opportunity of becoming ICT literates through active participation in ICT retraining schemes and by putting forth favourable attitudes towards technology.

iii. Retraining channels such as seminars and conferences with a specific focus on improving the ICT skills of lecturers should be organized to all lecturers irrespective of their age, rank, educational qualification or gender. This will enable lecturers to gain full mastery of the procedures needed to utilise ICT devices and resources.

iv. Female lecturers should be encouraged to rise to the challenge by finding time to acquire and implement ICT skills amidst their day-to-day schedules.

v. The three tiers of Government, Non-Governmental Organisations (NGOs), and philanthropist should support the university by providing sufficient ICT materials, facilities, and services such as computer laboratory, modems, internet facilities, projectors, computers, and so on. Such provisions will supplement the retraining offered to lecturers in ICT and make it more impactful.

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EFL Vietnamese Teachers' Perception Toward Critical Thinking in the Classroom

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Abstract
The 21st academic curriculum worldwide has emphasized Critical Thinking as one of the paramount thinking skills. However, the fact that whether EFL teachers- as direct guides in the classroom- have thoroughly grasped the concept, have been exposed to the concept or equipped with adequate methods and approaches to teach critical thinking in daily lessons remains questionable. This paper aims to present the Vietnamese EFL teachers' perceptions of critical thinking and provide an overview of their current practices of critical thinking skills. The paper emphasized the extent of understanding of critical thinking that Vietnamese EFL teachers show in comparison with definitions in the literature, and how they apply what they understand in the EFL classroom. Participants of the study are 5 teachers who have teaching experience of more than 3 years, and the researchers collected data through in-depth interviews. The findings revealed a lack of information and training from the participants as well as some challenges in practicing the skills due to time-constraints or inadequate general knowledge and limited language level of students. This paper gives EFL managers and practitioners' assessment criteria for whether to include or exclude critical thinking in their classes and sheds light on how Vietnamese EFL teachers can structure their lessons to critical thinking in the classroom.

Keywords: Critical Thinking, Teacher's Perception, Teachers' Practice Critical Thinking

Introduction

Equipping students with critical thinking has been a fundamental goal of higher education in the West since the last decade (Kuhn, 1999; Keeley and Shemberg, 1995). The ability to think critically at the tertiary level according to Moon's (2002) has been a determining quality that educators and professors employ to distinguish those graduating the course and those not. In the 21st century where most repetitive and manual jobs are efficiently done by robots (Kergroach, 2017), critical thinking has found itself more crucial than ever before as a contributor to graduates' competitiveness in the job markets. This has been emphasized by a great number of accredited educational organizations like OCED, stated clearly in PISA, by different authors such as Phillips & Bond (2004); Ten Dam & Volman (2004); Nguyen, Tran, & Hoang (2019) and Vuong (2019). In the second language acquisition field, the inclusion of critical thinking in language lessons has been continuously reported with positive impacts on the acquisition and development of different aspects of language learning such as vocabulary (Boroushaki & Ng, 2016), writing skills (Rafi, 2011), reading and writing (Liaw, 2007), oral communication skills (Kusaka & Robertson, 2006), listening (Mai, 2019), use of multiple strategies to solve the language learning problems (Fahim & Komijani, 2010). Kusaka and Robertson even found that by scaffolding students to self-evaluate and peer-evaluate the learning, teachers could trigger the desire for oral communication among Japanese first-year students who were inhibited in the first place. The significance of critical thinking to higher education in general and English language teaching, in particular, has led to the suggestion of adding the critical thinking element into language lessons for the mutual benefits.

However, the appearance of critical thinking in English as a foreign language classroom in the Vietnamese tertiary context is still with a question. First of all, the national policy seems not to shed focus on this skill. The concept of "critical thinking" according to Trinh's, Nguyen's and Pham's analyses of national educational policy and practice in 2015, 2016 and 2018 was concluded "remaining a new term" and being absent in the official papers in the meantime (Nguyen & Bui, 2016; Nguyen, 2016; Trinh, 2015).

Secondly, the set of compulsory examinations operated in classes, in universities, and even on the national scale has been driving learners towards the non-critical-thinking end. Found by Hsu (2010), examinations despite being unfavored by students on the surface are the pivotal incentives for English learning. This is especially true in the Vietnam context because showing high grades is a way that children show their filial piety towards their parents (Nguyen, 2011; Nguyen, 2016). As a result, students are motivated to learn what is given in the tests. Most universities in Vietnam continue traditional emphases on lexical-grammar and closed-ended questions (Van, 2010) on the ground of its management convenience and debated fairness (Andre & Webster, 2018). Consequently, it is highly out of the question that children show the need for critical thinking development firstly as it leaves zero impact on their final close-ended assessment where learners are asked to pick an answer from a set of lexical-grammar choices instead of exploring, analyzing, or evaluating the subject or making their argument.

Knowing that if students do not show the need for learning or acquiring the skills, hardly can teachers be inspired to include the element in the lesson given the current academic and teaching workload teachers are bearing on the shoulder referred from the study of Nguyen & Tran (2019). The decision that critical thinking will appear in the language classroom highly depends on teachers' awareness of, understanding of, experience with, the expertise of, and hands-on practice with the skills and teaching skills. Although there have been an increasing number of researchers shedding their attention to educators' perspectives towards the fostering of critical thinking skills in foreign language teaching in higher education (Le & Nguyen, 2017; Nguyen, 2016), the contrivance of the panorama over tertiary EFL teachers' viewpoints on practicing the skills in classrooms hitherto is still in its infancy. Consequently, actions for tackling compulsive problems from this site are still being far from being finalized.

Research objectives

Having identified the significance of the EFL class instructors, this study was established to first explore whether Vietnamese tertiary EFL teachers have been in contact with the term "critical thinking" and to conceptualize the notion of critical thinking currently maintained by those educators. Secondly, it is intended to identify if there has been any effort made by the teachers to include critical thinking elements in their daily language lessons and some possible reasons behind their inclusion and exclusion of the skills. Lastly, in the cases of teachers who embed the skills, this research aims to describe exemplary teaching practices used. In general, this paper hopes to present the language teaching administrators, teachers and lecturers in the relevant field with an insight into the EFL instructors' perceptions over the development of critical thinking skills in a Vietnamese tertiary EFL institution so that training support can be given or valuable practical experiences can be withdrawn and learned from.

Research questions:

The study sets out to answer the following three core research questions in a Vietnamese higher education EFL context:

1. How do the teachers define critical thinking in general and in the language teaching domain in specific?
2. What are some reasons for teachers' inclusion or exclusion of critical thinking teaching in the tertiary EFL classroom?
3. How do the teachers teach critical thinking skills in an English lesson?

Literature Review

Definition of critical thinking

Critical thinking fosters skills especially beneficial for learners to adapt to a new era where AI is going to dominate the job market. Critical thinking allows students to continuously learn and adjust their viewpoints towards the world surrounding them (Sung, 2012). The correlation between language learning and critical thinking has been proved according to Vygotsky (2012) that the process of conveying thoughts via the language tool shapes knowledge or understanding.

There are numerous and different focused definitions of critical thinking throughout the development of society and history. Paul & Binker (1990) mentioned three notions including in critical thinking: the perfections of thought, the elements of thought, and the domains of thought. Barry (1992, p. 6) defined critical thinking as "a process of carefully determining whether to accept, reject, or suspend judgment about what someone says. It is also a process that emphasizes a rational basis for beliefs and provides a set of standards for analyzing, testing, and evaluating them". In a different paper by Bailin, Case, Coombs, & Daniels (1999), the three general aspects of critical thinking accepted by educators are the extent of mind in which his or her belief, the appropriateness of thinking in terms of adequacy and accuracy, and the matching of thinking and certain basic standards are. These concepts were all related since it mentions the notion of thinking in the mind as the foundation to think critically.

Even though the notion of critical thinking is originally from the Western culture with its founders Socrates and Plato (Thayer-Bacon, 2000), the concept has implicitly been practiced in the Orient context (Dong, 2015; Lam, 2016; Li, 2015). In Vietnam, the concept of critical thinking also has certain adoptions since Vietnamese scholars interchangeably use the two terms "tư duy phản biện" and "tư duy phê phán" which means to point out the irrelevant sides in one's thoughts while making the argument to describe critical thinking (Lê, 2011; Luyen, 2005). Later on, to avoid the negative connotation of criticism in these two terms, "tư duy biện luận" has been used. The notion of thinking, according to these experts, should reflect as an ultimate process of one's mind to solve a particular problem, and therefore, should be relevant to logic, reasoning, and a constructive manner (Duong & Nguyen, 2016; Nguyen, 2016).

The researchers chose the concept of critical thinking from the study of Báezt(2004). The core theory in his study kept knowledge level in Bloom's Taxonomy from the book of Krathwohl & Anderson (2001) for its "importance of retaining and retrieving information" (p.49). Knowledge is also the foundation to create the act of thinking before having critical thinking. Critical thinking is the phenomenon of not accepting and receiving any new information simply and immediately. Critical thinking is often expressed through cognitive and intellectual skills such as interpretation, analysis, inference, explanation, evaluation, and self-regulation. Among which, the last notion of self-regulation in this concept is meaningful as it allows learners to develop their autonomy which should be one of the main aims of teaching and learning.

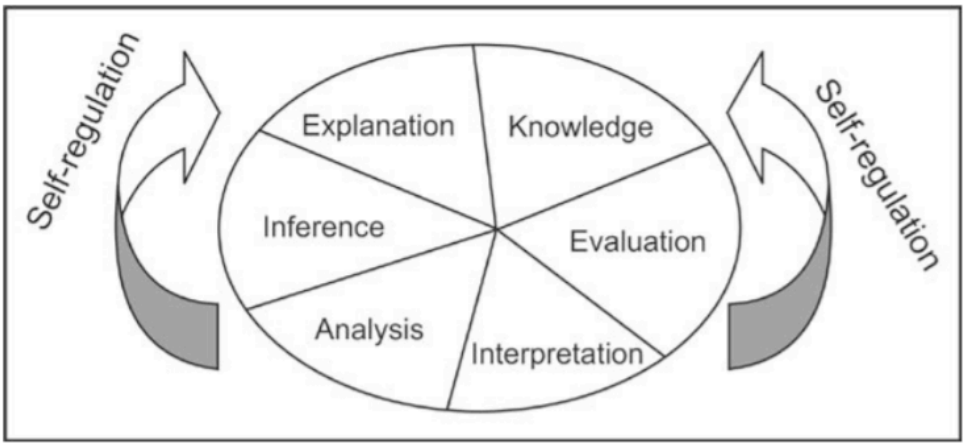

Figure 1. Critical Thinking Skills by Báez (2004)

The practice of critical thinking in English Language Teaching (ELT)

Teachers play a significant role in the development of critical thinking skills in the classroom as they are the ones who explicitly instruct students towards critical thoughts (Thunnithet, 2011), and therefore, their understanding of the concept holds an integral position in the whole process. However, studies have indicated the opposite in reality. Li (2016), who conducted thorough qualitative research and examined the Chinese EFL teachers' beliefs and practice from questionnaires, observations, interviews, reflection videos, proved that 1). There is a vague understanding of the concept by teachers, and 2) teachers, despite having a positive attitude towards critical thinking, had challenges that make it impossible to integrate those skills in English language teaching. A similar result was found in the study of Yuan & Stapleton (2019). This study revealed the lack of training for pre-service teachers and a system or framework to evaluate the improvement in critical thinking skills. The research was conducted in China and its participants were post-graduates with a strong foundation of English linguistics. The study revealed problems in training leading to an insufficient understanding of CT and led to further issues in real-life classroom situations. Furthermore, those pre-teachers who made attempts to deliver critical-based lessons faced constraints from school policy and culture-related issues.

In the context of second language acquisition, obtaining a wide variety of vocabulary range and fluently understanding the reading texts facilitates the higher thinking process (Houghton & Yamada, 2012; Yamada, 2010). Numerous studies conducted in Asia Context to examine the impact of critical thinking in the EFL context and the results indicated positive outcomes of students' learning efficiency for critical thinking lesson-based (Boroushaki & Lee-Luan, 2016; Fahim & Komijani, 2010; Kusaka & Robertson, 2006). Research by Kusaka and Robertson (2006) found that by scaffolding students to think critically under self-evaluation and peer-evaluation, teachers could trigger the desire for oral communication among Japanese first-year students who were inhibited in the first place.

Culture is hereby considered a major factor constraining learners from approaching lesson-based learning and practicing critical thinking. Vietnam is greatly influenced by Confucianism (P. M. Nguyen, Terlouw, & Pilot, 2012) and along with the existence of grammar-translation teaching methods, students are passive learners (Cao, Hoang, & Ta, 2016). One of the common phenomena that Vietnamese students face is the fear of "losing face". Teachers can easily observe that students do not raise their voice and answer questions either because they lack confidence in their confidence or they are afraid that other people would judge them based on their answer as shown in the study of P. M. Nguyen et al. (2012). Students' readiness, students' level, and their intrinsic motivation are the difficulties in embedding the intervention in teaching critical thinking.

In addition to the critical thinking practice in the language classroom, it is challenging to get students familiarized with the concept of critical thinking while learning language skills. Alnofaie (2013) addressed in his study the fact that language skills are highly emphasized in the curriculum; therefore, the criteria to become a critical being in writing, reading so that they can discuss, negotiate and solve the problems critically

are likely to be neglected. Therefore, he suggested the acts of embedding the learning of thinking critically in the four main skills and sub-skills of a language. Moreover, the researcher recommended building the curriculum for an independent critical thinking course in which students learn the main concept of critical thinking, its nature, and its characteristics so that they can further apply in any other subject.

In general, even though critical thinking has been imposed for a long time in history, its systematic evaluation for teaching-learning has not been explicitly stated in the curriculum, especially in the field of second language acquisition. Furthermore, there is a lack of evidence in practice and training of critical thinking in current tertiary EFL classes leading to confusion in teaching practice. This study investigated critical thinking from the angle of the educators to gain insights into the reality of teaching critical thinking in Vietnam.

Research Methodology

This paper is aimed to study the EFL instructors' perceptions of the concept of critical thinking in terms of their understanding and their teaching practice in a Vietnamese tertiary EFL institution. A case study is employed in this research. According to Gay, Mills, & Airasian (2011, p. 445), this qualitative approach is suitable to study "a particular instance of a phenomenon under investigation to understand a specific problem that occurs in everyday practice". In this study, the participants are the teachers in the university, particularly, the lecturers in the English Faculty of this university. The researchers carefully investigated the literature to find suitable question protocols, then adopted and adapted the questions then collected primary data by individuals interviewed English lecturers to gain insights into the understanding of personal definition and practical teaching cases.

The research site

This study is conducted at a public university in Vietnam. After asking permission to conduct the research from the Dean of the English Faculty and receiving approval, the researchers carried out the study by collecting data from EFL lecturers.

Participants

5 teachers are chosen to conduct this case study research. The teachers who are recruited from the school mostly are experienced teachers holding at least a master degree in TESOL and/ or a relevant field. Teachers are required to obtain at least 2 years of working in the field as well. The researchers approach these teachers via a faculty staff who introduced the researchers to the lecturers.

Sample and sampling

The convenience and purposive samplings are employed in this study because of the previous working experience with the school and the targeted experienced-teachers. The result of this research; therefore, cannot be generalized to the whole population of EFL teachers since according to Gravetter & Forzano (2015), it does not exclude the random elements.

Research instruments

In this study, the qualitative data is gathered through adapted interview protocols with interview questions. The interview protocols are adopted and adapted from the study of Paul, Elder, & Bartell (1997) The original protocols were made in the Western educational context; therefore, the researchers modified these interview protocols with certain justification from T. T. B. Nguyen (2016) so that they fit with the study's context of Vietnamese English Language Teaching. There are three sub-themes in this research: general information, understanding, practice, and reasons. The first part of the interview aims to collect the demographic information of the participants as the researchers want to find out the educational background of the participants to see whether critical thinking had been included in their learning or training history. The second part is to collect how each participant defines the concepts of critical thinking to compare and contrast with the chosen concept. The third and fourth parts are to emphasize the critical thinking teaching inclusion or exclusion in the teaching and learning process and the reasons behind it. All parts were carefully designed to gain detailed data to be able to answer the research questions. As the original interviewing questions are in English, the researchers decided to translate all of the questions into Vietnamese to avoid miscommunication and make the participants feel comfortable enough to respond to the questions. Before interviewing, the researchers approached two experts: a linguistic expert and a TESOL expert to ensure that the translation has the closest meaning to its origin. The questionnaire was sent to TESOL experts to evaluate its reliability and validity and to some teachers to eliminate any ambiguity question items. A similar procedure was applied with the Vietnamese-English translated version of the transcripts.

Findings/ Results

Teachers 'perception of critical thinking.

Upon the request for a definition of critical thinking, there was a high consensus between participants despite being interviewed independently.

Four of the five teachers defined critical thinking as a matter of thoughts whose level is high and stated that the suspension of belief in an incoming piece of information is the manifestation of thinking critically. Particularly, the phrases *"do not immediately believe immediately", "do not accept it immediately", "do not simply receive and interrogate information."* appeared with little wording difference between 4 respondents.

Also, three out of five teachers elaborated components of critical thinking identically, including analyzing, evaluating, and synthesizing. Among the three, one even provided a comprehensive description as follows,

"Distinguishing the difference between what we can hear and see only accounts for 30%. The rest of the process should include a description, further analysis, evaluation, synthesis, and faulty logic. As a result, one could find out what tools people are using to try to convince us."

Teachers' practice of critical thinking.

Possibilities of practice and challenges incurred. Concerning the possibilities of implementing critical thinking in a language session at tertiary education, one teacher contended the impossibility and stated that the predetermined curriculum made it impossible to integrate critical thinking in her language classes.

"In colleges, I do not teach critical thinking because the program has been fixed and established. 60 hours is not enough to solve problems in that program, not to mention adding other things."

All other four teachers; however, confirmed the likelihood of embedding critical thinking in their classes but this inclusion is with challenges relating to time, official curriculums, and students' readiness.

The first challenge is in ensuring the simultaneous development of language skills and thinking skills given the great amount of linguistics content to cover per session.

One teacher asserted that as the class is a language class, the development of other thinking skills cannot be the emphasis.

"It is not the focus of the lesson…It's just a small part so I can't spend too much time."

Another respondent explained the time-consuming manner of the teaching of linguistics items, which disallowed the catering and nurturing of critical thinking in class.

"Because there are so many things to be covered in class. (After finishing the language input, and presenting the lesson, then practice that language). Critical thinking should just be considered to teach as a lead-in step. Critical thinking is usually considered as tasks for students to practice themselves (homework)."

Also, stated by an interviewee that the pressure of ensuring students pass language examinations complicates the inclusion of critical thinking in a language lesson.

".. it is not simple. as the teaching content in the classroom must be ensured for the exams.. therefore, it depends on the teachers and the levels of the class."

The second hurdle relates to the official curriculums and syllabus. There reported inadequate attention to critical thinking and a dearth of systematic guidance on how teachers can practice and evaluate the skills from the curriculum designers. In particular, one teacher emphasized that the absence of critical thinking in a course aim,

"It is not specific, not clear in the syllabus, as well as not included in the subject outline and the curriculum.",

Another pointed out "*an absence of testing/ evaluating system for critical thinking"* in the curriculum.

The third difficulty stems from students' low level of readiness to learn critical thinking. An interviewee reported that even after being taught critical thinking, *"students show little response to questions, just answer in their way, without any serious thought for that answer, or without any scientific knowledge in it*". One participant added that some groups "*… are very lazy to think, and wait for the answers from the others instead*" or "*if going online to find ideas, all they do is copying those concepts on the internet…"*

Some other findings over teachers' practice of critical thinking in language classrooms. All four teachers who confirmed their implementation of critical thinking skills considered the scaffolding of the skills as an add-on element, only embedded once the linguistic content in the coursebook is completely covered.

"In terms of critical thinking, I would only introduce it to the students only after ensuring the linguistic content in the textbook.", said an interviewed teacher.

Hence, classes with good students who can grasp the knowledge in the book would see critical thinking elements more frequently.

"It depends on the level of a different class, to apply the teaching methods for critical thinking. With the class including good students who are able to grasp the knowledge in the book, I will apply that more."

Language skills lessons in which the integration of critical thinking is present include writing (2 respondents), reading (2 respondents), speaking (1 respondent) and no participants reported listening.

From the most-mentioned to the least-mentioned, activities that teachers have employed for the enhancement of critical thinking in class are students' discussion as group work, students' argument-making, student's problem explanation, and teachers' analyzing.

"I often let students discuss as a group work"
"I encourage students that when they have an opinion, they need arguments, justifications for those arguments, to persuade people, to protect their points of view.
"I always ask students to explain a problem, whether intuitively or deliberately…."

Discussion

The findings revealed that in terms of the definition of critical thinking stated in Barry (1992), and Paul & Binker (1990), most teachers conceptualized the characteristic of critical thinking as one dimension right/ wrong dichotomy as the most important aim. Teachers also mentioned that critical thinkers should be able to express personal opinions by synthesizing different perspectives to form a point of view toward issues themselves. However, other domains of critical thinking such as the appropriateness of thinking in terms of adequacy and accuracy, and the matching of thinking and

certain basic standards were neglected. This could be tracked down to the traditional teaching method in Vietnam where knowledge is one-way transmission from teachers to students; therefore, teachers' teaching remains to be the most reliable source. In addition to this, as discussed in Ho, Nguyen, Nguyen, Ngo, & Nguyen (2018), the content-based curriculum with its main aims to deliver factual knowledge barely gives chances for students to develop critical thinking. It is this passive way of learning shown by teachers' mentioning that developing students' self-regulation is almost an impossible task. The respondents highlighted the key points in students' lacking social knowledge leading to struggling in thinking or discussing/ expressing their thoughts to their friends. The teachers acknowledged that students' self-regulating their learning is not common in their class. Reflecting on the definition of critical thinking according to Báez (2004) which acknowledged the importance of self-regulation, this study addressed Vietnamese undergraduate students to recognize the need for this notion.

Most teachers admitted that they lacked professional training in terms of critical thinking knowledge and instructions for critical thinking, which yields to the study of Ho et al. (2018); Li (2016); Yuan & Stapleton (2019). This suggested that nurturing pre-service teachers in a critical thinking environment would be beneficial as it provides a constructive feedback loop for later generations.

Besides, as the teachers were supposed to prioritize language teaching for the sake of testing or examination, they tended not to include CT in the learning practice and considered it as part of the lead-in stage or assigned critical thinking tasks as homework. Group work, peer work activities, and/ or discussion and debates were found as the efficient trigger of critical thinking which was also discussed in the paper of Kusaka & Robertson (2006).

Another interesting insight from the responses of the participants is that most of the teachers mentioned speaking and writing as the two skills that they can apply scaffolding to. Reading skills were considered as the receptive source of information. No feedback regarding listening skills was noted.

Difficulties including students' background knowledge and time constraints are also noted. Teachers observed that students are quite passive in the class and tend to be silent as a response to teachers' questions. Another observation noted was teachers considered that critical thinking is only suitable for students at a high level of English from B1 or above. This result yields with the study of (Ho et al., 2018). Also, some teachers suggested that critical thinking should be taught as an independent subject with a specific syllabus rather than being scaffolding or including in teaching 4 skills of English skills.

Conclusion

With the current content-based curriculum and a gradual shift of policymakers to foster critical thinking, there is a huge gap to make teaching critical thinking become a reality. On a small scale, the traditional learning notions which mostly rely on textbooks could regularly be encouraged to change by a variety of reference sources to approach the phenomenon from numerous perspectives. In Vietnam, the potential

for radical change is enormous by applying technologies with Internet access. It is necessary to equip students with knowledge of the Internet to encourage their autonomy and find reliable sources to enrich their social knowledge-creating a thorough foundation to think and develop critical thinking.

In addition, providing a critical thinking environment for pre-service teachers is necessary. This requires significant actions from pedagogical institutions and schools in Vietnam to address and integrate critical thinking in the teaching syllabus by scientific argumentations and discussions. Also, workshops with practical discussion towards the viewpoint of CT and step-by-step CT guidance organized by the schools and educators would be beneficial and lessen the confusion among teachers. With the increasing emphasis on critical thinking in the 21st century in the work environment, professional development, careful preparation as critical thinkers, and innovations in teaching practices are of well suggested.

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Experts and Students Demand Andragogical Insights in Learning Beyond Pedagogical

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Abstract
Past research showed that experts with more specialized knowledge tend to criticize educational implementations and curriculum content sharply. Whether the intensity of these criticisms originates from domain specific knowledge or expertise is unknown, as experts are highly independent, internally motivated, and self-directed learners. This study hypothesizes that when adults with specialized knowledge comment on educational implementations, they may project their own intellectual competences onto their judgments, in a phenomenon called as intellectual mirroring. The purpose of the study is to investigate to what extent intellectual mirroring has been hampered by an over-reliance on pedagogical or andragogical insights. The study employed the qualitative research approach, in which the qualitative data were obtained from a series of focus group discussions and individual interviews with primary and secondary school students (Nfocusgroup=8) and teachers (Ninterview=5), who live in the UK. The content analyses identified 14 sub-themes under 6 global themes for students; and 10 sub-themes under 4 categories for teachers. The results showed that the nature and intensity of elder students' criticisms were highly similar to those of experts' previously found. Older than 14-year-old students claimed more independence in their learning journey and showed high motivation for specific topics, which can be interpreted by andragogical insights. However, teachers questioned students' competences for self-directed learning, and emphasized curriculum based requirements, which is driven by pedagogical insights. As opposed to the teachers, from the students' point of view, intellectual mirroring is not the consequence of domain specific knowledge or expertise.

Keywords: Pedagogy, Andragogy, Students, Teachers, Development

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Introduction

The term pedagogy is made up of the ancient Greek *paidos* (child) and *agogos* (leader), stands as an umbrella term for the theories and methods of teaching. Andragogical theory, on the other hand, combines *andr* (man) and *agogos* (leading), and refers to principles of adult education; stands historically as a much more recent concept and is defined as pedagogy distant. While both accounts reflect the unique characteristics of the two lines of theory, from what age people can benefit from andragogical insights in their education is unclear. Taking into account developmental perspectives, the present study aims to explore whether indeed children demand andragogical insights in their learning; how their perspectives on their needs evolve with age, and furthermore, whether other experts like teachers would agree with this tendency.

The junction between pedagogy and andragogy

The concept of andragogy, expounded independently, primarily reconceptualized by Knowles in the 1980's. He (1980, 1984) introduced the concept of andragogy as the science and art of adult learning and distinguished between instruction-centered pedagogy and learner-centered andragogy. The latter theorized and qualified the mature forms of learning as:

- Independent self-conceptual thinking
- One's ability to direct his/her own learning,
- Accumulating a reservoir of experience that supports learning,
- Changes in social roles: less obedience towards teacher-centered approaches,
- Problem/interest focused learning,
- Confidence in accessing knowledge,
- Internal motivation for learning.

While andragogy profiles adult learners based on these assumptions, it is also highlighted that as people mature, they become more self-directed in their learning, show more interest in why a particular topic is important to learn, or whether indeed certain information is relevant to the actual problem they intend to solve. Stemming from either personal interest, desires, or needs, mature learners seem to be naturally motivated towards the knowledge they seek. This may be the effect of previous life experience in combining conceptual and procedural knowledge, providing them with advantages when they enter educational activities.

Both pedagogical and andragogical theory concede that children hold a conditioned subject-centered orientation in their learning, whereas adults hold a problem-centered orientation, where quantitative and qualitative characteristics of motivators differ. In children, the characteristics of motivators are largely external, so children are more likely to look to role-models and revolve their learning around them. In adults, motivators are likely to be internal, revolving around essential needs, and learning is more relevant to social roles (Knowles, 1980; Tennant, 2006). In Piagetian (1952; Piaget & Inheldeer, 1969) tradition this differentiation is pinpointed by the gap between perceiving and knowing, highlighting that children typically strengthen their perceptual competences by gaining knowledge through the invariant sequence of stages. For adults, it is more focussed on conceptualization and responsibility of knowledge, guiding, and autonomous strategies (Mascolo, 2009, Sandlin, 2005).

Mezirow (1983) creates a charter for andragogy to rank the degree of decrease in learners' dependency on educators and formal institutions. He defines andragogy as an organized and sustained effort to support the capability of self-directed learning. The charter takes the concept of self-directedness as the mean of adult learning and highlights its 12 essential elements, ranging from a progressive decrease in learner's dependency on the educator towards an increasing responsibility for defining one's own learning objectives and planning. Apparently, self-directed learning corresponds to a cluster of terms, such as independent, autonomous learning, critical thinking, the ability to self-initiate and define purpose, planning, time management, and progress evaluation. Not only does the degree of dependency on teacher-led learning decrease, it can be seen that learning can take place in many situations independent of educational institutions, including at work, at home, or through leisure activities (see also Caffarella, 1993; and Tennant, 2005).

Mezirow's (1983) ontological account also provides an explanation for what facilitates this process. He proposes the development of metacognitive abilities as the legitimization for advanced reasoning. The model possesses three main layers containing various competences. In the center, the notion of reflectivity is placed to refer to the awareness of habits of seeing, thinking and acting. This layer is surrounded by conscious competences. The third layer is named as critical consciousness, which refers to becoming aware of our awareness in a critical manner. It is defined with the help of Maudsley's (1979) adapted term, namely *meta-learning*, which is defined by the processes through which learners improve their awareness in controlling the habits of seeing, thinking, and acting; a common element of perspective transformation involves not only becoming critically aware of these habits, but also of the cultural assumptions governing rules, roles and social schemas. Critical reflectivity plays a crucial and unique role in adult learning. Although an immature form of critical reflectivity is found in children, it seems to be an organized effort in facilitating perspective transformations across a lifespan.

The present study

Despite the appeal of the theoretical differences between child and adult learning, from what age or at what stage children can take ultimate control of their learning journey is ambiguous. Diagnostic models and tests largely aim to develop practical instruments for measuring factors that correspond to common traits. For example, Guglielmino's (1977; see also Hoban et al., 2005) self-directed learning readiness scale typically measures how often participants feel positively about major factors (e.g. learner's self-confidence, responsibility; curiosity, motivation), mostly derived from Knowles's (1980, 1984) profile on adult learners.

Further accounts are necessary to explore the developmental trends and discuss when/how children anchor in the characteristics of adult learners, as this study aims to address. Taking a qualitative approach, eight children and five teachers were interviewed during online focus group discussions to achieve this target. Both groups answered the same questions so that the analyses allowed for comparisons as to whether the interviewees had different ideas or whether the degree of expertise played any role in their conceptualization of pedagogical implementations.

The target was inspired from the previous study which showed that highly skilled experts –quantum physicists– criticised formal educational implementations strongly.

Criticisms were particularly intense regarding the high degree of dependence on the centralized curricula and teacher-centered methods. Instead, distrust of ready-made knowledge in science was praised. It was also proposed that learning rather than teaching should be prioritized via an idiosyncratic process that allows for learner-initiated activity (Dündar-Coecke, submitted). Coming from a field where the notion of physical reality is questioned continuously, the strength of the physicists' criticisms may project their mastery level. Thus, it was hypothesized that when they are asked about ideal education, experts may have projected their own intellectual competences onto their judgments in a phenomenon called *intellectual mirroring*, which implies that highly skilled experts may reflect their mature thoughts, knowledge, self-confidence, or expertise in their judgments, and this may upraise the bar for more immature learners. The purpose of the study was therefore to investigate to what extent intellectual mirroring has been hampered by an over-reliance on pedagogical or andragogical insights. By looking at other experts' –teachers– opinions comparatively with students', it was targeted at elaborating on whether the nature and intensity of criticisms differed depending on age, expertise, or domain knowledge.

Methodology

Using the qualitative research paradigm, the present study replicated the methodology of the previous study (Dündar-Coecke, submitted) to obtain students' and teachers' views in a similar semi-structured interview form. The purpose was to examine deeply the meaning of participants' explanations (Morrow, 2005). The participants were probed spontaneously using 'why' and 'how' questions as the methodology allowed over the flexible discussions (Krueger, 1994; Strauss & Corbin, 1990).

Participants

The qualitative data were obtained using the focus group interview method. A small group design was preferred due to the online nature of the meetings to allow each participant to have a longer speaking time (see Millward, 2006, for the group sizes). Student data were collected from two meetings. Care was taken for participants to be studying at different schools to ensure a level of representativeness. Students' ages ranged between 11 to 16. The sample included two 16- and two 14-year-olds, otherwise the age ranged equally. Five teachers were interviewed individually due to limitations in their time commitments in organising a joint meeting; one teacher working at a primary school (Year 5) and three working in the secondary school (Math, English, Chemistry) in the UK school system. The study employed purposive sampling based on the three criteria: willingness of the participants, their availability, and expertise in the field, such as either being a student or holding a teacher role.

Materials

A semi-structured interview form was used to collect the data. The questionnaire included four questions following an introduction. All groups received the questions in the same order, and spontaneous questions were asked where it was necessary. The semi-structured interview questions for students and teachers were as follows.

- Do you think that you (/students) have the knowledge and ability to plan and conduct your (/their) learning?
- Do you think that you (/students) can identify your (/their) own learning targets?

- Can you (/students) direct your (/their) learning independently, or prefer someone to guide you (/them)?
- Do you think that you (/students) can renew your (/their) motivation yourself (/themselves) for learning topics?

Procedure

During the interviews, the researcher acted as a moderator to orchestrate the data collection process and increase coherence across the stages. This process started with the preparation of the interview agenda, which included details about the date, time, and the technical organisation of the online meetings by using the Zoom online meeting application. Following the agenda, the participants received an introductory explanation of the following aspects: the motivation behind the study, the key topics to be explored, expected outputs, importance of these outputs for the field (i.e. who may need these outputs, how, and for what purposes?), and privacy (i.e. anonymising the data, how confidentiality is ensured). Individual permissions were also sought for the audio-recordings regarding the reliability of the analyses. The meetings did not start before the verbal permissions of each participant.

During the discussions, the participants were encouraged to take turns and discuss the questions in a fluid structure. They were also encouraged to be explicit about their opinions with the statements made by the researcher indicating that every thought is valuable, everyone should feel fully independent, and there is no right or wrong answer, but complete freedom. In addition to the audio-recordings, the researcher took notes based on immediate observations while administrating the group dynamics. Two different sessions totalling two hours were recorded. For the individual sessions with teachers, the participants received the same questions. Due to lack of consent, only one teacher's views were audio recorded; for the rest the researcher took notes in detail.

Data Analysis

The data were analysed using the content analysis method, which was started by classifying the categories and global themes derived from the research question. Then each category was divided into sub-themes that elaborated on the relevant concepts and codes. The first step was to review the recordings and notes taken during the meetings and interviews, and then to consider what main themes had emerged.

For the thematic analysis, Braun and Clarke's (2008) step-by-step analysis method was utilized. This method guides the six stages in conducting thematic analysis, starting from familiarization with the data; initial code generation; further reading of the transcripts and notes; definition of the themes; naming and revising of the themes; and reporting. Following this pathway:

1. The researcher read the transcriptions and notes of interviews, highlighted the most relevant sentences with relation to the research question.
2. The transcriptions and notes were re-examined for possible coding categories. Each sentence was cross-checked against the other by giving consideration to their meanings.
3. The left-hand margins were used to allow the researcher to establishing an initial list of codes for conceptual frameworks as suggested by Miles and Huberman (1984).

4. An open coding paradigm was employed during the re-examination process, enabling conceptual labels to be placed upon significant statements and then grouping these labels together to create initial categories following Strauss and Corbin's (1990) recommendations.
5. The category list enabled the researcher to reduce the number of categories by collapsing those that were similar or dissimilar into broader higher order categories.
6. The final version of the coding list refined the initial themes/categories, and clustered them appropriately by taking into account the research question for each data set.

Validation Strategies

A time triangulation strategy was used to robust the validation, credibility and rigor of each data set. The time triangulation technique enabled the researcher to complete the coding processes without a break: after completing the initial analysis, the researcher re-examined the above-mentioned thematic analysis once over three consecutive weeks of time for each data set. Each time the full scope of the analysis was re-examined as recommended by Creswell and Miller (2000).

Results

The following figure comparatively illustrates the teachers' and students' themes, categories and subthemes obtained from the thematic analyses.

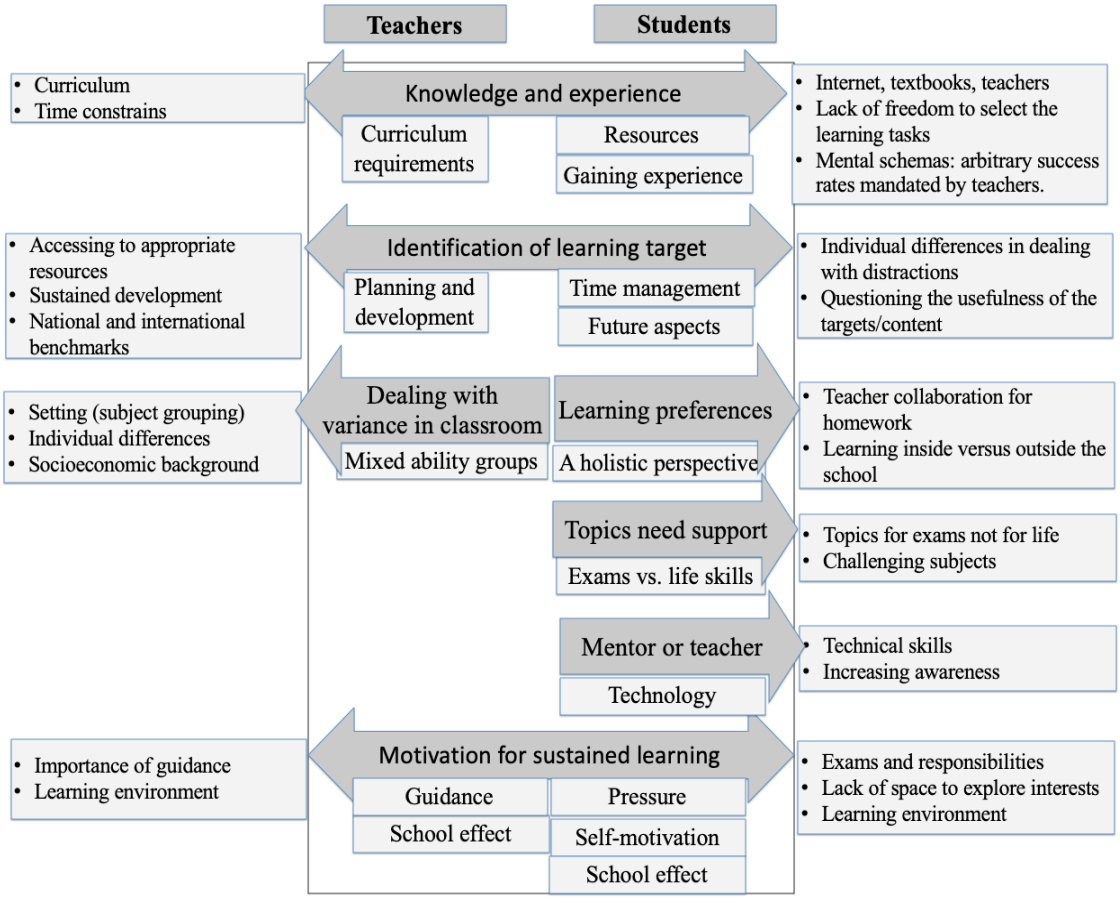

Figure 1. The themes and categories of students vs. teachers

The qualitative analysis reported two groups of interviewees views under the relevant categories and themes. Direct quotations ensured the minimization of the personal bias of the researcher. This was demonstrated by bracketing, which represented self-awareness of the mindset of the researcher.

Student data
As illustrated in Figure 1, in total 6 global themes and 10 categories produced 14 sub-themes for the student data. Direct quotations were coded by using students' role (S= Student) and their age (e.g. S, 12).

1. Knowledge and skills
The first global theme had two categories underneath, namely 'resources' and 'gaining experience'. Regarding the first theme (resources), students stressed the importance of the internet in improving them the knowledge of topics that they are interested in. In particular, the older ones showed the self-confidence to direct their learning independently.

"*Depending on how passionate I am about the topic, internet or textbooks are helpful. I believe that I have the knowledge and skills to use these resources independently.*" (S, 16)

"*In schools, teachers always have ideas about what you should know. When I like the topic, I prefer to move forward independently*." (S, 16)

Students agreed that the variety of resources is important to plan and conduct their learning. However, their opinions regarding the implementations varied. In particular, younger children continued to emphasize the role of teachers, while older students were more critical about teachers and the system. Lack of freedom to select the learning tasks/topics were stressed as another subtheme.

"*Most topics I am interested in are not under GCSE options or curriculum. The basic core topics of the GCSE are English, maths, science." (S, 14)*

One student mentioned that they believed the mental schemas of teachers resulted in the attainment of arbitrary success rates depending on the racial or socioeconomic background of students.

"*Some teachers have strong mental prejudices depending on students' socioeconomic background or gender or nationality. They reflect their feelings to students in the class by putting biased or arbitrary success rates.*" (S, 16)

This point attracted the attention of the interviewees. At the end, they decided that teachers' behaviour may change, depending on the school catchment area.

2. Identifying own learning target

Under this global theme, two categories and three sub-themes emerged. The first category was 'time management' in directing one's own learning. The second category was named 'future aspects', which compiled students' criticisms and questions. Under the first category, all students agreed that identification of learning

targets requires time management skills and planning. Distractions were referred to as challenging: "*Time management is a skill. I get distracted easily outside school. But we are not used to learn outside the school. This may be the reason*." (S, 15).

"Is playing football or taking pictures a distraction? If yes, I'm easily distracted outside the school. I would prefer spending my time for those if I don't go to school. But in the school, friends are also distractive." (S, 16)

Young children seem to be more obedient. They were also less critical about teachers setting the targets: *"If I need to set my target it needs a lot of time management skills. You need to know exactly what you are doing."* (S, 14)

"*I am not used to have that much freedom. I don't know how to plan and manage my learning*." (S, 11)

Particularly older students questioned the future contexts of the learning targets. "*I study economics, and there are certain subjects that excite me, but I am not allowed to focus. Schools and exams expect us to have a baseline in all subjects, but we need more freedom in choosing our targets."* (S, 16).

3. Learning preferences

This global theme produced one category and two sub-themes underneath. A need for a holistic perspective was stressed by all students. Young students seemed to feel comfortable with the idea of learning from their teachers as the main source: "*I try to learn in the school. We don't have enough opportunities available outside."* (S, 13)

However, even young ones displayed some criticisms, while older students showed strong preferences towards self-directed learning.

"*Most teachers don't talk to each other, and they end up giving us too much homework. If they can connect learning activities in a more meaningful manner to us, they can support my learning more effectively*." (S, 11)

"*Teachers should give more options to students like what to focus and how. For example, if a student is interested in media, which is not under the GCSE topic, teachers do not support that*." (S, 15)

4. Topics needing support

Under this global theme, one category and two subthemes emerged, namely 'topics for exams, not for life', and 'challenging subjects'. Regarding the former, some students highlighted that exams are not part of real life. "*I don't like the idea that I have to learn for the exams, not for life.*" (S, 14)

"Most stuff I learn in the school is just useless." (S, 15)

Challenging subjects were acknowledged. Students highlighted that most of them do not know what to do or which subject to focus on until the year of 10 or 11. Thus, guidance until these levels is found to be crucial unless they have strong ideas about

what topic to focus on. "*The process is a lot harder for Year 9, as you get all foundational information for the GCSE which effect your next two/three years massively*." (S, 15).

5. Mentor or teacher

This global theme produced one category and two sub-themes, namely 'technical skills', and 'increasing awareness'. All students declared that technology use is the key for their learning as an alternative to teacher instruction. "*For most tasks, we need internet or technical skills*." (S, 14)

Younger students seem to think that they have the skills. Online learning does not require skills, but it requires device and memberships. They appear to be more open for receiving instructions to increase their awareness. "*To search from the internet, you need to have the device first*." (S, 13)

6. Motivation for sustained learning

This theme produced three categories and three sub-themes underneath, namely 'exams and responsibilities', 'lack of space to explore interests', and 'learning environment'. Students' thoughts were quite diverse. Some of them focused on exams and job opportunities as motivators; some of them had to think about the sources of their motivation. But all agreed that even if they didn't go to school, they would continue to learn something new. Regarding the 'pressure' sub-theme, they seem to accept a certain level of pressure as helpful in motivating them to engage with schoolwork. "*If we don't have the pressure of exams, teachers etc., this may change my learning."* (S, 13)

"*If you let us be, we may lose the motivation to learn school topics, but do other works that we like*." (S.16)

Some of them emphasized individual differences. "*It comes down to the personality. Some people like pressure or being scared. Some people like to be independent and relax. I prefer a balance, half and half*." (14)

On the other hand, 7 out of 8 students think that they don't have a space to think about their interests. "*Self-motivation is a skill that everyone needs to develop. If I get pressed by the teachers, I get stressed, cannot work properly. Probably I have that skill and need more useful information to build my future."* (S, 14).

Regarding the school effect, most young children underlined the positive impact of the school on their learning motivation. "*I prefer to learn in the school. It motivates me better.*" (S, 12)

Teacher data

From the analysis of the interviews and hand notes, 4 global themes, and 5 categories produced 10 sub-themes for the teacher data. Figure 1 provides a list of teachers' themes and categories obtained from the thematic analyses. In the analysis below, each participant was coded by using their profession (T= Teacher) and school level

they work (P=Primary; S=Secondary).

1. Knowledge and experience

This global theme produced one category and two sub-themes underneath, namely 'curriculum' and 'time constraints'. Regarding the former, teachers expressed that the national curriculum is a reliable guidance for knowledge and experience development. "*Of course, we have a national curriculum to set educational attainments in a more standardized manner throughout the years of schooling. It encourages us to quantify the outcomes that can be used in internal and external evaluations at the school and regional levels*." (T, P)

Time restrictions in achieving the targets was seen as a challenge. Some teachers seem to be more critical about the overcrowding in the program. "*We face many challenges to deliver effective, solid, and in-depth teaching. Sometimes, it feels like it is a frantic gallop.*" (T, S)

2. Identification of learning target

Under this global theme, one category and three sub-themes emerged. Teachers mostly emphasized the aspects of planning in supporting students' development. Three sub-themes revolved around 'accessing appropriate resources', 'sustained development', and 'national and international benchmarks'. Regarding the first, all teachers showed confidence in the content they have been delivering and how. "*Students can easily get lost if you don't guide them. Particularly, on secondary school level what would be needed is putting together the tasks for each subject and linking those to other resources, including online*." (T, S)

Within the scope of the second subtheme, sustained development was the focus. Despite centralized curriculum guidance, teachers stressed the role of school-, pupil-level, and self-evaluations for sustained development. "*Yes, national curriculum guides us, but it requires us to set our own targets for each subject as part of our school development plan."* (T, P)

"*Target setting is at the heart of our job. We offer individualised learning plans depending on learners' unique nature (hobbies, interests etc.), a route through the programme. This is a job for professionals that requires training and practices, in which students have very limited capacities*." (T, S)

The third sub-theme, national and international benchmarks, was highlighted by all teachers. Most teachers found exams to be a useful way to benchmark their and their students' performances within and between the schools. "*Results are generally reassuring. Exams are also useful to modify the teaching methods and re-evaluate the targets*." (T, P)

"*We are also under the pressure of national and international benchmarks; exams are not just for students*." (T, S)

3. Dealing with the variance in the classroom

This global theme produced one category and three sub-themes underneath, namely 'setting', 'individual differences', and 'socioeconomic background'. All teachers mentioned the complex nature of classroom and individual differences. "*Classroom is a heterogeneous environment that each student is initially randomly allocated."* (T, S)

"*We make effort to reduce the disadvantages and equalize the start conditions for everyone*." (T, S)

Teachers stated that the variance in students' abilities can be large in the same class. Setting (subject grouping) is one way to orchestrate the mixed ability groups. *"Although it is common to group children based on their interests in art, sport, or music, it is hard to extend it to the core topics, such as mathematics. Yes, there are a number of flexible forms of grouping in this context, but it is still challenging to address the targets at class level.*" (T, S)

One of the teachers drew attention to the impact of children's socioeconomic background. "*Students' home environment varies largely. You can easily observe the impacts of their home environment on their interests and attainments*." (S, P)

4. Motivation for sustained learning

The last global theme produced two categories (guidance, school effect) and two subthemes underneath, namely 'importance of guidance' and 'learning environment'. Regarding the first, teachers seem to believe that they have a major role in maintaining students' motivation. *"I am sure that students can maintain their motivation for learning, but only a few ones keep up with the core topics, such as maths"* (T, P)

"We use many strategies to create and maintain students' motivation in classroom. Yes, some students can be highly motivated, but my effect is highly remarkable too in keeping them on track." (T, S)

School effect was another category, stressing the impact of the learning environment. *"I agree that we need to give students much control over their own learning. But, I know even from my own child that she needs the school atmosphere to maintain her focus on cognitive tasks"* (T, S)

Discussion

From a developmental viewpoint, it is worth knowing from what age children can steer their learning journey and anchor in the characteristics of adult learners. The present study aimed to explore this query and capture these characteristics by asking teachers and students; and showed that different parties' views on the same questions can differ largely. Looking at the first global theme, teachers seem to perceive themselves as the main source of knowledge development, while students acknowledge the role of different types of resources in knowledge construction. Within the second global theme, unlike students, teachers did not mention the future

aspects of students' learning. National and international exams drew the teachers' attention, while students questioned the usefulness of the content they are exposed to. The issue of dealing with mixed abilities (by teachers) sits in contrast with concerns over learning preferences in students. The parties' understanding of life skills seems to differ too. However, the theme of motivation for sustained learning produced one similar category, namely school effect and both parties provided similart opinions about it. Overall, differences between the two groups can be pinpointed as follows:

- Both teachers and students rarely talked about interests in school subjects, but they mostly talked about exams and responsibilities.
- While younger students declared that teachers set them to work, older students analysed the value of the work itself in the context of life and future targets. Substantially so, teachers were viewing the school subjects as a measure of success.
- Teacher guidance was welcome for all ages (e.g. *teachers as pinpointers*). However, students expect not only instruction, but an array of opportunities and support for their learning.
- Most students declared/agreed that they are trained to motivate externally. All participants agreed that motivation requires some support, but older students showed desire to nurture their own interests and had strong criticisms of school-type restricted subjects.
- Students, particularly older ones (15/+), seem to be more critical about pedagogical implementations, particularly when the content is embodied with teacher directed learning.
- The learner's lack of responsibility for making decisions about what will be learned, how it will be achieved, and when, were all under the scrutiny of secondary school students, in a more critical manner than at primary age.

Older students' criticisms were largely in accord with the physicists' views elaborated on the previous study (Dündar-Coecke, submitted), where negative effects of intensive teaching and easily available ready-made information (e.g. introducing content via schoolbooks) on students' knowledge construction were discussed. A suggested alternative framework was *inferential comprehension*, which focuses on developing learners' ability to question existing models, encouraging learners to test them, fostering a habit of researching from a variety of resources, and ultimately, refining ideas and constructing the digested knowledge. Inferential comprehension takes a stance against conventional approaches where learners are perceived as novices. In this present study, although none of the participants mentioned this concept explicitly, students' criticisms were highly similar to those of physicists, particularly when it comes to the function and methodology of teaching: specifically, if the content is seen as being traditionally translated from teachers to immature students. As opposed to the teachers, from the students' point of views intellectual mirroring may not the consequence of domain specific knowledge, expertise, or age.

These results provide a basis for a large-scale investigation rather than being conclusive. Although particularly older students seemed more capable to take the lead of their learning or explore the alternative forms of developing learning styles independently, further studies are needed to investigate the generalizability of the outcomes.

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The Birth of Smart Teacher: A Genealogical Examination of the Newest Teacher Subjectivity on the Matter of Technology Use

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Abstract
This study employs Foucauldian concept of "genealogy" to explore rules, norms and knowledge of popular educational discourses about 'SMART education' in South Korean contexts. This research is significant on the point that it shows the formation of a specific teacher subjectivity at this specific historical juncture which might be rather limited in relation to issues of technology use in teacher education. The authors investigate SMART education discourses by collecting public documents (e.g., national policies, research reports, news articles), and by generating relevant documents (e.g., interview) in combination with analytical tools provided by Fairclough (2003). With the collected textual data and the tools, this paper uses four-part Foucauldian framework to illustrate the constructed teacher subject: 1) What aspects of teachers needed to change (substance), 2) For what reason should this change happen (mode), 3) What are teachers supposed to do to change themselves (the regimen), 4) What a model or perfect version of teacher might look like (telos). The writers argue that 'smart teacher' is positioned as 'updatable software' which is to be thoroughly, constantly, ubiquitously and autonomously updatable. Ultimately, this research aims to open up our discussions regarding different possibilities by re-imagining future versions of education and teachers.

Keywords: SMART Education, Technology Integration, Education Reform Subjectivity, Discourse Analysis, Genealogy, Foucault, South Korea

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1. **Introduction**

With the rapid development of digital technology, the position that technology takes in education seems to be getting more important. (see e.g. Azumuddin et al., 2020; Dincer, 2020). It might be the positive effects that the importance of technology integration is significantly growing. Indeed, technology adotion in education often promises better learners' autonomy, digital competence as well as more satisfactory learning experiences (see. e.g. Lenkaitis et al., 2020; Njuguna, 2020). Like an epidemic, many governments have implemented technology driven education reform projects in order to innovate their education since early 2000s (see Lee & Lee, 2019, p.1902). Accordingly, teachers' effective technology integration has been highlighted and studied vigorously. There is large number of studies investigating teachers' relevant competence or modelling teachers' technology adoption (see e.g. Tondeur et al., 2018; Tømte et al., 2015; Scherer et al., 2017; Scherer et al., 2018). However, there is a lack of understanding as to a certain question: How would a good teacher look like in this era of technology? If those particular interests and educational reforms not only change what teachers do but also change who they are, just as Stephen Ball (2003) states, it needs to be elucidated to critically reflect what kind of teachers we are building in the society.

Taking the question as the main research question, this study takes on a critical analysis on a set of statements prioritising technology integration in education (i.e. critical discourse analysis) in order to find out a certain formation of teacher subjects. To make the project manageable, this research focus on SMART education discourses, discourses about a technology driven education reform project in South Korea. In the following paragraphs, this study closely read various texts supporting SMART education while questioning the following points which draw on Foucault's genealogical examination (Clarke, 2009; Fendler, 2010):

How smart teacher is constructed in SMART education discourses?
1) What aspects of teachers needed to change?
2) For what reason should this change happen?
3) What are teachers supposed to do to change themselves?
4) What a model or perfect version of teacher might look like?

Ultimately, we argue that current formation of teacher subjects might limit the possibility for us to dream about different futures.

2. A gap in the current literature on teacher subjects in relation to technology use

This study focuses on 1) professional competence of teachers 2) teachers' practices and perceptions 3) teacher identity. By exploring how the current literature understands each area, this study can argue that there is a lack of knowledge which enables us to see the formation of teacher subjects at this historical juncture.

There are many studies investigating professional competence of teachers in relation to their technology use. It can be called as 'digital competence', 'ICT competence', 'Technological Pedagogical Content Knowledge (TPACK)' and so on. While it is called with various names, it tends to indicate a set of skills, knowledge and attitude that are necessary in using technology as a teacher (see Røkenes & Krumsvik, 2014;

Tømte et al., 2015; Tondeur et al., 2018). As Lee and Lee (2020) point out, the trend in the body of knowledge tends to expand its theoretical boundary by constructing conceptual model (see e.g. Scherer et al., 2018) and by going through statistical procedures with a theoretical framework (see. e.g. Scherer et al., 2017). In this regard, the literature in this field is clearly being strengthened and expanded by the efforts of the researchers. However, there is a lack of research which re-consider that these research take for granted that teachers are supposed to accept technology.

Studies about teachers' practices and perceptions regarding technology integration is well documented. Mainly, researchers in this field have been discussed whether technology adoption brings any desirable effects. For instance, some researchers study software (see e.g. Wang & Tahir, 2020), hardware (see Deaney et al., 2009; Ifinedo et al., 2020; Roblin et al., 2018) or new digital pedagogies (Eichelberger & Ngo, 2020; Henderson & Philips, 2015; Seery, 2015; Starčič et al., 2016). In most of the cases, positive changes in teacher perceptions and practices are presented as the results. It cannot be denied that we must respect the scholarly contribution that have been made. However, given that the research trend encourages researchers to maximize the use of technology and to minimize the negative perceptions or practices of teachers, it might be dangerous not to question this trend not allowing teachers to feel free in utilising technology.

The literature about teacher identity in relation to technology integration understands that identities of teachers face with transition while they are dealing with technology. It has been reported that teachers' identity would be shifted from 'knowledge transmitter' to 'a facilitator' which implies that teachers' outdated identity gets updated (see Burnett 2011; Kozma & McGhee, 2003; Ottensen 2006; Loveless & Williamson, 2013). Also, some researchers focus on the contexts where teachers are situated (see Burnett, 2011; McGrail, 2006; McNaughton & Billot, 2016; Sockman & Sharma, 2008). They understand that teachers interact with the contexts and their identities would continuously be changing. It is noteworthy that, however, the critical voice also has been lacking in this body of knowledge that the contexts where teachers are situated are the aftermath of certain power relations rendering the trend receptive not innovative.

3. Methodology

Having identified some limitations in the current literature, this research takes an alternative approach to address the limitations. This approach takes Foucault's discourse position which theorises teachers as 'the effects' of certain power relations that are contingent in this specific historical time (Ball & Olmedo, 2013). Foucault's discourse position lends a conceptual tool to investigate teacher subjectivity, a specific discursive construction of teacher subjects at a certain time and space. Thus, it allows this research to elucidate the formation of teacher subjects with regard to technology use with the consideration of power relations shaping the possibility in a certain direction.

To examine teacher subjectivity, SMART education discourses have been archived. As is briefly introduced earlier, SMART education is a government reform project initiated in 2011 to innovate education system in South Korea. It is defined as the intelligent and tailored learning system for educational environment, contents, method

and assessment (MoEST, 2011). It is also stated as the driving force which innovates the educational system enhancing the 21st learner competences. The archive of SMART education discourses includes a set of statements which support the defined. The archive includes two government policy papers, three research reports published by national research institute, five news articles which support the claims about SMART education as it is defined by the government (see Table 1 below)

Issued	Title	Publisher	Format
2011.06	SMART education Implementation Strategies	MoEST	Policy paper
2011.09	SMART education Strategy Action Plan	MoEST	Policy paper
2012.12	Teaching Tips & Self Check list for the 'Good Instruction' of SMART Education	KERIS	Research Report
2013.03	Smart Education Teacher Competence and Training Programme Development for Smart Education	KERIS	Research Report
2014.02	The development and implementation of an online assessment tool for teacher competency in SMART education	KERIS	Research Report
2011.06	In a classroom at a primary school in South Korea in 2015…	The Chosun Ilbo	News article
2011.11	Preview 'digital classroom', Changwon O-chang primary school	The Chosun Ilbo	News article
2012.11	I'm a smart teacher…I teach by NIE method with Tablet PC	The Chosun Ilbo	News article
2012.12	Backpack is light, lesson is more delightful	The Chosun Ilbo	News article
2013.03	SMART education is rushing into…This is how to do 'Mum-made education'	The Chosun Ilbo	News article

Table 1: The archive of SMART education discourses

It is noteworthy that 18 interviews were conducted by the first author in, so called, a smart city in South Korea. The participants were ten teachers, five teacher educators, two school managers and a regional SMART education supervisor of the city. Interview transcripts are also added as a type of textual data in the archive (see Table 2 below).

No	Pseudo Name	Working Place	Role	Length of Teaching	Gender	Note
1	Hannah	School A	Teacher	4 years	Female	She used to teach in the other part of the city which was not involved in SMART education initiative.
2	Dongmin	School A	Teacher	4 years	Male	Began his teaching career

						in Sejong
3	Soyoung	School A	Teacher	5 years	Female	Began her teaching career in Sejong
4	Hoon	School A	Teacher	2 years	Male	He used to teach in another city.
5	Jiyoung	School A	Teacher Educator	20 years	Female	She has been a teacher educator in the city since 2014. She is one of the founding members of a teacher educator society which is managed by the regional supervisor.
6	Mingoo	School A	Teacher Educator	5 years	Male	Both used to work in the other cities. They have been working as a teacher educator for one year. They were encouraged to apply for the teacher educator position by Jiyoung.
7	Jaewon	School A	Teacher Educator	5 years	Male	
8	Yoonha	School A	School Manager	27 years	Female	She used to be teacher and a regional supervisor of Sejong city and has been managing her school about 5 months.
9	Hana	School B	Teacher	4 years	Female	Began her teaching career in Sejong
10	Yuna	School B	Teacher	4 years	Female	Began her teaching career in Sejong
11	Paul	School B	Teacher	6 years	Male	Began his teaching career in Sejong
12	Sangah	School B	Teacher	2 years	Female	Began her teaching career in Sejong
13	Hansol	School B	Teacher	13 years	Female	She used to work in other cities and started to teach in Sejong since the beginning of the city, 2012.
14	Jiwon	School B	Teacher	3 years	Male	Began his teaching career in Sejong
15	Chanwoo	School B	Teacher Educator	10 years	Male	He used to teach in another city. He has been a teacher educator since 2014. He is also the core member of the teacher educator society.
16	Joseph	School C	Teacher Educator	4 years	Male	He started his teaching career in Sejong city and has been a teacher

						educator about a year
17	Juwon	School D	School Manager	35 years	Male	He used to be a teacher. He also worked as a regional head supervisor of Sejong city playing important role in setting up SMART education. He has been managing his school at least more than three years.
18	Suhyun	Sejong City Education office	Regional Supervisor	** years	*	She used to be a teacher. She has been working as a regional supervisor for several years. She has been supervising SMART education for some years.

Table 2: Participants' general information

The four research questions are the four-axis of ethical formation of certain subjects. They have to do with 'substance', 'mode of subjectification', 'regimen' and 'telos'. Firstly, substance illuminates the target which needs to be change: What part of the teacher subject is supposed to be changed to fit in SMART education? Secondly, 'mode of subjectification' illuminates the reason: For what reason this change should happen? Thirdly, 'the regimen' refers to 'self-practices': What should teachers do to fit in SMART education? Lastly, 'telos' illuminates the end point, or the ultimate goal of teacher subjects: What a model or perfect version of teacher might look like? The last question combines the findings of the previous analytical questions and provides an end point of teacher subjects.

To critically read the collected texts, the following procedures are also set in combination with the research questions: 1) what is(are) included/excluded, 2) how the element(s) is(are) included, 3) what are the included doing in the text. The points of the analysis are drawn from Fairclough's (2003) where the author provides important aspects for the examination of language use in textual data.

- Social events: Which event(s) is(are) being talked?
- Genre: What types of genre is involved in the text?
- Difference: What is the orientation to 'difference' in the text?
- Intertextuality: What are the voices included? How they are included?
- Assumptions: What is(are) the assumption(s)? Is(are) it(they) existential, propositional or value assumption(s)?
- Semantic/grammatical relations between sentences and clauses: How are the relations between sentences and clauses in both semantical and grammatical sense?
- Exchanges, speech functions and grammatical mood: What are the statements doing? How are they doing?
- Discourses: What discourses are drawn upon in the text? What do they do in whole in the texts?
- Representation of social events: What elements of represented social events

are included or excluded? Which one is the most prominent?
- Styles: What styles are drawn upon in the text, what do they do in total?
- Modality: How strong is the author(s)' commitment?
- Evaluation: Is there a certain value being evaluated? How are they being evaluated?

4. Findings

Compatibility Teacher Competence for SMART education (here after TCS) can be said as the part on which teachers are inscribed to work in SMART education discourses. In fact, TCS is not just the part. It is conceptualised as 'the core' and 'the whole' of teachers. This point can be seen by looking at the definition of the term and its components.

> Here, teacher competence for SMART education is defined as "***the essential characteristic*** required to teacher who practices effective education in order to foster 21st century core competence and for the innovation of education heading towards the future education". This ***basic*** characteristic takes a quality which ***integrates knowledge, skills and attitude*** that have been conceptualised separately. … (emphasis added, KERIS, 2013, p.1)

TCS is defined as "the essential" and "the basic" characteristic of smart teacher. Further, it is the 'whole', not just the core as is seen in the expression that it "integrates knowledge, skills and attitude". As can be seen from the excerpt, the text is stated in "a high degree of abstraction and generalization based on the authority (Fairclough, 2003, p.141)" by a government research institute. It means that the written text and its contents hold the authority of dictating the truth.

Taking TCS as the whole of smart teacher further, it is worthwhile to considering the components. It consists of '13' competences and '61' performance indicators. Just by looking at the numbers of the competences and the indicators, it is assumable that it would be quite difficult to find any critical component which might make TCS somewhat lacking. However, when it is re-organised from a perspective that TCS is conceptualised based on 'compatibility', what TCS does not include can be revealed.

Domain	Competence	Definition
Fundamental competence	Creative problem-solving	The ability to analyse and identify a given problem by finding new ideas or concepts or by using various methods of thinking, and to establish and apply appropriate solutions to solve it.
	Social ability	The ability to interact effectively with others for problem solving, creating new outputs, learning, and proficiency
	Flexibility	The ability to actively embrace diversity in a diverse society and make the diversity feasible for the common good.
	Technology literacy	The ability to select and utilise various technologies for the collection, interpretation, utilisation, and

		creation and to implement ethics in ICT
	Ethics	Accuracy and integrity of actions in which objectives, values, methods, outcomes and expectations are consistently reasonably conducted
	Passion	A loving and devoted attitude in performing one's duties as a teacher
Practice competence	Understanding future education	The ability to understand the concepts of future education and smart education and apply them in the real world of education
	Contents expertise	The ability to understand the subject areas of one's responsibility, including the entire educational system, and to continuously develop expertise
	Building relationship with learners	The ability to build bond of sympathy based on positive communication with learners
	Instructional design and development	The ability to design a suitable learning environment and develop necessary materials by comprehensively considering the purpose of education, core competencies, contents, methods, and technology
	Building learning affordance	The ability to effectively organise and utilise the physical environment of the classroom, learning activities, and social relationships of the members, thereby creating meaningful learning experiences
	Evaluation and reflection	The ability to analyse learners' achievements and the performance of various educational activities and to make reasonable use of the results
	Building collaborative relationship with community	The ability to establish links with institutions, organisations, and resources outside the school to expand the teaching-learning arena and to play a role as a member of the community

Table 3: List of teacher competences for SMART education (KERIS, 2013, p.1)

The components can be divided into two groups: A group of competences to take the external changes in the society (i.e. Creative problem solving, Social ability, Flexibility, Technology literacy, Understanding Future education, Building collaborative relationship with community), and the other group of competences engaged with internalising what is taken from the changes (i.e. Ethics, Passion, Contents expertise, Building relationship with learners, Instructional design and development, Building learning affordance, Evaluation and reflection). Therefore, the components would not take 'the critical attitude' as the core or the essential of smart teacher given that the attitude would not be helpful in making one as the compatible smart teacher.

Survival Teachers are supposed to change themselves in order to 'survive'. It can be said as 'the survival of the fittest' as a teacher in the era where changes are happening constantly.

> *In fact, since it was the beginning of SMART education and my phone was the old version (i.e. not using smartphone), so…a bit…I felt a little bit that children are moving faster, and I am slower. … Not really, I*

> *was proud of them rather than I found it difficult. I thought, 'Ah! I'd better follow the trend. Since this is the stream of this era, it shouldn't be the case that I stay still and fell behind.' I think I was like that (Hansol).*
>
> *Well, you hear about things randomly. To be honest, recently, in our school, well, in Jiyoung's (a teacher educator) classroom, I read a news article and heard about her lesson which connected to the vice CEO of Microsoft via screen… I think I was motivated by such things. I mean…I thought there are people doing their jobs with passion and I can't just stay here. I mean…I think I was motivated by myself while seeing such things. (Hoon)*

Teachers are well aware of their surrounding environment and their missions. They have no choice but to work on themselves not to be left behind by their pupils as well as their colleagues. In the excerpt above, both teachers recognise that pupils are moving faster and observes that a colleague shows a wonderful open class which is even reported in a news article. Hansol and Hoon, both teachers state that they need to move or do something (i.e. It shouldn't be the case that I stay still and fall behind; I can't just stay here). There is not so much choices left for them.

Survival can mean 'authority' of teachers. It is because that showing professional signs to their pupils is still important even if SMART education discourses set teachers as 'a facilitator' instead of 'knowledge transmitter'. It would be the most unwelcome situation especially for a teacher who is already an established expert of the current education system and to be shown as the outdated in front of her pupil. On this point, Jiyoung (a teacher educator who has 20 years of teaching experience) talks about her fear:

> […] These days... in fact, that's what I'm most afraid of. I ***break out in a sweat*** when I stand in front of my kids with what I'm ***not skilful at***. When such time comes, it's really… every second and every minute...wah...I really ***want to sink through the floor*** […] (emphasis added)

In the excerpt, she expresses her anxiety by saying that she "breaks out in a sweat" when she comes across a certain thing at which she is not skilful. She even mentions that she "wants to sink through the floor" despite her teaching experiences and expertise in SMART education (recall that Hoon read a news article of Jiyoung). Since she wants to keep her authority, she puts efforts to develop her compatibility regardless of her current level of expertise.

Lastly, teachers are supposed to develop themselves to make sure their business can satisfy their customers. As if teachers were entrepreneurs who own their restaurants, they are positioned to change their teaching practices.

> It's the teacher's choice. ***100%***. It can't be made mandatory or compulsory. But ***one thing***, it is likely be the case in which one ***cannot help but to*** do it by ***the needs of students*** […] If children like western foods, it's the right thing to supplement nutrition in western style. If it

> is Korean food, then in Korean style. […] It is effective to do the lesson in accordance with ***the taste of customer*** […] (emphasis added, Suhyun)

As is described in the inserted text, teachers' professional choice is stated as "100%" their own. A sacred place. However, as soon as "one thing", "the needs of students" or "the taste of customer" comes in, teachers are suddenly "cannot help but to" give up their freedom and to change their professional choice. The logic is simple: If customers are not satisfied, any business would go bankrupt.

Self-authentication Teachers are supposed to prove themselves as the one who is equipped with TCS. As a means to prove themselves, they develop their professional competence by taking trainings 'ubiquitously' despite no one force them to do so. Teacher trainings take place practically everywhere: at home, at school, at institutions. Also, they can happen at any time: at night, during weekends and during vacation time. Indeed, teachers are situated in a field where it is filled with limitless training opportunities.

At the same time, teachers voluntarily take those trainings (recall that professional choices are 100% owned by teachers). However, it should be mentioned that those choices are made because they 'have no choice but to' do so in order to survive.

> In fact, by the way, using computer or cellphone makes my eyes sore and I still prefer to write with my hand instead of typing and all. I mean, I'm sort of reluctant to put smart technology in my life. (Soyoung)

> To tell you the truth, I'm not interested. […] it's not that I like SMART education particularly. […] I did SMART education as I was told to do so and children like it. But I didn't like it. (Hana)

Teachers are supposed to suffer from this discrepancy as is seen in the inserted text above. Between their personal preferences which do not go with SMART education and professional pressure, teachers 'have no choice but to' be ended up with one-sided decision in favour of SMART education.

With regard to self-authenticate, teachers also decide to perform SMART education to prove themselves as the competent in front of other people. It can mean that teachers choose to demonstrate SMART education when there is a chance to show their teaching practices to someone else.

> They think like this. "No way, it's possible to teach students just as fine without using those ICT devices." Even though they think like that, they use such things when there is an open class after all. […] They ***can't help but to notice it*** (i.e. external gaze) in an open class. To be honest, it would not be an exaggeration to say that ***all*** teachers' lessons are SMART education in an open class. (emphasis added, Yoonha)

Yoonha states that "all" teachers take SMART education as their open class instead of showing a class without using ICT devices. It is because that "they cannot help but to

notice external gaze". It is interesting to note a contrast between their ordinary class where teachers can make free professional choices and an open class where only SMART education can be heard and seen.

Lastly, teachers are encouraged to measure their TCS regularly and occasionally, for instance, after certain meaningful experiences (e.g. after an open class, before/after trainings, annually or quarterly). The measurement would lead them to the next stages. They are supposed to compare the result with other groups of teachers and themselves. Further, they are supposed to develop a certain area which is less developed than others based on the result. This set of actions (i.e. measure, compare and develop) has no end. The actions are supposed to be kept continued.

Updatable software The perfect version of smart teacher would *not* look like a human who can be inefficient, offline, or even lazy at times. Also, the smart teacher would not be able to challenge SMART education because of his personal but professional preferences. In other words, the model teacher is not allowed to be unique or different from other teachers. Plus, the constructed teacher cannot make an excuse for the lack of efforts to develop herself given that there are endless training opportunities in the society both online and offline.

The model teacher would be more like 'updatable software' which is thoroughly, constantly, ubiquitously and autonomously updatable. The constructed teacher in SMART education discourses would change everything not just his core but also his everything (i.e. thoroughly). She would develop herself without being slow, lazy or exhausted even in her 60's (i.e. constantly). The smart teacher would develop oneself anytime, anyhow (i.e. ubiquitously). The ideal teacher would perform SMART education. He would measure himself and put efforts to better himself without external pressure while demonstrating his competences even when there is no one watching over him (i.e. autonomously).

5. Concluding remarks

The analysis shows that the smart teacher is constructed by multiple discourses (e.g. natural selection discourse, traditional authority discourse, market-oriented discourse). Seemingly, they contradict each other in SMART education discourses. For instance, authority of teachers is not required in SMART education. They are supposed to be the education service providers or facilitators. Despite this, this unique relations between discourses create a specific field of possibilities for teachers; they are surrounded by colleagues who are good at SMART education, training opportunities, pupils who are faster than them in absorbing new technology, or by news articles and revised curriculum. Ultimately, the unique power relations create a reality where teachers 'cannot help but to' choose to work on themselves rendering them 'updatable software'.

It is not our intention to say that SMART education is wrong and should be abolished. It is also not the purpose of this research to conclude that the smart teacher in SMART education discourses is updatable software. Instead, it is to show our taken for granted assumptions, knowledge and surroundings are potentially shaping our future in a limited way. By elucidating teacher subjectivity constructed in SMART education discourses, we aim to open up a discussion about different possibilities for the future

education and teachers who might look different from updatable software. We acknowledge that this research is limited in some ways: First, the research context might be different in different country. The constructed subjectivity might look different depending on cultural contexts. Second, the size of data might be limited. In this regard, we suggest that future researchers collect bigger textual data and take quantitative research approach. We conclude this paper by encouraging future researchers to work on this topic further.

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Using Attendance Analytics as a Motivational Tool for First-year University Students: The Live Engagement and Attendance Project (LEAP)

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Abstract
Student support professionals (SSPs) play a vital role in monitoring and enhancing students' motivation within higher-education environments, in particular during their transition into higher education. As technological innovations continue to shape the design and delivery of higher-education supports, it is crucial to recognise the reciprocally-beneficial roles that 'interpersonal engagement' and 'digital engagement' can play in SSPs' responses to students' needs. In this paper, we present preliminary findings and reflections from University College Dublin's 'Live Engagement and Attendance Project' (UCD LEAP). UCD LEAP aims to contribute to UCD's student support suite by assessing the feasibility of a Motivation Support Toolkit that combines analytic insights from digital attendance monitoring with motivation-enhancement strategies. This project examines if this blended resource can support student engagement and if it can assist staff in addressing students' ongoing motivational needs, particularly during their transition into higher-level education.

Keywords: Attendance, Motivation, Transition, Student Support Professional, Self-determination Theory, Attendance Monitoring

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Introduction

Transitioning into higher education presents students with challenging situations, tasks and interactions that can play a vital role in their ongoing personal and academic development. These challenges may express themselves internally, with cognitive, behavioural and emotional components, as well as environmentally, with logistical, organisational and social components (Chipchase et al., 2017; Denny, 2015; Kahu & Nelson, 2018). Students' motivation (Glynn et al., 2005) and their susceptibility to retention issues (Burnett, 2007) are influenced by their ability to respond to these challenges healthily. In this context, motivation is characterised by the arousal and adoption of goal-directed behaviours (Valle et al., 2009). It plays a crucial role in shaping students' engagement with their academic programmes and is "the best predictor of student retention" (Anderson, 2006). It is, therefore, vital that students are provided with "proactive motivational support" (Simpson, 2013), to ensure their success, as well as ensure that higher-education programmes can accomplish their teaching and learning goals. Here, student support professionals (SSPs) can play a pivotal role in monitoring and enhancing students' motivation, particularly given the distinctive relationship that they have with students, as well as the academic, administrative and pastoral dimensions that their role entails.

The higher education landscape within which SSPs work is continually evolving in line with the proliferation of digital and analytic resources (Srinivas, 2018). Technological innovations increasingly shape the design, management, and delivery of higher-education supports and services (Karkouti & Bekele, 2019; Underwood & Anderson, 2018). SSPs utilise both interpersonal engagement and digital engagement in anticipating, identifying, and responding to students' needs. These two distinct forms of engagement exist within a broad continuum of student interactions and experiences, with outcomes that can be mutually reinforcing. Each student's motivation is influenced by unique resources and constraints shaping their lives; by adopting a blended approach to engagement that enables a more holistic understanding of students' circumstances and needs, SSPs can best position themselves to recognise and intervene when students may be demotivated and disengaging.[1]

In this paper, we present preliminary findings from University College Dublin's 'Live Engagement and Attendance Project' (UCD LEAP), which explores the feasibility of a blended approach to student supports, combining analytic insights from real-time physical attendance monitoring with motivation-enhancement strategies in the delivery of student supports within the UCD School of Veterinary Medicine. Drawing on stakeholders' experiences and insights from the literature, we assess the potential contributions of this student support initiative and its scope for future development and application.

[1] Against this backdrop, UCD's 'Strategy 2015-2020' (2015) aims to provide "Enhanced support to students through improved data systems so that students, faculty, and staff can view the holistic student journey to allow for the appropriate interventions". UCD (2020) also aims to "Integrate student services to ensure a consistent level of high-quality student support…These supports will be bolstered by advanced systems using student data to target and personalise timely interventions".

Project Aims and Objectives

UCD LEAP examines the feasibility of a Motivation Support Toolkit combining digital and interpersonal supports. It explores how insights from this resource can assist staff in anticipating, identifying and responding to difficulties that first-year students may experience during their transition and integration into higher-level education. Two questions guide this project:

i. What motivation enhancement strategies can student support professionals integrate into their practice to help foster student engagement?

ii. In what ways can UCD leverage technology to enhance the delivery of student supports, particularly when the concept of student engagement is evolving?

In response to question one, UCD LEAP is developing and evaluating a student engagement model that can advise staff on student motivation, both conceptually and experientially. When delivering interpersonal supports to at-risk students, communications can be contextualised within a "Motivation Engagement Matrix" which can help both parties to navigate discussions on motivation in a systematic and targeted manner. In response to question two, UCD LEAP is implementing and examining the effectiveness, application, and scalability of an interactive and real-time physical attendance management system that enables students to personally "check-in" to classes via their smartphones. These components of the "Motivation Support Toolkit" aim to not only monitor students' engagement and attendance but to motivate students proactively, and to help ensure that staff are resourced to offer personalised and timely supports.

Research Framework: A Feasibility Study

UCD LEAP has approached the research framework as a feasibility study. This framework has provided several benefits including: Enabling greater clarity in creating and benchmarking project goals; ensuring consistency among project components; and facilitating responsiveness to project issues. Feasibility assessment criteria were generated across four domains: Conceptual, Operational, Technical, and Financial.

i. Conceptual Feasibility examines the project's theoretical model and assesses the viability of the link between its principles (i.e. a self-deterministic approach to motivation enhancement) and its practical applications (i.e. equipping students and staff with a blended support toolkit). Assessment criteria included examining the central theories underpinning the project, and assessing if these theories were substantive and could contribute towards delivering on the project's goals. Alongside this, the project's efficacy in achieving objectives under specific research conditions and its effectiveness in achieving objectives within the broader environment were assessed.

ii. Operational Feasibility examines the project's capacity to provide an appropriate solution to the identified need and the ability of stakeholders to contribute to its success collaboratively. Assessment criteria included examining the resources required to implement the solution and the extent to which these could be met. It also entailed examining the research site's existing protocols, policies, and practices concerning the primary issues under investigation, such as attendance management,

and assessing how the proposed solution will be received by stakeholders within the existing culture.

iii. Technical Feasibility examines the technical requirements needed to implement and maintain the project's solution. Assessment criteria included examining if the proposed technological solution was available and had been adequately tested; evaluating if the technology's attributes offered a proportionate response to the issue; assessing if it could be integrated into and contribute towards the research site's current systems and practices; and examining if it could be transferable to broader research sites.

iv. Financial Feasibility examines the costs and benefits incurred in establishing the project's solution and its scalability. Assessment criteria included examining costs in purchasing hardware and software and setting up the system; they also included analysing the costs of system maintenance and management, providing user supports, and ensuring ongoing development.

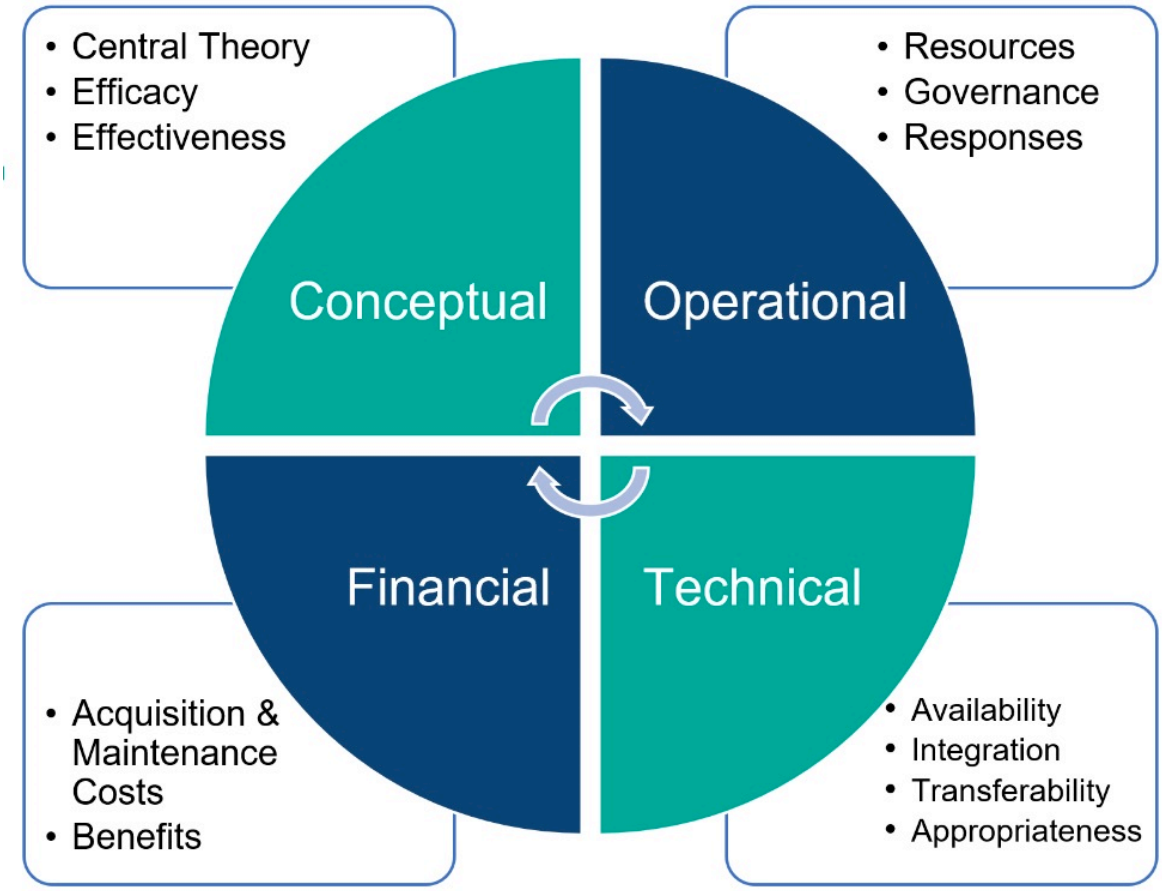

Figure 1. Feasibility Study: Assessment Matrix[2]

[2] This draws on Hall's (2016) TELOS Model, which outlines five key areas of a feasibility study: Technological, Economic, Legal, Organizational, and Scheduling feasibility.

Motivation Support Toolkit I: Attendance Management

The first component of our Motivation Support Toolkit is attendance management. This centres on implementing and examining a digital attendance-management system that enables students to personally 'check-in' at classes and track their physical attendance via their smartphones, using Bluetooth technology. With respect to the importance of attendance for students' success, there is a positive association between student attendance and academic performance within the clinical learning environment (Deane & Murphy, 2013). Capturing attendance is a vital means of identifying students who may be struggling and disengaging (Sclater, 2014), as without attendance monitoring systems absenteeism within the clinical learning environment may otherwise go unnoticed (Deane & Murphy, 2013).

A core project goal is that this interactive and real-time physical attendance tool can help foster the psychosocial needs that underpin students' motivation. Against this background, and drawing on the central principles of Self-Determination Theory (SDT) (Ryan & Deci, 2002), it aims to foster autonomy by offering students greater ownership over addressing their academic goals; to foster competence by providing students with more transparency in monitoring their attendance requirements and records; and to foster relatedness by creating an accessible staff-student communication pathway. In line with this, for SSPs, it aims to help ensure that they are best-placed to offer personalised and timely supports when diminished student motivation becomes apparent. These supports include, where appropriate, interventions via the Student Advisory Service, UCD's pastoral support arm.

During its first HEA-funded activity phase, from July 2019-June 2020, UCD LEAP strengthened its partnerships with its technology provider SEAtS Software. Availability of this tool grew significantly from the initial ~90 students who participated in the pre-HEA pilot project during the 2018/2019 academic year, with ~290 students in both Yr1 and Yr2 at the UCD School of Veterinary Medicine being provided with the tool. Bluetooth beacons were installed in >50 campus locations across campus in collaboration with UCD Estates and UCD IT Services. Alongside this, research began on combining 'check-in' data with other student engagement metrics such as Virtual Learning Environment (VLE) usage and assessment results, to assess the potential contribution that physical attendance data can make towards constructing a more holistic picture of student engagement.

Motivation Support Toolkit II: Motivation Engagement Matrix

The second component of our Motivation Support Toolkit is interpersonal motivation engagement. This centres on developing a Motivation Engagement Matrix which can guide SSPs as they navigate dialogue with students on their motivation. Given that motivation is "A student tendency to find academic activities meaningful and worthwhile and to try to derive the intended academic benefits from them" (Brophy, 1988), it is an insightful fulcrum upon which conversations that pertain to students' engagement can balance. This matrix draws on the central principles of SDT, including the argument that motivation underpins people's psychological health and their capacity to engage in constructive behaviours (Ryan & Deci, 2002). We identify four characteristics of motivation which can offer a theoretical foundation for engagement-enhancement strategies.

Firstly, motivation exists within a continuum of personal regulation, comprising amotivation, external motivation, introjected motivation, identified motivation, and intrinsic motivation (Brooks & Young, 2011; Vansteenkiste et al., 2004). Amotivation is lacking the impetus to formulate or achieve goals within a given context. External motivation is when one's regulation derives from external forces, such as being driven by enhancing positive outcomes or mitigating adverse outcomes. Intrinsic motivation is when behaviours are wholly self-initiated and self-regulated (Hill, 2013), with activities being engaged in for their own sake rather than to serve contingent needs (Ryan & Deci, 2017). SSPs should be mindful of how best to ensure that 'extrinsic' motivators, e.g. assignments, exams, field trips, can be interpreted and internalised by students in a way that is 'intrinsic', i.e. to harness the student-centeredness in students' motivational resources (Trenshaw et al., 2016). For example, when faced with a student who feels socially isolated, SSPs may encourage them to challenge themselves to maintain regular attendance and to take part in extracurricular activities. While the student may, initially, perceive external pressure, the goal is that through positively-reinforcing experiences, they may unlock their intrinsic motivation to socially engage that was otherwise dormant. Finding a way to reframe tasks and obstacles as complementing students' potentially hidden motivations can help initiate, maintain, and enhance their engagement.

Secondly, motivation is contextual, operating across different spheres of influence in a person's life.[3] These spheres of influence include one's situation-specific motivation and reach out to incorporate broader areas of one's life. 'Local' motivation refers to people's drive at a specific moment, channelling efforts into achieving a particular outcome, e.g. homework assignments and class presentations. 'Regional' motivation refers to people's drive to engage with roles and responsibilities across different domains of their life, e.g. being an attentive and punctual student. 'Global' motivation describes a person's holistic disposition and their drive to engage with broader life goals (being rather than doing), e.g. having a deep understanding of one's personal and professional aspirations. An undermined sense of global motivation can be felt as lacking in direction, experiencing apathy towards one's course, or being deeply uncertain of its vocational worth. When engaging with a student who is lacking the drive to perform in their exams, it can be crucial to discuss why this is occurring; it may be due to more than one's 'local' exam-centred motivation being damaged by transient issues such as workload imbalances, but may instead be indicative of a broader sense of discontentment with and estrangement from one's programme. By conceptualising motivation as existing within these different contexts, a greater understanding of the depth of students' demotivation can be achieved.

Thirdly, motivation is multidimensional and underpinned by three inherent psychological needs, namely autonomy, competence, and relatedness (Ryan & Deci, 2017). When a person engages with a task or situation that helps meet these needs, their motivation will correspondingly progress through their continuum of self-regulation (Trenshaw et al., 2016). People's motivation toward personal growth and integrated functioning is catalysed through nurturing from one's social environment (Ryan & Deci, 2002). Autonomy is "self-endorsement of one's behaviour and the accompanying sense of volition or willingness" (Ryan & Deci, 2008). Autonomy can

[3] This builds on Trenshaw et al.'s (2016) tripartite model of motivation, and Kinsella's (2019) tripartite model of autonomy.

be fostered by creating an environment in which students make use of their deliberative and decisional abilities, and by minimising perceived senses of control and coercion (Niemiec & Ryan, 2009; Reeve & Jang, 2006). Competence is the experience of possessing knowledge and skills that are necessary to succeed in one's intended outcomes (Lynch & Salikhova, 2017; Trenshaw et al., 2016). Competence can be fostered by optimally challenging students to use and develop their competencies, such as through flipped classrooms, practical work, and assessments. Relatedness is the experience of fulfilling one's ongoing need for meaningful relationships, and the sense of belonging this imbues (Lynch & Salikhova, 2017; Trenshaw et al., 2016). Relatedness can be fostered by enabling meaningful dialogue between staff and students within the educational environment. SSPs can work with students to identify specific psychosocial needs that students may perceive as lacking and explore ways they can use their personal and environmental resources to proactively address these needs.

Fourthly, motivation is causally significant. It is vitally important in terms of students' ability to generate and accomplish goals and successfully engage with personal and academic tasks. For example, amotivation has been associated with feelings of incompetence and helplessness (Vallerand et al., 1992), which can precipitate disengagement. It is, therefore, crucial to help students be attentive to the status of their motivation, highlighting the role that it can play in influencing the trajectory of their educational experiences.

Figure 2. Motivation Engagement Matrix

Research Design

The research site was the UCD School of Veterinary Medicine. Self-selected participants were drawn from first-year students within Veterinary Medicine (MVB 1), Veterinary Nursing (VNUR 1), and Graduate Entry Veterinary Medicine (GE 1), and students from second-year within Veterinary Medicine (MVB 2). Alongside this, the research team (n=3), encompassing the Student Adviser, Project Manager, and Research Assistant, utilised reflective diaries to record significant events throughout the academic year. The methodology underpinning the research was mixed-method, with an emphasis on qualitative assessment to draw upon participants' experiential insights. For students, the research instruments comprised a mixed-method questionnaire (n=18) conducted in December 2019 and qualitative interviews (phone and written) conducted in April 2020 (n=14). The team adopted reflexive thematic analysis to analyse and interpret the results, framing the researchers' subjectivity as an analytic and interpretive "resource" (Clarke & Braun, 2018).

Thematic Analysis[4]

Theme One: Relational Transition

Successful Transition is a Relational Process
Successful engagement with one's higher-education environment requires building meaningful relationships with the people occupying it, including staff and peers. Students discussed the importance of relationships with their academic staff, peers, and student adviser, each providing distinct motivational enhancement for students. Interpersonal interactions within the classroom environment were valued by students as they offered opportunities for greater engagement with, and insight into, the learning material,

"Most professors are very available for help and questions, as well as providing support in general, which is great" (PL-Q, GE1).

Concerning peer groups, both informal and organised social events created a hospitable environment conducive to facilitating social integration, with students highlighting the importance of friendships and having organised events to foster a sense of community,

"The vet soc organise amazing events and make sure we always have something to look forward to!" (PK-Q, MBV1).

The Student Adviser's role in students' journey through transition was also noted, particularly the pastoral and academic supports they provided, "I would not be here today without them" (PL-Q, GE1) and "They are a vital asset to motivating and supporting disadvantaged students" (PN-WI, MVB1).

[4] P=Participant, followed by alphabetically categorised participant; Q=Questionnaire; WI=Written Interview; PI=Phone Interview.

Theme Two: Psychosocial Formation

Physical Attendance is Psychosocially Formative
Physically attending class is holistically developmental, providing challenges and opportunities that are vital to students' personal and professional growth. Engaging in this process requires students to adapt and apply their psychosocial capacities, encompassing cognitive, behavioural, and affective components. Cognitively, students (n=5) discussed the challenges of having to engage in a "different type of learning" (PP-Q, MVB1), and adapt to new ways of studying and assessments,

"I found it difficult to know how to study for exams as the material and the structure of the course are so different to the leaving cert" (PK-Q, MVB1).

However, physical attendance was viewed as vital in overcoming this transition, with students noting how lecturers can clarify and elaborate on information that is provided online and can interact with students and address *ad hoc* queries, helping give a fuller understanding of the material. Behaviourally, students (n=5) discussed having to balance the time and energy devoted to different aspects of their lives,

"Maintaining balance between attending college, studying, having a job and downtime" (PB-Q, MVB1).

However, they noted that physical attendance helped them to develop the behavioural discipline and necessary skills to achieve this balance. Students (n=6) stated that their academic skills had improved, including "Better time management and organisation" (PB-Q, MVB1) and "UCD has made me a more punctual and organised person" (PS-Q, MVB1). Interpersonally, while students (n=2) noted difficulties in integrating into their new environment, "Hard to make friends" (PG-Q, MVB1), students (n=7) also mentioned how various social skills had been enhanced through their experiences, including "I feel more confident in speaking to people" (PP-Q, MVB) and "Ability to work as a team has greatly improved" (PA-Q, VNUR1).

Theme Three: Multidimensional Motivation

Motivation to Engage in Education is Multidimensional
For many students, their inherent psychological needs for autonomy, competence, and relatedness underpinned their motivation to participate in the process of education. There is a broad spectrum of different motivators across cohorts and within each individual, and at times when students may be at risk of disengagement, it is essential to dialogue with them to uncover any potential motivations that they can draw on to help reengage with the higher-education environment.

There were students whose motivation to attend classes was born from their inherent interest in the subject (n=5), noting:

"I enjoy the subject that I am doing and hence find the lecture interesting" (PG-Q, MVB1).

Students responded well to aspects of the course that helped to clarify and consolidate their initial motives for enrolment, noting:

"We're so lucky to have gotten where we are…I know from myself and a lot of my peers that we know what we do, and that's why we chose it...so that's motivation in itself" (PD-PI, VNUR1).

They were motivated by the sense of being able to foster their occupational identity. More than just 'doing' a course in veterinary medicine, they were very much 'becoming' a vet,

"I also feel I developing into the person I want to be as a vet with each week that passes by" (PS-Q, MVB1).

Students (n=9) also referenced the cognitive merits of physical attendance, with (n=5) stating that attendance at classes helped to enhance their understanding of the module content,

"I understand the subjects much better if I actually see it taught to me and then I go back over myself, as opposed to kind of reading it myself, which is, I've noticed now, kind of a lot since the fact that we have to do online classes" (PB-PI, VNUR1).

Concerning relatedness, interactive learning was considered superior to autodidactic approaches:

"You actually pick up things that you never would have picked up from just reading the material, and then actually being there to interact with the prof and interact with your peers, you remember it better, because you're remembering it in different ways" (PC-PI, GE1).
Alongside this, a sense of being part of a community of individuals with shared goals and aspirations was a motivator for students.

Theme Four: Institutional Embeddedness

Institutional Embeddedness Determines the Operational Feasibility of Technological Innovations
The feasibility of technological innovations is determined by institutions' ability to embed them in their existing infrastructure, systems, and practices. This process is complex and challenging, requiring stakeholders to be mindful of the technological and human resources necessary to embed the innovations as well as an awareness of the opportunities and obstacles that it may bring. In this context, four issues emerged: Technological functioning; timetable consistency; academic buy-in; and accurate reporting. Concerning technological functioning, students (n=6) noted that:

"Sometimes the service in the classrooms are terrible and it won't let me check in" (PK-WI, GE1)

and

"A lot of us don't have the latest phone either, so it can be slow to run or require us to choose between apps" (PN-WI, MVB 1).

Achieving embeddedness entails ensuring that students' 'check-in' process is as straightforward and seamless as possible. Regarding timetable consistency, students (n=7) mentioned difficulties such as

"When changes to the timetable occur that aren't reflected in the app" (PG-WI, MVB1).

Embeddedness, thus, also entails ensuring that institutional timetable information is accurately represented within students' app timetables and that changes are implemented in a timely fashion. As regards academic buy-in, it is crucial to ensure consistency among academics in their expectations of students' use of the app and that they are aware of the significance of checking-in to class. Concerning accurate reporting, students (n=8) mentioned issues such as "Does not reflect my accurate record" (PM-WI, GE1). Embeddedness, therefore, requires ensuring that the information reflected in a student's 'check-in' record accurately represents the information provided in their attendance record.

Theme Five: Trust in Technology

Trust Determines Receptivity to Technological Innovations
Trust in UCD LEAP's technological solution and its ability to deliver shared goals will influence stakeholders' willingness to use it habitually. While the initial levels of receptivity to the technology from students were very high, the gap between adoption and integration can be challenging to bridge if its potential value-add to their lives is not readily acknowledged and internalised. Trust will help overcome cognitive-behavioural impediments to regular usage, such as forgetting to check-in (n=11):

"I arrive on time and I am already thinking of who I want to say hi to and arranging my materials. I only think of signing in when it's too late" (PN-WI, MVB1),

and not carrying one's phone (n=5):

"It's very reliant on you being on your phone and having your phone on and charged, every day if you come in. And some people just kind of forget to do that" (PE-PI, MVB2).

Reflections of Research Team

For the Student Adviser, several findings emerged. By using the digital attendance monitoring tool, their access to timely information on potential student disengagement improved. Importantly, however, there were limited insights for students who may be attending but are nevertheless struggling. Up-to-date 'check-in' analytics facilitated early student support interventions via standardised emails and personalised interactions which could be readily integrated into day-to-day workloads. Understanding student engagement and motivation is a qualitative endeavour that can be enhanced by using quantitative tools. However, quantitative tools alone may not provide a sufficiently thorough understanding of students' experiences and needs. Therefore, using this attendance-monitoring tool as a medium through which to initiate and maintain student-staff dialogue remains a priority. The Motivation Engagement Matrix provides insights that can underpin targeted communications. The

goal is to develop this reflective instrument into an interactive and directive resource that can guide adviser-student interactions through, for example, guided question-and-response templates.

Students value the interpersonal underpinnings of student supports, and this should remain the central component in developing and delivering attendance-monitoring tools. Automated emails are an efficient way to maintain contact and visibility, and accurate attendance data is vital to ensure receptivity. Students' reactions to the principle of attendance tracking were mixed. Some valued the presence of support for students who may be disengaging: "For the profs it's good to know who's there and who's interacting and who you might need to help" (PC-PI, GE1); others felt that it runs counter to the ethos of independence underpinning higher-education education: "It is completely the student's business whether they want to go to lectures" (PF-WI, MVB2). In this context, ongoing attentiveness to ensuring robust, practical implementation of the project will facilitate further receptivity to the self-deterministic principles underpinning it. It is, as yet, difficult to determine the overall impact that this initiative has had on student engagement, and it is envisaged that these insights will become more apparent as the technology continues to become embedded within the environment.

Recommendations and Future Directions

Research findings from the 2019/20 academic year provide a baseline of information regarding the implementation of attendance-management systems and their efficacy in facilitating real-time blended student supports. From these findings, the research team has formulated several priorities and recommendations.

Firstly, it is an operational imperative that usage requirements for the attendance-management system, and aligned data administration, conform with academic regulations. This facilitates more confidence in using the system and minimises erroneous analytics input. Similarly, clarity needs to be provided for both students and staff on the utility of the technology in enabling both student engagement and staff's ability to provide engagement supports. Optimal contexts for system usage and integration with existing support networks need to be identified, as well as appropriate student cohorts and settings for participation.

From a technical standpoint, measures improving system accuracy should continue to be researched and installed. These measures include ensuring that technological issues are resolved quickly, student timetable changes are updated in real time, and attendance reports are correct, allowing analytics to accurately stratify and direct students to relevant resources in the broader support framework. The research team will also continue working collaboratively with the technology provider on developing application improvements based on student and staff feedback, such as the creation of an automatic 'check-in' facility.

Conceptual insights derived from research activity can be improved by conducting additional in-class research, this will facilitate higher response rates and allow for data to be more generalisable. Using primary research data from the first year of the project will allow for longitudinal analysis and iterative improvements to student support intervention activity for the upcoming academic year. These improvements

can be further facilitated by combining attendance insights with broader engagement metrics. Likewise, ensuring that the Student Engagement Matrix is a workable tool for SSPs requires ongoing research on existing motivational enhancement tools that exist in the literature, such as within Motivational Interviewing.

The future direction of UCD LEAP project activity will be primarily focused on developing and embedding the student support intervention framework. Regarding system development, the continued impact of Covid-19 and associated campus closures are driving an increase in the online delivery of teaching and learning. It is currently unknown whether online delivery is a short-term response or whether it is the beginning of a paradigm shift regarding dominant methods of instruction in higher education. Consequently, a key focus will be the incorporation of additional VLE engagement data, allowing for insights into which analytic metrics can be transferred to the VLE space. Combining different engagement metrics can also prove helpful in painting a more dynamic and nuanced picture of students' experiences. These metrics can feed into the provision of supports, helping to improve the overall intervention process and determine which learning gaps can only be mitigated by face-to-face instruction. In order to maximise the impact of future project activity in the above areas, further sectoral dissemination of research outcomes is necessary. Coupled with increased collaboration with Dublin City University[5], a broader suite of initiatives and material examining digital and interpersonal supports will be explored in future publications.

Conclusion

In this paper, we presented preliminary findings and reflections from UCD LEAP's research activities during the 2019/2020 academic year. The principle of developing a Motivation Support Toolkit encompassing interpersonal and digital components remains robust and merits further research, in particular given the increased digitisation of teaching and learning within the higher-education environment. The research will continue to assess this tool's contributions towards supplementing student supports and fostering their transition and integration into higher-education, and its capacity for cross-campus scalability and transferability. In this context, it is essential to continually address and refine themes centring on this project's feasibility, which will be vital in providing a robust basis upon which to build institutional initiatives that draw on the project outcomes.

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[5] DCU are a cross-institutional collaborator with UCD, as part of a Higher Education Authority (HEA) funded project.

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Relationship between Factors and Graduation Rates for Student Success in the U.S. College

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Abstract
Graduation rates are essential indicators of students' success and the indicators defined as the percentage of a school's first-time, first-year college students who continue their studies at the school next year. Graduation rates are essential for student's learning accountability purposes, and graduation rates need to be improved. The purpose of this study aims to find out the relationship between graduate rate and other predictors such as retention, student-to-faculty ratio, enrollment, tuition and fees, library and grants, and explore how these independent variables predict the graduation rate. It also aims to determine what factors most influence student graduation rates for college success. The study will employ a quantitative research design to examine the relationship between factors and graduation for student's progress. The study aims to find out what factors influence student graduation rates and provide practical implementations, leadership frameworks, and strategies such as a coherent leadership frame, collaborative culture, trust for school leaders. The student success helps the school leaders to implement the school program, policy, and culture. The finding of the study finally expects to find out the school implementation on the school curriculum, student learning, staff professional development needs, collaborative learning culture, and teacher leaders. The future study can explore the dynamic of peer-led leadership and peer-driven activities between culture and school leadership to improve student academic performance and graduation rate.

Keywords: Graduation Rate, Student Success, Retention, Regression Analysis Leadership

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Introduction

Graduation rates are essential indicators of students' success and the indicators defined as the percentage of a school's first-time, first-year college students who continue their studies at the school next year. Fass-Holmes (2016) stated that graduation rates are essential for student's learning accountability purpose and graduation rates need to be improved (Crawford, 2015). Improving graduation rates have been coming more intricate due to many challenges (Fass-Holmes,2016), such as language proficiency (Dagley,2015), lack of familiarity with academic integrity standards (Simpson,2016), unfamiliar with western teaching methods (Reardon, 2015), tuition fees (Dagley et al.,2015), requirements of regulations (Fass-Holmes, 2016), amount of library and student-to-faculty ratio, and grants. Fass-Holmes (2016) found that nonacademic factors such as learning goals, self-confidence, social involvement, institutional commitment, and academic factors such as grade point average (GPA), test results, socioeconomic status had a positive relationship predicate graduation. Attention to the first-year students' needs can gear them to become accustomed to academic life and increase their sense of belongs to the school (Eng & Stadler, 2015). Reason (2001) stated that the variety of student characteristics such as gender, ethnicity, family background, have been found to influence retention and graduation rates.

Reardon et al. (2015) stated college administrators and public policymakers need to develop programs for college student success in terms of graduation as well as Dagley et al. (2015) said that universities need to foster a unique learning environment to increase graduation rates of learning. Crawford (2015) indicated that college and university graduation rates are extensive and there was a high correlation between graduation and academic and non-academic factors (Wilson et al.,2012). Graduation rates have a strong association with retention (Crawford,2015) aided by a good support network and relationships with faculty, administers, and librarians (Fass-Holmes,2016). The library can serve as a bridge between social and academic engagement to produce a learning outcome. Library instruction serves as an asset in two ways. Through technology training, library instruction is an ancillary student experience assisting retention. Library instruction has a greater significance in student retention and graduation rates (Eng & Stadler, 2015). Crawford (2015) emphasized that there was a sign between using the library and graduation and retention rates. McAndrew and And (2018) mentioned that there was a relationship between graduation rate and the ratio between faculty and students by their study. Little research has examined how a financial regulatory strategy such as resource allocation may provide insight into increasing undergraduate graduation and retention rate (Gansemer-Topf & Schuh,2006) Therefore, school leaders and policymakers need to increase the graduation rate as a factor of estimating the school performance (Scott-Clayton, 2015).

Research Questions

The current study will explore the two research questions below:

1. How do the independent variables predict graduation (y)?
2. What does the best regression model fit the graduation rate in the study?

Purpose of the Study

Therefore, the current study aims to find out the relationship between graduation rate and other predictors such as retention, student-to-faculty ratio, enrollment, tuition and fee, library and grants and explore how independent variables predict the graduation and estimate what is the best model to fit the graduation rate in college success, respectively.

Methodology

Research Design

The study will utilize quantitative research design through statistical analysis to determine the relationship between factors and graduation for student's success and to find out what factors influence student graduation rate and provide reasonable implementations for school leaders.

Sampling

Data on college and universities collected from different online resources which are National Center for Education Statistic (NCES), Government Publishes Graduation Rate Data (GPGRD), Consortium for Student Retention Data Exchange (CSRDE), Integrated Postsecondary Data System (IPEDS), National Academic Advising Association (NAAA), National Symposium on Postsecondary Student Success (NSPSS), and high-school and beyond database. The dependent variable is graduation rate which will collect from total 1021 schools in bachelor's degree within 6 years nationwide and the independent variables include full-time retention, student-to-faculty ratio, undergraduate enrollment, tuition and fees from 2016 to 2019 academic school year, database of library, percent admitted, the average salary of full-time faculty, and grants offered.

Table 1 shows that the dependent variable was graduation rate (N=1021, M=52.70, SD=19.70)in bachelor degree within 6 years nationwide and the independent variables include full-time retention (N=1018, M=74.94, SD=14.55), student-to-faculty ratio (N=1047, M=15.24, SD=5.20), undergraduate enrollment total (N=1063, M=6196.25, SD=8000.25), tuition and fee from 2016 to 2017 academic school year (N=1029, M=20448.48, SD=13172.49), database of library(N=1060, M=.46, SD=6.65), percent admitted (N=929, M=66.78, SD=18.83), average salary of full-time faculty (N=1039, M=74007.91, SD=21399.94), and grants offered (N=1021, M=40.30, SD=18.51). Currently, the study will explore the relationship between independent variables and dependent variable and estimate which regression is the best fit between them.

Table 1: Descriptive Statistics

Variable	Description of Variables	N	Minimum	Maximum	Mean	SD
GBA6RTT	Graduation Rate- bachelor's degree within 6 years, total	1021	0	53807	52.70	19.70
RET_PCF	Full-time retention rate, 2016	1018	0	100	74.94	14.55
STUFACR	Student-to-faculty ratio	1047	0	70	15.24	5.20
EFUGFT	Full-time undergraduate enrollment	1063	0	103711	6196.25	8000.25
TUFEYR3	Tuition and fees, 2016-17	1029	0	55056	20448.48	13172.49
LEDATABP	Databases as a percent of the total library collection	1060	0	100	.46	6.65
DVADM01	Percent admitted, total	929	5	100	66.78	18.83
SALTOTL	Average salary of 9 months for full-time instructional staff-all ranks	1039	9555	199387	74007.91	21399.94
PGRNT_P	Percent of full-time first-time undergraduates awarded Pell grants	1021	0	100	40.30	18.51

This table defines each variable and provides general statistics giving an overview of factors that are relevant in explaining colleges and universities graduation rates.

Data Analysis

The multiple regression was conducted to analyze the relationship between dependent variable and independent variables, the regression utilized to estimate the relationship between graduation rate (N=1021, M=52.70%, SD=19.70%) and others independent variables including full-time retention (N=1018, M=74.94%, SD=14.55%), student-to-faculty ratio (N=1047, M=15.24%, SD=5.20%), undergraduate enrollment total (N=1061, M=6196.25, SD=8000.25), tuition and fee (N=1029, M=20448.48, SD=13172.49), total libraries (N=1060, M=.46%, SD=6.65%), faculty salary (N=1039, M=74007.91, SD=21399.94), Percent accepted rate (N=929, M=66.78%, SD=18.83%), and Percent of full-time first-time undergraduates grants awarded

(N=1021, M=40.30%, SD=18.51) among the schools in the United States. The multiple regression model takes the form: y *GBA6RTT* = β_0 + β_1 *RET_PCF* + β2 *STUFACR*+ β3 *EFUGFT* +β4 *TUFEYB3*+ β5 *LEDATABP*+ β6 *SALTOTL*+ β7 *DVADM01*+ + β8 *PGRNT_P* + ε. The descriptive statistics were used to categorize the dependent and independent variables to estimate the mean and standard deviation shown in the table 1 above.

Results

Regressions below examine the impact of different variables and determine what influences the graduation rates among colleges and universities in the United States. Therefore, the dependent variable, the graduation rate of schools is a function of independent variables of the full model shown as $y\ GBA6RTT = \beta_0 + \beta_1\ RET\_PCF + \beta 2\ STUFACR + \beta 3\ EFUGFT + \beta 4\ TUFEYB3 + \beta 5\ LEDATABP + \beta 6\ SALTOTL + \beta 7\ DVADM01 + + \beta 8\ PGRNT\_P + \varepsilon$ and the results found in the study discussed below.

Question 1: How do the independent variables (x) predict graduation (y)?

The regression was conducted to estimate the relationship between dependent variable graduation rate and the independent variables and the results in table 2 showed that there was at least one independent variable significant relationship of predicting the graduation rate because of the F (8,912)=458.718, p=.0001 (<.05), R=89.5%, R2=80.1%, Adjusted R2=79.9%, Durbin-Watson=1.702. Therefore, the independent variables explain 80.1% of the variation in the dependent variable of graduation rate in the current study. In terms of the model trimming, the results also showed that STUFACR and LEDATABP are not significant predictors of the graduation rate in the current study. According to the histogram of residuals show a reasonably normal distribution and the VIF is less than three which means that the multicollinearity is not a concern in the study. Therefore, the results show that there was a significant relationship between the variables in the study.

Table 2: Regression-Dependent Variable: Graduation Rate

Independent Variables	Coefficients	Std. Error	T-Statistic	P-value
Constant (B_0)	4.852	3.811	1.273	.203
RET-PCT	.679	.036	18.691	.000
STUFACR	-.154	.084	-1.838	.066
EFUGFT	.000	.000	6.853	.000
TUFEYB3	.000	.000	11.102	.000
LEDATABP	.188	1.525	.123	.902
SALTOTL	7.303E-5	.000	4.141	.000
DVADM01	-.055	.015	-3.587	.000
PGRNT_P	-.263	.021	-12.313	.000
Number of observations: 921	R-squared:.801	F statistic:458.718		
*statistically significant at				

the 5% level

This table shows the regression, graduation rates as a function of relevant variables. y GBA6RTT = β_0 + β_1 RET_PCF + β2 STUFACR+ β3 EFUGFT +β4 TUFEYB3+ β5 LEDATABP+ β6 SALTOTL+ β7 DVADM01+ + β8 PGRNT_P + ε

Question 2: What is the best regression model fit the graduation in the study?

Since student-to-faculty ratio (STUFACR) and whole school library (LEDATABP) have no statistically significant predictors to the graduation rates in the study, the current study decides to remove the two independent variables to compare the two regression models below. Through comparing the two-regression models below, the study will decide which regression model best fits the current study. The two regression shows below:

Regression Model 1: *y GBA6RTT = β_0 + β_1 RET_PCF + β2 EFUGFT +β4 TUFEYB3+ β 4SALTOTL+ β5 DVADM01+ + β 6PGRNT_P + ε*

Regression Model 2: y GBA6RTT = β_0 + β_1 RET_PCF + β2 STUFACR+ β3 EFUGFT +β4 TUFEYB3+ β5 LEDATABP+ β6 SALTOTL+ β7 DVADM01+ + β8 PGRNT_P + ε

Table 3: Regression-Dependent Variable: Graduation Rate for Regression Model 1

Independent Variables	Coefficients	Std. Error	T-Statistic	P-value
Constant (B_0)	2.290	3.537	.647	.518
RET-PCT	.681	.036	18.775	.000
EFUGFT	.000	.000	6.617	.000
TUFEYB3	.000	.000	13.133	.000
SALTOTL	7.388E-5	.000	4.187	.000
DVADM01	-.058	.015	-3.845	.000
PGRNT_P	-.265	.021	-12.391	.000
Number of observations:921 *statistically significant at the 5% level	R-squared:.800	F statistic:610.139		

This table shows the regression, graduate rates as a function of relevant variables. y GBA6RTT = β_0 + β_1 RET_PCF + β2 EFUGFT +β4 TUFEYB3+ β 4SALTOTL+ β5 DVADM01+ + β 6PGRNT_P + ε (1)

Table 3 showed that the results of the regression model 1 has a better fit for the current study compared with model 2 shown in table 2 above. The model 1 better fits the current study due to value of F (6,914) =610.139, p=.0001 (<.05), R=89.5%, R^2=80%, Adjusted R^2=79.9%. However, the model 2 has the value of F (8,912) =458.718, p=0.001 (<.05), R=89.5%, R^2=80.1%, Adjusted R^2=79.9%. Specifically, the mean square from model 1 is 35812.977 which is more than the value of 26884.498 from model 2. Both 89.5% from model 1 was correlated with the graduation rate as well as about 80% of the variability of graduation rate in the study explained. Therefore, the study concluded that the regression model 1 is a better fit the current study on college students' graduation rate.

Discussion, Conclusion, and Recommendations for Future Studies

The current study found that there is a statistically significant relationship between graduation rate and other independent variables including full-time retention rate, full-time undergraduate enrollment, tuition and fee, faculty salary, percent acceptance rate and percent grant offered which is compatible of the previous studies. The study found similar results as Gansemer-Topf & Schuh (2006) said that institutional grants play a significant role between graduation rates and grants offered. Cooter et al. (1998) mentioned that the availability of grant funding might be a significant factor for students' academic success and grant-funding can be one of the factors related to graduation rate. Aside from the grants offered by the institution, the graduation rate has correlated with retention rate, cost, salary, and acceptance rate as Crawford (2015) stated that graduation rate has correlated with academic and non-academic factors as well as Reardon et al. (2015) indicated that graduation retention is a significant predictor to estimate the graduation rate.

Since the graduation rate has a significant impact on various dependent variables such as grants, enrollment, salary, and acceptance rate founded in this study, the school leaders need to use a multilevel leadership framework to both provide better support and increase graduation rates. This framework could improve the graduation rates through collaboration, creativity, and virtue leadership in building a supportive community in a cultural context (Zhang & Koshmanova, 2020). Also, the school principals tend to use the backward curriculum approach to redesign an effective teaching plan to provide a quality of education to the students (Zhang & Koshmanova, 2020). Importantly, Zhang & Koshmanova (2020) stated that gritty leadership with peer-driven activity and peer-led could guide the school stakeholders to create a better community for not only maintaining but also increasing the graduation rate and school social reputation.

However, the current study found that there was no significant relationship between student-to-faculty ratio and graduation rate which contradicted with Dagley et al. (2015) stated that there was a relationship between graduation rate and student-faculty ratio. The study also found there was no relationship between school library collection and graduation and also contradicted with the previous studies as Eng and Stadler (2015), and Fass-Holmes (2016) stated that the library could increase the students' graduation rate because the library could make a school like home.

Therefore, the study suggests that the future study would utilize multiple regression analysis to explore the relationship between graduation and the function of library use regarding the gender and economic status (Reardon et al., 2015). The future study aims to discover the reasons why library use can increase students' graduation rate and why the current study contradicted the previous studies. Generally, once the university has a higher graduation rate, the university has better performance and vice versa (Gold & Albert, 2004), thus driving the school leader to implement the school setting for excellence effectively. A mixed research design would also help the school leaders determining what types of leadership frameworks such as virtue, transformative, adaptive, or peer-led leadership (Zhang & Koshmanova, 2020) to not

only increase graduation rates but also to build a supportive community in the future study recommended.

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Investigation of the Learning Effects of Presentation-style Lessons and the Basic Social Skills of Students with Spontaneous Beat Gestures

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Abstract
The purpose of this study is outlined in the following two points. First, an investigation into the effects of presentation activities conducted on the summary of the second language learning units. One hundred and eighteen (118) presentation-style learners and eighty-three (83) grammar-style learners participated. As predicted, the presentation group performed better than the grammar group in the description test because they had many scenes in the class where the uttered contents were more consciously considered than in the grammar group. However, even in the grammatical sections, the grammar group results eventually did not differ from the presentation group. Second, the relationship between the learner's utterance ability to produce beat gestures and sociality was investigated. Twenty-four (24) beat students and Forty-seven (47) non-beat students participated. As a result, there was no significant difference in the number of uttered words between the beat group and the non-beat group. However, looking back at the images recorded in the video, the non-beat group produced the same number of uttered words regardless of the learning difficulty, whereas the beat group produced more beats than the number of uttered words when the difficulty was higher. Regarding sociality, it became clear that the beat group was more conscious of taking action, working harder, engaging in teamwork, discipline, and manners than the non-beat group. The purpose of this thesis is to introduce the practical learning effects of second language learning through presentation style learning and the social nature of learners who derive beat gestures during the lesson.

Keywords: Fundamental Competencies For Working Persons, Beat Gestures Presentation

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Introduction

The purpose of this study is to investigate the following two points. First, the results of learning activities in which the learner independently announces the utterance contents. Second, the relationship between the learner who performs beat gestures that accompany utterances and the results of a survey on the basic social skills required for adults in society.
The specific survey questions are as follows:
RQ1: Which of the following two lessons is effective in a summary of learning units, a lesson in which students conduct presentation activities or a lesson in which students check grammar?
RQ2: Do students who make beat gestures in presentation activities have more utterances than students who do not make beat gestures?
RQ3: When doing presentation activities, what are the differences in the basic social skills between those who make beat gestures and those who do not make beat gestures?

Background to this Research

Language activities for acceptance and dissemination of information are performed by both “self” and “others” (Figure 1). When the “self” is receiving and sending information, it incorporates elements of “thinking” and “judgment” in order to express the appropriate language “expression” to “others”. The Ministry of Education, Culture, Sports, Science, and Technology in Japan (2018), says that language activities in schools’ should exist as a means to encourage "thinking" and "judgment." To enrich the words “expressed” (spoken or written) at the end of language activities, the "self" needs to revert from "expressed" words to "judgment" and finally to "thinking." In other words, enriching the language "expression" means deepening "thinking" and "judgment".

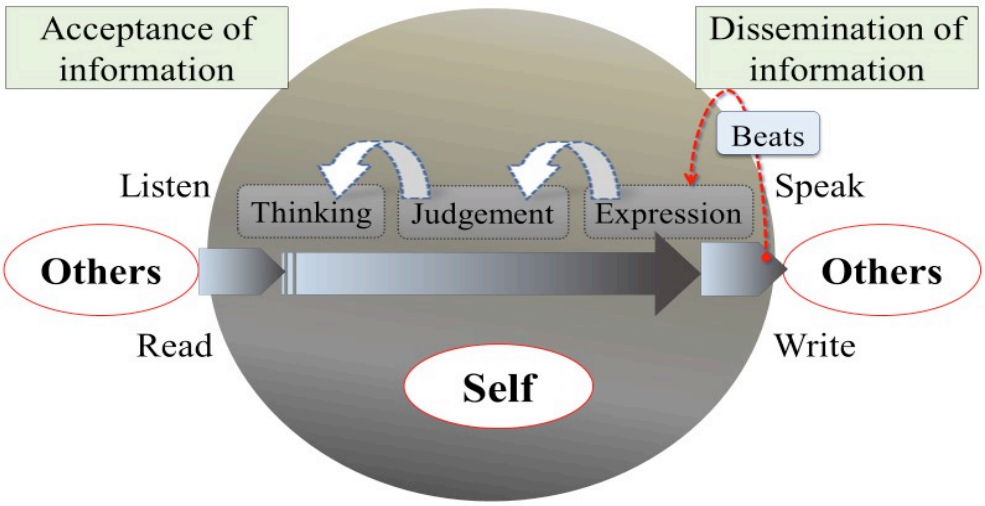

Figure 1: Images of language activities for acceptance and dissemination of information between ‘self’ and ‘others’

The reason for adopting this presentation activity style is to enable students to work independently on the tasks assigned to them by the teachers. As a result, the student can freely state the utterance contents based on the learning theme, and the class

contents can be expanded and diversified. However, the presentation style practiced in this study is not an “improvised presentation” but a “prepared presentation” that gives students enough time to think for themselves. In the presentation class of this study, students performed presentation activities (spoken language) with a time constraint of one minute and twenty seconds. During this lesson, beats appeared among many students during the presentation. A beat is a gesture expression defined by McNeil (2005: 40) as; "Mere flicks of the hand(s) up and down or back and forth that seem to 'beat' time along with the rhythm of speech." A beat is a gesture involving hand movements with a constant rhythm of unconsciousness that is not directly related to the utterance content and is not seen in a passive question and answer class. The purpose of this study is to investigate the relationship between the amount of speech and the basic social ability required for adults in society and the impact it has on students who frequently make beats during presentation activities. Although beats are a phenomenon that anyone can see visually, they have not been investigated in the field of second language acquisition in Japan, including their relation to speaking ability and sociality. This is because learner-centered active learning is still under development and the results of learner-centered lessons have not yet been fully clarified.

Previous Research

Speaking Ability

Speaking ability is a multifaceted concept, but in this study, we aim to conduct a survey limited to the speaker's utterance as the most basic index. However, this study, which focuses on speech volume, does not assert that only speech volume needs to be increased, nor does it ignore the importance of speech quality which includes appropriate contents, structures, vocabularies, expressions, etc. Needless to say, speaking is a complex ability and there are various rubrics in terms of how it is assessed. However, in any framework, the amount of speech is considered as an important aspect of speaking ability as well as complexity and accuracy. For example, the American Council on the Teaching of Foreign Languages (ACTFL) has created a Standard Speaking Test (SST) tailored for Japanese learners who are beginner and intermediate learners. The test states that the amount of speech is important in the evaluation of speech ability measurement. Furthermore, many of the evaluation perspectives proposed by various rubrics rely on the subjectivity of the test scorers, and the evaluation results vary. For example, teachers tend to be more rigorous in evaluation results than normal evaluators (Hadden, 1991), and Japanese English teachers emphasize pronunciation more than native English speakers (Nakamura, 1992). On the other hand, Soresi (2004), states that speaking ability can be evaluated with a certain degree of accuracy only by looking at the number of sentences spoken per minute and the overall eloquence. Katagiri (1999), also emphasizes utterance speed as an index of fluency, regardless of the level of Japanese English teachers or native speakers of English.

Peer Feedback and Writing

Oi et al. (2000), conducted a practical survey on whether to provide feedback on the content of English compositions or on formal aspects such as grammar. According to the report, the group that gave feedback on the content improved the overall English composition compared to the group that gave feedback on grammar. Hirose (2009), also stated that if Japanese students underwent peer feedback on the content of the

English they wrote, they would often learn with each other about the intelligibility of sentences. For this reason, in this presentation class, peer feedback activities were incorporated for the content spoken immediately after each presentation.

Utterance and Beats

Gestures include "other-oriented functions" produced for the listener and "self-oriented functions" that affect the production of speech. For example, some speakers perform a bowing or pointing gesture even in a non-face-to-face situation where they speak over the telephone. This indicates that the presence of the listener is not a factor in the gesture but has a self-directing function. According to Sainsbury & Wood (1977), studies show that gestures occur more frequently when people speak in non-native languages. Furthermore, it has been shown that the frequency of the occurrence of beats is greater in rehearsals of predetermined utterance contents than in spontaneous utterance contents (Purnima & Krauss, 1994).

Fundamental Competencies for Working Persons and Beats

In 2006, the Ministry of Economy, Trade and Industry in Japan (METI), defined the basic abilities required for working together with diverse people in the workplace and in the community in the future. This is a term defined as “Fundamental Competencies for Working Persons.” As shown in Figure 2, these abilities were categorized into three (3) overarching competencies, comprising of twelve (12) competency factors.

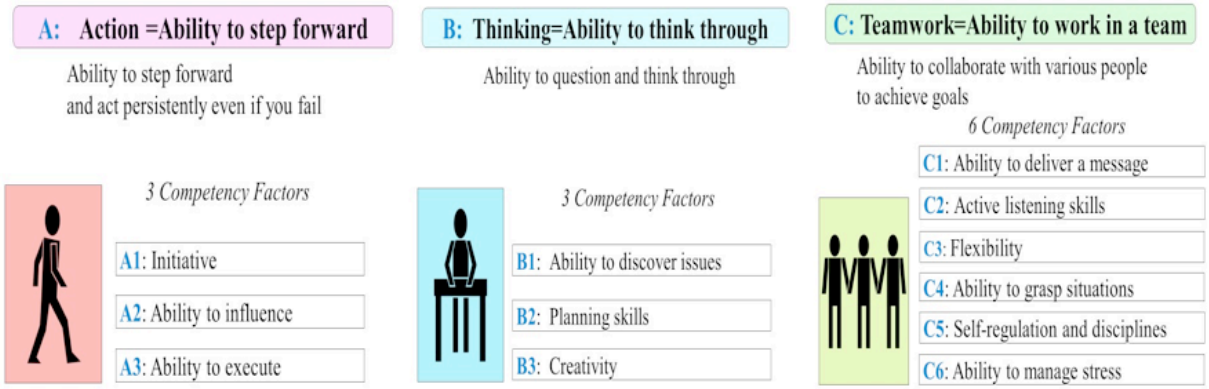

Figure 2: Fundamental Competencies for Working Persons Defined by METI in 2006

Kitajima et al. (2011), conducted a survey on the “three competencies” that make up the basic skills of working adults: the ability to step forward (action), the ability to think through (thinking), and the ability to work in a team (teamwork). According to the report, the average of those who were more experienced than inexperienced members of the society and those who were in the fourth grade than the first grade was significantly higher. In this research, after the learner makes a presentation, the listener gives peer feedback in which the listener comments on the uttered contents. Peer feedback indicates that learner interaction is considered a social act in collaborative learning theory using a second language (Liu & Hansen, 2002). Regarding the relationship between gestures that appear during utterances and sociality, Feyereisen (2018), uses the result of a communication survey between infants and mothers that use symbolic gestures when adults talk to infants. This shows that beats appear in the conversation. This suggest that beats which are appearing unconsciously by learners to facilitate communication with listeners and to compensate for the lack of second language expression may have some connection

with sociality.

Practice Contents of the Presentation Class

The name of the textbook used in the class is Prominence I published by Taishukan in 2017. Our school has not planned a class style that incorporates presentation activities since the first grade, so we started by creating a scaffolding for students to make presentations (Figure3). The teacher created an English script that linked the textbook learning content with photographs and pictures at the introduction stage of each class. Based on the script, the teacher repeatedly performed Question and Answer (Q & A) sessions with the students and performed activities that set a model for the presentation. By continuing this activity, the students naturally adopted the presentation style of the teacher and devised it so that they could voluntarily make a presentation on a summary of each learning unit. Students were thus able to prepare and make presentations not only in terms of the language and content they learned, but also in consideration of others.

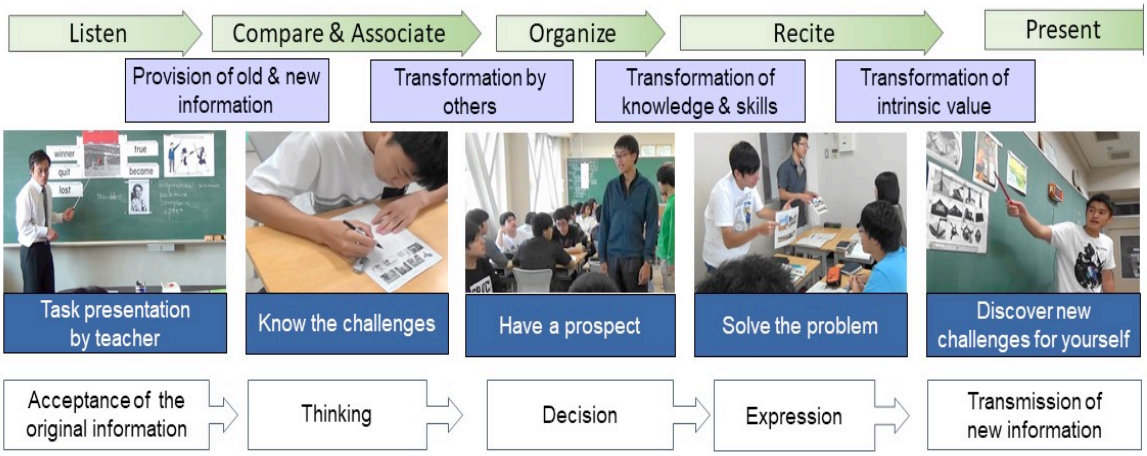

Figure 3: Procedures to create scaffolding for students to make presentations

Study 1

Research Survey 1

RQ1: Which of the following two lessons is effective in a summary of learning units, a lesson in which students conduct presentation activities or a lesson in which students check grammar?

Participants

From April 2017 to February 2018, 16-17 years old students practiced “English 1A” in general education compulsory subjects. Three classes of presentation learning group (experimental group: total number of participating students: 118, instructor: 1) and two classes of grammar learning group (control group: total number of participating students: 83, instructor: 2) participated. A *t*-test was performed based on the TOEIC Bridge results at the time of enrollment in April 2017, and it was confirmed that there was no significant difference between the presentation learning group and the grammar learning group (t (199) = 1.31*ns*) (Table 1).

Table 1 : *Average and Standard Deviation of TOEIC Bridge between Presentation and Grammar Learning Groups*

Learning Group	*n*	*Mean*	*S.D.*	*t*
Presentation	118	110.83	15.26	1.31
Grammar	83	108.14	12.79	

Materials and Scorings

The class was held for ninety (90) minutes once a week, thirty-two (32) times a year. Eight (8) times per year, there was an activity for summarizing each learning unit. In the presentation learning group, students gave presentations, and in the grammar learning group, teachers conducted grammar confirmation tests. The two learning groups performed a comprehensive test consisting of a grammar test and a description test four (4) times a year, and their chronological learning results were investigated. The test was conducted by one of the three teachers as a representative. The test was created by one of the three instructors on a representative basis, and the final test was performed by the first test creator. Regarding the contents of the test questions, we prepared the questions under consideration and agreement so that the questions were not biased. The test questions were common to the five classes, and the test was conducted for fifty (50) minutes at the same time on the same day. In the description test, students read news and literature related to the contents of the textbooks, and freely discussed them using their own ideas. The grammar test was to fill in the blanks using the grammar skills from the learning unit. Regarding the scoring, the grammar test was corrected using a mark sheet automatic reader, and the description test was corrected by three teachers using the same scoring standard. In addition, when it was confusing that the judgment was not included in the scoring standards, the scoring was performed while consulting one by one. Regarding the test distribution points conducted four times a year, the grammar test was sixty (60) to sixty-five (65) points and the description test was forty (40) to thirty-five (35) points. For this reason, in this study, each score is converted into a fifty (50) point scoring ratio.

Results and Analysis

Learning Effects of the Grammar Test

To investigate how presentation activities affect grammar test scores, we performed a two-factor analysis of variance with intra-subject factors as grammar tests and inter-subject factors as presentation activities (Table 2).

Table 2: *Mean and Standard Deviation of Grammar Test between Presentation and Grammar Learning Groups*

		Grammar Test(*Mean*±*S.D.*)				Presentation		
Learnig Group	*n*	1st	2nd	3rd	4th	Activities	Time	Interaction
Presentation	118	37.03 ± 8.01	38.48 ± 6.52	36.77 ± 6.58	35.22 ± 7.03	0.65^{+}	73.02**	12.65**
Grammar	83	39.08 ± 6.61	39.99 ± 5.75	36.59 ± 6.29	34.43 ± 5.97			

n=201 $^{+}p<.10$ $^{*}p<.05$ $^{**}p<.001$

As a result, the interaction was significant (F (1, 199) =12.65, $p < .01$). According to the Bonferroni multiple comparison, in the first and second tests, the performance of the presentation learning group was significantly lower than that of the grammar

learning group. However, the results were reversed in the third and fourth tests. In the third and fourth tests, the presentation learning group performed better than the grammar learning group. However, there was no significant difference between them (Figure 4).

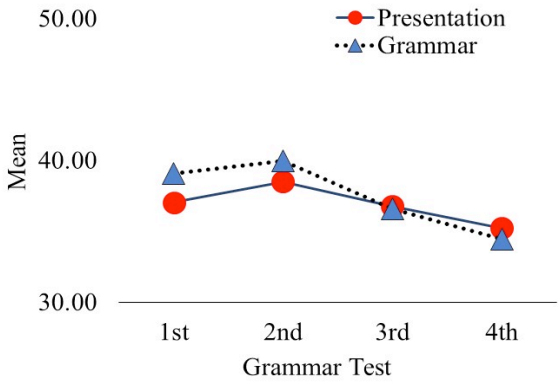

Figure 4: Graphical Comparison of Mean of Grammar Test between Presentation and Grammar Learning Groups

This indicates that in the grammar test, lecture-type grammar classes were significantly higher in the short term, but no longer significantly different from the exercise-type presentation classes in the long term.

Learning Effects of the Description Test

In order to investigate the effects of presentation activities on the performance of the description test, we performed a two-factor analysis of variance, with the within-subject factors as the description test and the between-subject factors as the presentation activities (Table 3).

Table 3: Mean and standard deviation of description test between presentation and grammar learning groups

		Description Test *(Mean ± S.D.)*				Presentation	
Learnig Group	***n***	**1st**	**2nd**	**3rd**	**4th**	**Activities**	**Time**
Presentation	118	26.97 ± 9.69	30,19 ± 12,29	17.36 ± 11.83	21.26 ± 10.59	3.44^{+}	203.71**
Grammar	83	24.28 ± 12.28	27,67 ± 13,51	14.04 ± 8.42	19.57 ± 10.46		

n =201 $+p<.10$ $*p<.05$ $**p<.001$

As a result, the interaction was not significant, and only the main effect of the presentation activity was significant (F (1, 199) =3.44, p < .10). Four tests were significantly lower in the order of 2nd> 1st> 4th> 3rd (Figure 5

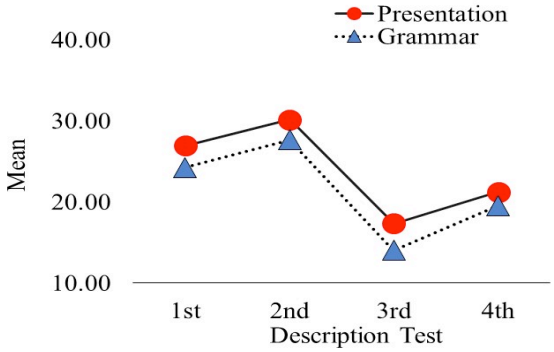

Figure 5: Graphical Comparison of Mean of Description Test between Presentation and Grammar

These results indicate that in the short-term and long-term descriptive tests, the practice-type presentation learning group performed significantly better than the grammar learning group.

Study 2

Research Survey 2

RQ2: Do students who make beat gestures in presentation activities have more utterances than students who do not make beat gestures?

RQ3: When doing presentation activities, what are the differences in basic social skills between those who make beat gestures and those who do not make beat gestures?

Participants

One hundred and eighteen (118) students in three classes (1 instructor) who are 16-17 years old participated in "English 1A", a required course in general education, from April 2017 to February 2018. From one year of class practice, a beat group of twenty-four (24) students and a non-beat group of forty-seven (47) students were extracted. The reason for the decrease in the number of participants at the beginning was that there were frequent suspensions and delays in public transport due to heavy snow during the implementation period, and the number of non-participating students increased due to the end of the flu season. In order to confirm the homogeneity of the two learning groups, a t-test was performed based on the results of the TOEIC bridge at the time of enrollment in April 2017, and there was no significant difference (t (69)= -1.05ns) (Table 4).

Table 4: Mean and standard deviation of TOEIC Bridge between Beat and Non-Beat groups

Learning Group	*n*	*Mean*	*S.D.*	*t*
Beat	24	109.67	9.13	-1.05
Non-Beat	47	112.30	10.83	

Materials and Scorings

Classes were held for ninety (90) minutes once a week, thirty-two (32) times a year.

The students who participated in the class were paired with another student, and each gave a one minute and twenty second presentation on the summary of the learning unit (Molten Digi-timer Challenge UD0010 was used as the measuring device).

Regarding the content of the presentation, "The unit should be in the form of utterances, including your own personal opinion about the unit you have learned, and the sentence structure should be such that it is easy for the partner to understand the contents of the utterance." Regarding the counting of the number of uttered words, the utterance reproduction writing by the student was used as the number of uttered words. The reason is that in the preliminary experiments conducted on twenty (20) students, there was almost no difference between the number of words spoken in the presentation video and the number of written words after the speech. As for the writing activity of utterance reproduction words, one sheet of A4 size paper was distributed to each individual immediately after the presentation, and they were allowed to reproduce and write within a time limit of five (5) minutes (Figure 6). The rewritten paper was exchanged for the partner who heard the utterance in pairs. After confirming that the uttered content and the reproduced and written content were almost the same, the partner who counted the number of uttered words signed the upper right corner and submitted it. Counted words were regarded as spoken words, and any expression that could be conveyed to the reader regardless of spelling errors or grammatical errors was counted as the number of words. In addition, immediately after writing the utterance reproduction, seven (7) students randomly nominated each class by the teacher made a presentation again on the stage. For the students who recorded the video, we checked the utterance content and the number of words written and reproduced and confirmed that there was no difference. The recorded image analysis was performed by one teacher in class, and a high school teacher practicing presentation classes at other high schools. As a result, twenty-four (24) beat students were extracted. Eight (8) data collections were performed for this experiment. However, only six (6) of these data collections were useable. The reason for this is that there were classes that took a long time for unfamiliar presentations, and those classes were not held as scheduled due to school events. At the beginning of the year, the students were informed that 20% of the annual learning evaluation was to be given for the contents of presentation and utterance reproduction. On the last class in February, the participants were asked to review the class by conducting a questionnaire survey conducted by Kitajima et al (2011). The survey items consisted of three (3) categories and twelve (12) items. A questionnaire survey of 7-point scales were conducted for 12 items. The 7-point scales stand for strongly disagree-1, disagree-2, more or less disagree-3, undecided-4, more or less agree-5, agre-6, and strongly agree-7.

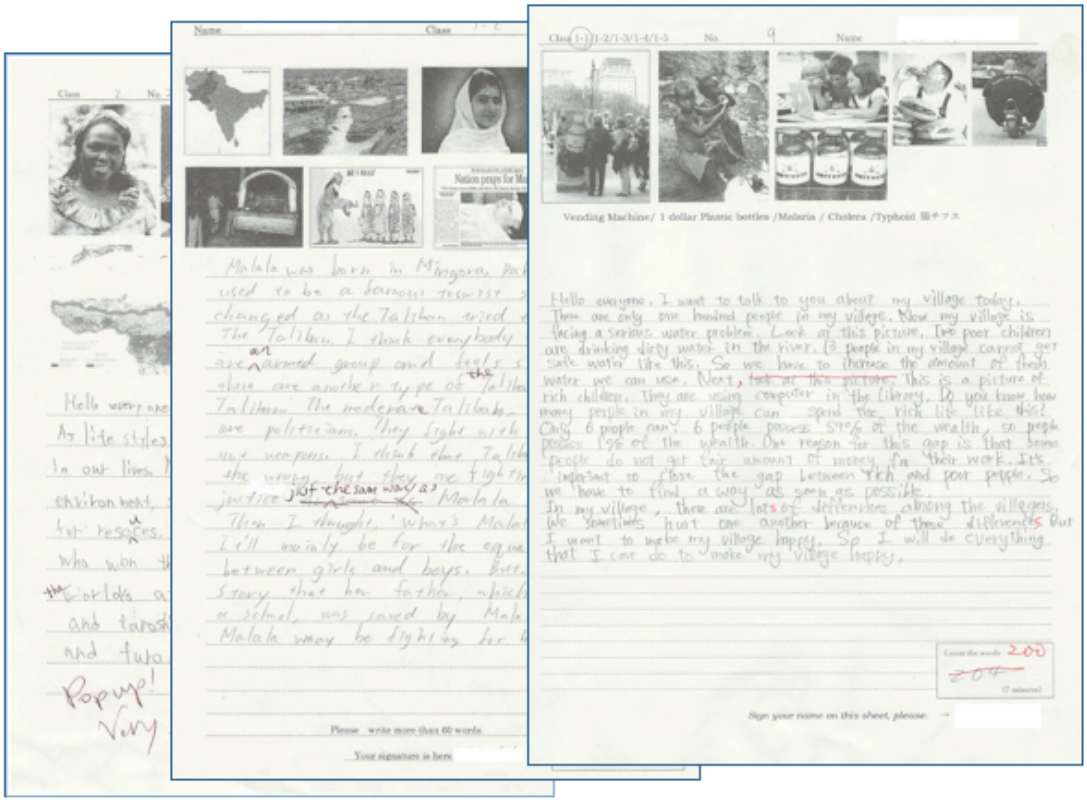

Figure 6: The utterance reproduction writing samples by the student which was counted as the number of uttered words

Results and Analysis

Results of Reproduction Activities of Uttered Words

In order to investigate whether the beat causes a difference in the number of utterance reproduction words, we performed a two-factor analysis of variance with the intra-subject factor as the utterance reproduction words and the inter-subject factor as the amount of beats (Table 5).

Table 5: Comparison of Utterance Reproduction Words between Beat and Non-Beat Groups

Year	Month	Reproduction Activities of Utterance Words	Beat*(n=24)*		Non-Beat*(n=47)*	
			Mean	*S.D.*	*Mean*	*S.D.*
2017	May	No.1	72.63	22.51	78.06	18.34
	June	No.2	80.42	21.31	79.91	18.94
	Sep	No.3	80.17	17.36	82.34	17.27
	Nov	No.4	78.21	17.81	80.09	15.47
2018	Jan	No.5	73.58	16.48	82.45	17.88
	Feb	No.6	85.29	18.23	84.57	25.93

As a result, the interaction was not significant and only the main effect of the spoken word was significant. Multiple comparisons using the Holm's method showed that the 6th test was significantly higher than the 1st test (MSe =242.80*, $p < .05$) (Figure 7). From this, in the one-year presentation class, it was shown that there was no significant difference between the beat group and the non-beat group in the utterance reproduction words survey conducted immediately after the presentation.

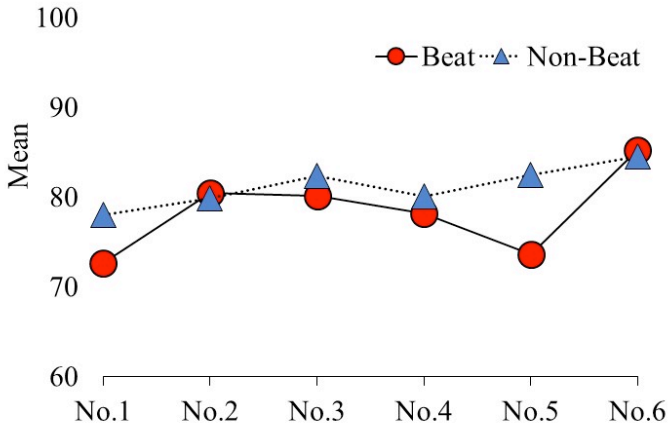

Figure 7: Graphical comparison of mean of the number of utterance reproduction words between Beat and Non-Beat groups

Results of Questionnaire Survey on Basic Social Abilities

After conducting one-year presentation activities from May 2017 to February 2018, the questionnaire survey was conducted on the last day of classes in February. The participants and class teachers were the same. As a result, the main effect of the beats was recognized in the five items (No.1 of A1: Initiative, No.5 of A2: Ability to influence, No.7 of A3: Ability to execute, and No.31 and No.33 of C5: Self-regulation and disciplines (F (1, 69) = 3.96, 6.13, 4.10, 3.87, 3.94, $p < .05$, respectively) (Table 6, 7, and 8). As a result of multiple comparisons by the HSD method, the beat group was significantly higher in five items of No.1, No.5, No.7, No.31, and No.33 than the non-beat group ($p < .05$) (Figure 8, 9, and 10). From the above, it was shown that the beat group was more aware of the role and goal of pair work than the non-beat group, worked more effectively to obtain the cooperation of a partner, and made more efforts to maintain discipline and manners.

Table 6: Comparison of 9 items in 3 competency factors of action category to measure fundamental competencies for working persons between Beat and Non-Beat groups

Category	Competency Factor	No.	Item Contents	Learning Group	*Mean*	*SD*	*F*
A: Action	A1 Initiative	1	You knew your role through pair work.	Beat	6.04	0.859	**3.96***
				Non-Beat	5.57	0.972	
		2	You were working on difficult things by taking advantage of your strengths.	Beat	5.63	0.770	2.69
				Non-Beat	5.17	1.239	
		3	You were acting spontaneously and autonomously on your role and challenges.	Beat	5.75	1.032	1.75
				Non-Beat	5.34	1.323	
	A2 Ability to influence	4	You were telling the need and purpose of cooperation to make friends	Beat	5.08	1.213	1.31
				Non-Beat	4.70	1.382	
		5	You tried various ways to achieve effective cooperation depending on the situation	Beat	5.50	1.180	**6.13***
				Non-Beat	4.70	1.334	
		6	You actively worked with someone to achieve your pair work goals	Beat	5.50	1.063	2.83
				Non-Beat	4.96	1.382	
	A3 Ability to execute	7	You continued to work hard to achieve your goals	Beat	6.04	0.955	**4.10***
				Non-Beat	5.45	1.265	
		8	You worked on the task with the will to try to succeed	Beat	6.00	1.022	1.80
				Non-Beat	5.66	1.006	
		9	You kept working on the goal without turning away from difficult situations	Beat	5.33	1.167	0.01
				Non-Beat	5.36	1.051	

*p<.05

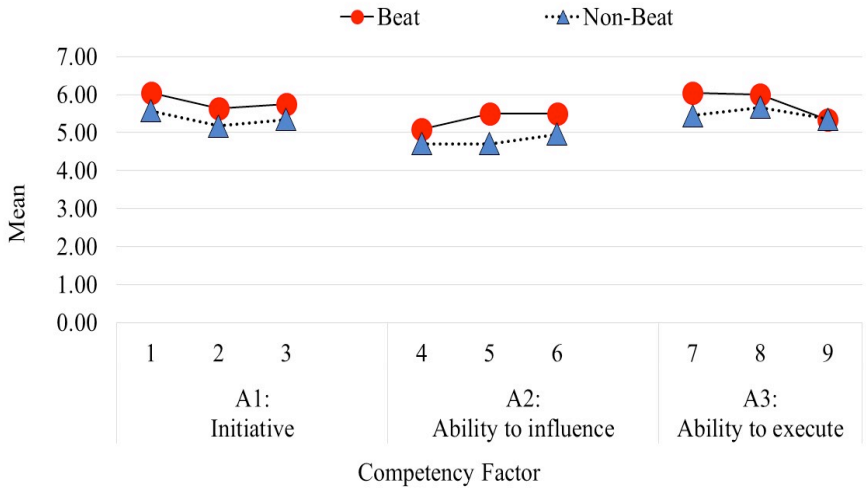

Figure 8: Graphical Comparison of Action Category to Measure Fundamental Competencies for Working Persons between Beat and Non-Beat Groups

Table 7: Comparison of 9 items in 3 competency factors of thinking category to measure fundamental competencies for working persons between Beat and Non-Beat groups

Category	Competency Factor	No.	Item Contents	Learning Group	*Mean*	*SD*	*F*
B: Thinking	B1 Ability to discover issues	10	You had a good grasp of the challenges at this stage to achieve your goals	Beat	5.46	1.285	2.15
				Non-Beat	4.96	1.398	
		11	You were collecting and analyzing information to correctly recognize the current situation	Beat	5.00	1.180	2.24
				Non-Beat	4.49	1.443	
		12	You actively asked for the opinions of others to clarify the issues	Beat	4.54	1.841	0.19
				Non-Beat	4.72	1.584	
	B2 Planning skills	13	You had a viable plan to achieve your goals	Beat	4.04	1.546	0.17
				Non-Beat	4.21	1.680	
		14	You had noticed the difference between the plan to achieve the goal and the actual progress	Beat	4.38	1.689	0.02
				Non-Beat	4.32	1.431	
		15	You had flexibly revised the plan to suit unexpected situations	Beat	4.38	1.610	0.73
				Non-Beat	4.02	1.674	
	B3 Creativity	16	You used a variety of information such as photos, textbooks, and the Internet	Beat	4.96	1.732	0.57
				Non-Beat	4.60	2.007	
		17	You tried to change the conventional way of thinking	Beat	4.96	1.732	2.28
				Non-Beat	4.34	1.578	
		18	You were conscious of achieving your goals, created something new and looked for hints	Beat	4.71	1.334	1.43
				Non-Beat	4.30	1.382	

*p<.05

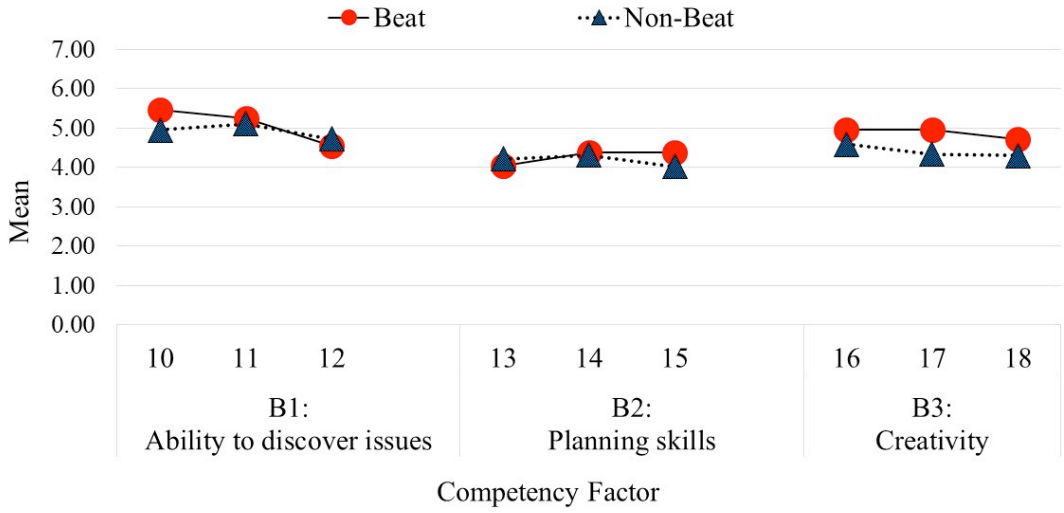

Figure 9: Graphical comparison of mean of 9 items of 3 competency factors of thinking category to measure fundamental competencies for working persons between Beat and Non-Beat groups

Table 8: Comparison of 18 items in 6 competency factors of teamwork category to measure fundamental competencies for working persons between Beat and Non-Beat groups

Category	Competency Factor	No.	Item Contents	Learning Group	*Mean*	*SD*	*F*
C: Teamwork	C1 Ability to deliver a message	19	You gave your information in an easy-to-understand manner to your partner	Beat	5.63	0.824	1.74
				Non-Beat	5.23	1.322	
		20	You spoke in a manner to ensure that your pair work partner understands	Beat	5.54	0.833	3.58
				Non-Beat	5.02	1.207	
		21	You understood in your own way what you were going to talk about and expressed it to your members.	Beat	5.96	0.806	0.44
				Non-Beat	5.81	0.947	
	C2 Active listening skills	22	You understood the partner's story while checking the contents and asking questions	Beat	5.33	1.551	0.54
				Non-Beat	5.04	1.601	
		23	You had a nod, a sympathetic attitude, and made it easy to talk to the other person	Beat	5.54	1.103	0.56
				Non-Beat	5.74	1.073	
		24	You listened to the other person without prejudice or belief	Beat	6.04	0.999	2.47
				Non-Beat	5.60	1.192	
	C3 Flexibility	25	You had your own opinion and accepted the other person's story with empathy	Beat	5.71	1.042	0.71
				Non-Beat	5.47	1.177	
		26	You were trying to understand why others think so	Beat	5.38	1.313	1.23
				Non-Beat	5.00	1.367	
		27	You understood the situation and circumstances of the other party	Beat	5.63	1.096	2.27
				Non-Beat	5.19	1.173	
	C4 Ability to grasp situations	28	You were acting to understand your role expected from the surroundings	Beat	4.63	1.209	1.80
				Non-Beat	4.21	1.232	
		29	You were acting to judge what you can do	Beat	5.54	1.103	1.26
				Non-Beat	5.23	1.088	
		30	You took action with consideration of the surrounding relationships and circumstances	Beat	5.46	1.414	0.68
				Non-Beat	5.19	1.227	
	C5 Self-regulation and disciplines	31	You kept your manners so as not to bother your pair work partner	Beat	6.42	0.830	**3.87***
				Non-Beat	5.96	0.977	
		32	When you bothered your partner, you were taking appropriate action	Beat	6.00	1.142	3.51
				Non-Beat	5.45	1.194	
		33	You were acting properly in situations where discipline and courtesy were needed	Beat	6.13	0.900	**3.94***
				Non-Beat	5.60	1.136	
	C6 Ability to manage stress	34	When you felt stressed in your group activities, you thought about the cause	Beat	4.67	1.810	0.18
				Non-Beat	4.83	1.340	
		35	You had reduced your learning stress by consulting and receiving support	Beat	4.83	1.659	0.00
				Non-Beat	4.83	1.672	
		36	Even if you felt stressed, you were able to switch minds and control yourself	Beat	5.17	1.685	0.22
				Non-Beat	5.34	1.387	

*p<.05

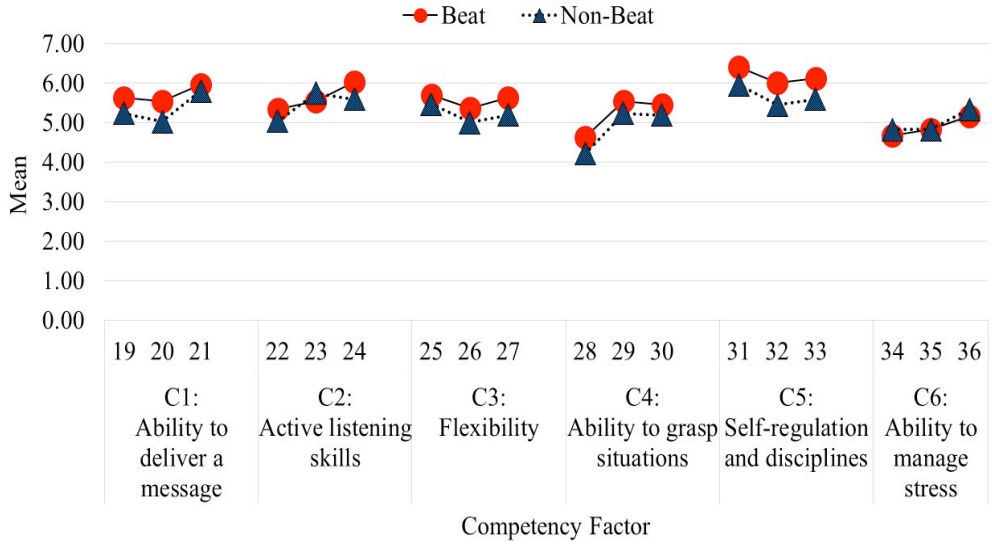

Figure 10: Graphical comparison of mean of 18 items in 6 competency factors of teamwork category to measure fundamental competencies for working persons between Beat and Non-Beat groups

Discussion and Conclusion

Effects of Presentations Conducted in a Summary of Learning units

It is easy to predict that the presentation group performed better than the grammar group in the description test because they had many scenes in the class where the uttered contents were more consciously considered than in the grammar group. However, even in the grammar test, the grammar group results were significant at first, but eventually did not differ from the presentation group. In this regard, we believe that it is necessary to continue to practice the lessons and to investigate the effectiveness of presentation learning. Looking back at the video recordings of the pair work scenes that were conducted during the presentation class, there were many scenes where students commented on the clarity of the uttered contents. This seems to support the work of Hirose (2009), in which peer feedback allows students to learn from each other about the comprehension and composition of sentences.

The Relationship between the Learner's Ability to Produce Beats and Sociality

In this survey, the number of words which the presenter reproduced and wrote immediately after the presentation was counted as the number of uttered words. As a result, there was no significant difference in the number of uttered words between the beat group and the non-beat group. However, looking back at the images recorded in the video, the non-beat group tended to produce the number of uttered words regardless of the learning difficulty, whereas the beat group tended to produce more beats than the number of uttered words when the difficulty was higher. Purnima and Krauss (1994), found that the frequency of beats was higher in rehearsals of prepared utterances than in free utterances, but we would like to investigate this further in the future. Regarding sociality, it became clear that the beat group was more conscious of taking action, working harder, engaging in teamwork, discipline, and manners when compared to the non-beat group.

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Human Resource Policy in Leading Russian Universities: An Assembly Model

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Abstract
The study discusses the development of human resource policy in leading Russian universities that are members of the Russian academic excellence program "Project 5-100". This topic is presented in the research literature but fragmentarily, and a holistic picture of the transformation of human resource management in leading Russian universities has not been presented. The study includes four leading Russian universities that are members of the Russian academic excellence program "Project 5-100" and utilizes semi-structured interviews and analysis of strategic documents. The impact of global rankings on university governance and HR policies is shown to be significant. The study describes the main features of emerging HR policies in the universities, as well as common challenges. It was found that all the universities studied experience the challenge of HR policy maturation, which includes a necessity to formulate common rules and establish shared practices in areas of hiring, motivation, and assessment. The universities are looking for leadership models appropriate to the rapid changes occurring in institutions and desire an increase in cooperation, transparency, and openness as features of organizational culture. The degree of units' independence in the realization of HR functions is changing, while recently established HR departments have various functions. Policies of employee' development, retention, and engagement are becoming more and more important because of growing global competition for high-performing academics, and the attempts to overcome inbreeding in academic culture are relevant here.

Keywords: University Management, Human Resource Management, Human Resource Policy, University Corporatization, University Transformation, Global Rankings

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Introduction

This paper presents the results of a 3-year research project supported by the Russian Science Foundation, "The human dimension of the transformation processes of Russian universities: historical experience, trends, and responses to the contemporary challenges". It was launched in 2019 and is still in progress. Current findings depict the emergence and development of the human resource policies in leading Russian universities and its main features and perspectives, which is related to the fields of educational policy, leadership, management, and administration. In this paper, first, a brief description of the context that is important for changing HR policies of the universities worldwide will be given. Second, the landscape of research topics associated with HR policies at Russian universities will be presented. Next, the research methodology of this study and its current findings will be reported, and some final thoughts will be shared.

The Context for Changing HR Policies at Russian Universities

Important context for the changing HR policies of universities, especially Russian universities, is the trend of ongoing globalization that massively influences educational policies (Morgan, 2006). Globalization has affected the widespread adaptation of the principle of unlimited competition and its extrapolation to many spheres of life, including education (Wolf, 2005). Besides, the principles of the neoliberal economy affected universities massively. These principles emerged as part of a British policy in the 1970s (Giroux, Karmis, & Rouillard, 2015) and were taken up by the educational and economic policies of developed and developing countries. One of the main results was the ubiquitous corporatization of universities (Riddings, 2010) when corporate management ideas began to be used widely, new methods of measuring performance and regulation of working processes were developed, and a strong tendency to achieve corporate efficiency appeared (Winter, 2009). The corporatization of universities has led to the emergence and strengthening of managerialism, characterized by a “strong managerial culture, entrepreneurial centricity, and ideals associated with profit” (Winter, 2009, p. 121). It came about "by tightening organizational structures, strengthening formalization and, in general, increasing the degree of university control" (Drugova, 2018, p. 74).

Another important effect of globalization on university management is the emergence of global rankings, the growth of their role, and their influence on the strategies of universities around the world. Global rankings set the criteria for comparing and evaluating universities, which gradually reoriented many national and individual university policies toward the achievement of certain success criteria (Froumin & Salmi, 2007). National programs to support universities in the race for world leadership in rankings, the so-called "excellence programs", have appeared (Froumin & Salmi, 2007). A program of Russian academic excellence called “Project 5-100” was launched in Russia in 2014 (https://www.5top100.ru/en/). It stimulated the process of the corporatization of Russian universities, provided the external focus of control over management of the universities, and spurred the growth and strengthening of managerialism (McVitty, 2020). Management practices in the universities that participate in “Project 5-100” has undergone a significant transformation, and this process is still ongoing (Forbes Education, 2020).

One of the interesting dimensions of this phenomenon is the increased attention of university management to the area of HR policy and talent management (Drugova et al., 2018). Since people are the main resource of the university, whether it is lecturers who implement the process of teaching, or scientists who implement research and development, one of the important conclusions for university administrators was the need for more effective HR policy (Lozano, Peris, Aristizábal, & Hueso, 2012).

Elements of Russian Universities` HR Policies in Research Literature

In describing what is already known in the research on Russian universities about HR policies development, it is worth to noting that there are relatively few articles about this theme, as well as few Russian journals on the subject of university management and administration. Analysis of about 60 scientific papers that were found related to this issue revealed some research topics that will be described next.

HR policy at universities

HR policy is seen as an important part of the competitive strategies of Russian universities; however, as noted by a number of authors, "it is at an extremely low level, while the most important resource of human capital is not managed effectively enough, which reduces the competitiveness of universities" (Latyshev, Pokholkov, Chervach, & Shadskaya, 2017). Some authors describe institutional changes affecting the reorganization of universities` HR policy, such as changes in university management with a focus on strategic goals in an environment of high uncertainty and risk, massive recruitment of new personnel, search and support of talents, a transformation of corporate culture aimed at increasing personnel involvement (Sorokin, Latyshev, & Gribovsky, 2019). Bugrov, Ponomareva, and Fedorova draw attention to insufficient elaboration of the university's HR policy. Despite the formulation of some of its elements in various regulatory documents of structural divisions, there is no holistic document that enshrines the principles, rules and norms of university HR management, corresponding to the university strategic goals. (2016, p. 26)

The deficit of conceptualization and research in this area is accentuated. The importance of personnel planning and forecasting the need for personnel as part of HR policy is emphasized by a number of authors, as well as the ineffectiveness of the use of personnel potential and the lack of regular monitoring of personnel (Fadeeva, Shamanaev, & Sokolova, 2011). The growing requirements for the competitiveness of universities also affected the need of universities to position themselves as employers and build their own HR brands. This issue is still very poorly covered in the Russian research literature; the role of information openness is especially emphasized (Lazarev, Martynenko, & Lazarev, 2015).

Selection, recruitment, adaptation, motivation, personnel assessment at universities

Hiring new employees while developing and transforming Russian universities at a time of growing competition for highly qualified academics puts academic recruiting on the agenda. The issue of academic recruiting highlights the problem of academic inbreeding (the practice of higher education institutions to hire its own graduates to

positions of academic staff) as a specific feature of Russian universities. Drugova, Nuzhina, and Koryakovtseva consider the current state and prospects for developing academic recruiting in Russian universities, analyzing external and internal factors that stimulate and inhibit its development (2016). Taradina and Rakitin discuss the possibilities and risks of hiring administrators from business to university management (2016). Academic inbreeding is shown as an inevitable feature of national Russian education, and recommendations for the reduction of its negative effects are discussed (Yudkevich & Gorelova, 2015).

The problem of adaptation of new employees at the university is considered by some researchers. Special attention is paid to the specifics of adaptation of novice lecturers, and the demand of the decentralized approach for the adaptation of new employees is highlighted, as well as the need for internships with a subsequent assessment of the competencies acquired (Alaverdov & Alaverdova, 2016). In addition to the professional component (Bondareva & Sergeev, 2016), researchers also focus on the psychological component of adaptation of freshmen (Gershkovich, 2003). The issue of adaptation of foreign specialists and expats, and their social support during relocation are also considered (Lazarev, Martynenko, & Lazarev, 2015).

Academic motivation is one of the widely researched topics. Motivation systems including bonuses and material incentive are considered in connection with employee productivity. Analysis of the literature shows that there is a need to revise the traditional external incentive systems and create new models of motivation. The first model is oriented towards creativity and stimulation of innovative potential of academics (Gutsu & Chilipenok, 2018). Another model is based on the rating system of personnel motivation and material incentives (Kharitonov, Mikhailov, & Kharitonova, 2014). Alaverdov considers material motivation (additional wages, benefits), and non-material motivation (the role of professional growth, interest, continuing education) for university` employees (Alaverdov, 2015). Also, a number of authors (Berezovskaya & Kryukov, 2014) analyze ways of attracting and retaining lecturers in higher education. Thus, special attention is paid to the problem of personnel motivation at the university.

More and more attention is being paid to the issues of HR assessment at the university and the tasks of building maps or models of competencies of different categories of personnel. HR assessment seems to be a necessary element of the university's strategic management system (Popova & Ibragimova, 2017). Attempts to build competency models of different categories of employees such as lecturers or researchers are made (Andrienko & Kalachikova, 2016).

Talent management is considered through the lenses of change agents, high potential employees, and best talent management practices (Volkova & Plotnikov, 2017; Masalova, 2016) in Russian universities.

Engagement, satisfaction, conflicts at universities

Some studies analyze programs of personnel development and measurement of personnel engagement in Russian universities (Masalova, 2016). The role and factors of stress and professional burnout are also attracting attention (Davydova & Kozmina, 2014). Satisfaction factors and internal communications are important topics (Bugrov,

Ponomareva, & Fedorova, 2016). Particularly, few works describe conflicts of "managers" and "academics" and their roots (Drugova, 2018). The openness of a university management system to the innovations and initiatives by employees is also of interest (Sukhanova, Kovaleva, & Zotkin, 2016).

In general, the literature shows the continuing process of the corporatization of Russian universities and tendency to play the “global competitiveness games” (Forbes Education, 2020). However, as we found out, fragmented case studies prevail among the research literature. Weak conceptualization, lack of systematic studies, comparative studies, and generalized studies were noted. Thy present study was designed as an attempt to draw a more sophisticated and detailed picture of the emerging HR policies in leading Russian universities.

Research Methodology

The research question of this paper is: what are the main features of the emerging HR policies in leading Russian universities? This question consists of four sub-questions:
- What do these HR policies of leading Russian universities consist of?
- How are basic HR functions in leading Russian universities changing under the influence of global rankings?
- What new administrative functions in the area of HR have appeared in leading Russian universities since the launch of “Project 5/100”?
- How do employees of various groups perceive these changes?

To answer these questions, a study of eight leading Russian universities that are participants in “Project 5/100” (two from Moscow, two from St. Petersburg and four regional universities) is planned. It is currently ongoing, and only four of the eight universities were studied yet: National Research Tomsk State University, Tyumen State University, ITMO University, and Peter the Great St. Petersburg Polytechnic University. Two of them are regional universities and two are located in Saint Petersburg. All four universities studied are included in the “top” of Russian universities, “Project 5-100”, which includes only 21 universities out of about 950 Russian universities.

To accomplish the study goals, four variations of one guide were developed for semi-structured interviews, including more than 25 questions. Each interview took between 20 and 60 minutes. About 25 semi-structured interviews were conducted with members of each university employees’ categories (top management, institute heads, deans, lecturers and researchers, middle administrators, HR specialists), 98 in total. The questions concerned development and elements of HR policy; talent management practices; realization of HR functions (recruitment, hiring, adaptation, motivation, assessment); personnel development, involvement, satisfaction, conflicts; organizational culture transformation. The strategic documents of universities such as “strategic roadmaps” were also analyzed.

Findings

HR policy at leading Russian universities

Not surprisingly, we found that HR policies in the four universities studied to date have been greatly influenced by "Project 5/100" since it was launched in 2014. It requires from the participating universities the implementation of certain policies, such as talent management and academic recruiting, because of the necessity to hire high-performance academics.

HR planning is best developed in the academic life of the university, where we really attract very good specialists with the help of an open competition, using all sorts of fellowships and professorships (University 3, female, middle management, under 35 years old).

HR policies in all four cases can be described as medium maturity policies: a final document formalizing HR-strategy is usually absent, but some new functions have appeared and found their place in the changing management of universities.

Of course, it is under construction. It cannot be said that it has been built completely because this process is endless. As the university develops, everything will change, and it must be constantly rebuilt (University 1. Male, middle management, under 35 years old).

However, long-term planning is still rare while HR planning is often transferred to faculties and institutes. Deep reorganization of personnel departments during the last 6 years, since the launch of the Project 5-100, was discovered in all four universities. It was accompanied by transitions in work regulations at these universities, and it faced contradictory attitudes.

Now the university is not a corporation. It cannot follow the corporate model, where everything is the same. A university is an ecosystem, it is a set of some small teams with their own rules, it is impossible to introduce uniform rules for personnel development for the entire university. They will be different everywhere (University 2, male, middle management, 36-65 years old).

Talent management attracted special attention and became a field of experiments for the universities observed. Also, it was noted that universities tend to reinforce their HR-brands in recent years. At the same time, the role of the regulator, that is, governmental requirements, was shown to be essential.

Recruitment, hiring, adaptation, motivation, and assessment at leading Russian universities

Changes in the traditional HR functions were observed. Recruitment had intensified significantly due to the increase in openness and competitiveness. The personnel inbreeding traditional for Russian universities is being increasingly and steadily overcome. This seems to be true only for leading universities, however, while the remainder is still experiencing a high level of inbreeding, but this should be checked by research.

I am very glad that this year there was a real competition, which used to be rather imaginary. In my opinion, it is very important that it really became a competition, that is, people began to compete for places (University 1. Female, lecturer, 35-65 years old).

New key roles in HR policy have appeared, for example, that of the head of the educational program. It is a new position in Russian universities, and this is a person in charge of recruitment of a teaching team for an educational program (bachelor or masters).

The most important person in charge is the head of educational program. He is actually engaged in the selection of personnel for an educational program (University 4. Male, top management, 36-65 years old).

Simultaneously, new hiring formats such as fellowships and professorships have appeared. Changes in job contracts were observed, with contracts becoming shorter and more performance-based.

We have metrics visible in contracts. Everyone understands what is required and what they are rewarded for (University 1. Male, professor, 36-65 years old).

The hiring of new employees including foreigners revealed the lack of an adaptation system, and this was noted by respondents. There is no formal system of orientation for new employees in universities yet, and this is a growing concern.

But there is no adaptation program as such. And again, until you «burn yourself», you will not know that this is prohibited. We have a bunch of unwritten rules, besides a bunch of written ones. And by trial and error, a person adapts somehow (University 2. Male, lecturer, 36-65 years old).

As to motivation, interestingly, various motives were detected, including contradictory ones. Some employees at the same university noted that interesting and challenging goals motivate them to work at the university, while some employees mention path dependence of their academic careers, so they are compelled to work at the university.

I am insanely interested in this work; this is the most interesting job I have ever had (University 1. Male, middle administrator, under 35).

High salaries, of course, motivate, because the system of material incentives at the university is changing: the salary is still growing, the system of allowances is becoming more and more flexible (University 1. Female, professor, 35-65 years old).

Importantly, the university system of motivation is unclear for most respondents.

The motivation system has a problem with constant change (University 2. Female, middle management, 36-65 years old).

Currently the best and most understandable assessment is the assessment of researchers, as presented by respondents. Less understood is lecturers' assessment,

and forms of such an assessment are being sought. The assessment of administrators is the most unclear.

At the moment, we do not have an assessment system for the administrative divisions. But this task has been set and probably, sooner or later will be solved (University 3. Female, assistant professor, 36-65 years old).

Personnel development, involvement, satisfaction, conflicts at leading Russian universities

Importantly, the request for leadership and management development was heard at all the universities studied, which is in alignment with the trend of reinforcing academic managerialism. Strong emphasis on renewing the management was found in three universities.

Every laboratory leader who is over 50 years old understands that soon he will be replaced by the head of the laboratory, who is over 25 (University 3. Male, top management, under 65).

Attention is beginning to be paid to special training programs for leaders. It is necessary to create special courses to improve the efficiency of university management.

We need to create a training program for leaders because many managers are people who have no management skills and education (University 4. Female, professor, 36-65 years old).

Request for feedback systems was formulated on different levels, for example, feedback from students on the education process. This statement is in line with the demand of the rise of transparency and horizontality expressed by respondents.

If we are talking about the development of human capital, I would literally force all teaching staff to take a course in cooperation, because the collaborative culture is very poorly implemented at the university. Inside the departments, it is expressed quite strongly, but outside it is weakly expressed (University 2. Male, middle administrator, 36-65 years old).

In characterizing the changes in organizational cultures, the transition from stability to competition and mobility was noticed by respondents in all four universities, accompanied by the reduction of academic freedom.

There is a certain cultural heritage of Russian educational tradition, which is the basis for our research and teaching practices. But business requires tangible results now (...). We say yes, we talk to business, we influence business, and business affects us, and we try to save our identity (University 3. Male, top management, 36-65 years old).

Discussion

Universities that were studied are quite different in their history and traditions, but the challenges they face developing their HR policies were found to be similar. They experience the challenge of HR policy formulation and implementation, which includes formulating common rules and establishing shared practices in areas of hiring, motivation, and assessment. This is in alignment with recent research in this area (Latyshev et al., 2017). They are looking for leadership models appropriate to the rapid changes in the institutions and the desire for management maturation in general. The degree of units' independence in the realization of HR functions is not fully clear and should be determined. Currently the tensions between newly established central HR departments, institutions, and faculties are conspicuous. Policies of employee development, retention, and recruitment are becoming more and more important.

Conclusion

The present study has described the main features and common challenges of the emerging HR policies in four leading Russian universities, which are members of National academic excellence program Project 5-100. It was found that all four experience the challenge of HR policy maturation. In the area of hiring, attempts to overcome inbreeding academic culture were shown, as well as a growing tendency toward openness. The role of the HR brand has become more important. The need to establish a more clear system of motivation was found. New practices of assessment have appeared, and correspondingly new types of job contracts regularly appear, which is also shown by previous research (see for example Postnikov & Andrienko, 2015). The search for appropriate leadership models is happening accompanied by a demand for the growth of managerial skills. Organizational culture is characterized by the gradual change from stability to competition, from academic culture to a corporate culture, which is in line with the Winter's argument (2009). The rapid changes occurring in institutions have led to the employee` demand for more cooperation, transparency, and openness, which are, in general, attributes of global human capital trends (Deloitte, 2019). Recently established HR departments have various functions in the universities studied and the degree of units' independence in the realization of HR functions is changing. Talent management, personnel development, and engagement programs have received more and more interest, which is supported by other studies (Volkova & Plotnikov, 2017). The role of the growing global competition and participation of the universities in "Project 5-100", orienting them to the global rankings game, was found to be fundamental in all these changes.

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Robots in Education: Influence on Learning Experience and Design Considerations

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Abstract
The influence of computer science is increasingly present in today's life. To prepare students adequately for the challenges of an increasingly digital world an early education on this topic is necessary. Robots are a playful access for students, as they are an illustrative and practical example of many important computer science concepts. In this paper we present the results of multiple studies on the design and functions of robots for the education of students between the ages of 11 and 13. We both accompanied and designed teaching units with mobile and humanoid robots over multiple weeks. In these units we observed how students were able to learn concepts of computer science if they were explained with the help of a robot and how their perceptions of the robot changed over time. We further conducted an interview survey with the students as well as uninvolved adults (ages 18 to 35) to determine possible differences in design and functionality choices for robots. We found that contact to robots helps students to gain a sense of familiarity towards digital concepts, that students were able to transfer knowledge from the known robot to a new task and that there is a clear difference between the perception of robots in adults and young students.

Keywords: Educational Robotic, Computer Programming Education, New Technologies in Education

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Introduction

Since the invention of the Internet and the rise of home computers 50 years ago, the world has been undergoing a digital revolution, which has greatly influenced our daily lives. This revolution is still ongoing and judging from its past it seems likely that even today's exotic new technology may be a common part of our lives in the near future [1]. One new technology that is slowly emerging today are robots. Like computers before them, they have first been mostly used inside the industry but have slowly become more accessible for consumers [2]. Also, similar to computers they show a lot of potential use cases, e.g. by providing services [3], helping in construction work [4] or retail [5] and supporting education programs [6].

This brings us to a point at which we can reasonably predict that robots will likely be an important part of our near future and at which we can already see that they may provide benefits for education. Furthermore, robots also represent a tangible representation of otherwise oftentimes abstract mathematical and computer science concepts. Therefore, an integration of robots in existing educational programs is a logical conclusion helping students to prepare for the challenges of our digital world. This brings us to the core of this paper: how we should design robots for education and what influence they have on the learning experience of students. To examine this, we conducted 3 studies:

1. A survey to determine children's general ideas about behavior and designs of robots.
2. A 6-week observation about the effects of robots on a 6th grade computer science course.
3. An implementation and evaluation of a 10-week robot supported programming courses for girls between the ages of 11 and 13.

From those studies, we derived the following three theses: First, contact with robots helps students to gain a sense of familiarity towards digital concepts. Second, students are able to transfer knowledge from the known robot to a new programming task. Third, there is a clear difference between the perception of robots in adults and young students. In the following, we first give a summary of relevant related work, discuss each of the 3 studies in detail and give a conclusion about the general results of the studies.

Related Work

As computers before them, robots now present a new tangible representation of computer science, mathematics and physic principles, as well as a possible teaching support. Therefore, their influence on education has been increasingly studied over the last years.

In a recent survey based on 20 studies over the last 16 years, Zhong et al. have found that robots in general improve the learning progress of students in mathematics, more specific regarding "graphics and geometry", "number and algebra", and "practice and synthesis application". Robots were used for "learning by interacting", "learning by programming" and learning by "building and programming". Most of the studies were performed with a LEGO robot [7]. Another classification of possible robot application in education is given by Mubin et al., who list three classes for robots: tutors, peers

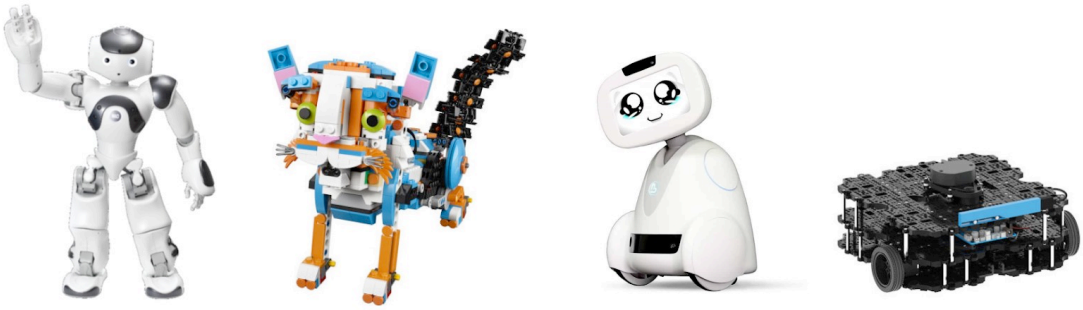
and tools. They further list language, science and technology as promising fields for the use of educational robots [8]. Using language as an example, a robot could function as a tutor and help the students remember vocabulary [9], as a peer detect whether a student pronounces a word correctly and encourage them [10], or as a tool play a game with the student in which it incorporates phrases from a nonnative language [11]. One of the advantages of robots comes in their various forms and abilities, which makes it possible to tailor robots for their specific use case. As demonstrated by Mukai et al., an electronic robot kit, in their case the Boebot multi-function kit, can be used to teach students principles of electronics [12]. Similarly, Riedo et al. show how the accelerometer of a mechanical Thymio robot can be used to demonstrate effects of gravity [13], while Carpin et al. use the kicking motion of a humanoid to teach students about physics [14].

Another possible use case for robots is to demonstrate principles of computer science. As shown by Magnenat et al. robots can be used in this field with great effect to teach the otherwise often abstract concept of event handling [15]. The effect of robots as a general tool to teach programming is also commonly tested and while the results are mixed [16,17] the robots were able to increase the motivation of the students [18].

It is also important to keep in mind how robots are perceived by students and teachers. A survey performed by Serholt et al. found that students generally respond positively towards robots in education as long as the robots are not able to grade their assignments [19]. Kim et al. looked at the effect of educational robots on the teachers. They found that after using robots in the classroom most teachers viewed them significantly more positive than before [20]. Different attitudes of students towards robots than towards humans can also be beneficial in some scenarios, e.g. in the case of special education of students on the autism spectrum. In such scenarios robots are often more easily accepted by students than other humans [21] and can serve as mediator between teacher and student [22].

Robot perception can also vary based on the design used. Fong et al. propose the use of four classes for robot design, depicted in Figure 1: anthropomorphic, zoomorphic, caricatured and functional [23]. Thereby, anthropomorphic robots have human-like designs, often accompanied by a humanoid form with a head, two legs and two arms. According to Duffy, this design is suited for scenarios with a social context, so that robots can use their similarity with humans to use non-verbal communication [24]. Zoomorphic robots, on the other hand, are designed to mimic non-human animals, both in optic and behavior. Caricatured robot designs are inspired either by human or non-human animals and exaggerate selected features of their appearance to focus on them, commonly mouths or eyes [3]. Lastly, functional robot design places more emphasis on the task that the robot needs to fulfill than their appearance. This often results in very technical designs, however, such design typically allows to look into the inner workings of a robot, as internal parts are often visible.

All in all, the literature shows a variety of use cases for robots in education, not unlike as it was with computers 50 years ago [25].



(a) (b) (c) (d)

Figure 1: Examples of different robot design classes: (a) an anthropomorphic NAO robot [26], (b) a zoomorphic LEGO BOOST robot [27], (c) a caricatured Buddy robot [28], (d) a functional Turtlebot Waffle robot [29].

Robot conceptions of primary school children

The aim of the first empirical study was to get a first insight into children's conceptions of robots. We conceived a questionnaire which was filled out by students in a laboratory of the university of Paderborn in the run-up to a robot workshop.

The questionnaire had the following structure:

- Which robots do you know?
- How old are you?
- Are you male or female?
- Imagine that you meet someone who does not know any robots. Please, explain to this person what a robot is, based on the following themes:
- What can a robot do?
- What are robots for?
- Can robots be controlled? If so, how? If not, why not?
- Can you teach a robot anything? If so, how? If not, why not?
- What does a robot look like? (drawings)

The evaluation was carried out using methods of qualitative content analysis and the Software MaxQda [30]. In the beginning, each question formed a category. During the analysis, we built up an inductive category system for each question.

In total 79 questionnaires (43 girls and 36 boys) of children between ages 7 and 10 with free-text responses were analyzed. The complete results of this part of the questionnaire and a complete interpretation can be found in [31].

The most frequently known robots are robotic lawn mower (32.9%), robotic vacuum cleaner (26.6%) and droids from Star Wars (17.7%). Regarding the question of what a robot can do, the most common answers of the children were movements (39.74%), housework (32.05%), helping (26.92%), and speaking (21.79%). They also thought that robots are there to help (46.15%), to work (32.05%), or to make something easier (23.08%).

In the second part of the questionnaire we wanted to get an insight into the technical understanding or technical perception of children regarding robots. The first question

here was: Can robots be controlled? Most of the children in our study thought that robots can be controlled (92.41%). The results regarding the question how robots can be controlled are particularly interesting. Here, most of the children mentioned remote control (60.8%). In addition, programming (27.8%) and by computer (19.0%) were mentioned in not inconsiderable numbers. Additionally, many children hold the opinion that we can teach a robot at least somethings (see Table 1), e.g. by programming.

Code	Percent
yes	77.22
No answer	6.33
Don't know	6.33
No	5.06
Unclear answer	3.8
Yes, but not everything	1.27

Table 1: Results for the question: Can you teach a robot anything?

The images of the study (see Figure 2) did not produce any unexpected results. Many pictures show robots with angular heads and bodies as often found in children's films, books, or with household robots. Some children also painted robots that resemble animals (zoological designs), humans (anthropomorphic designs) or specialized machines (functional designs). Most of the robots are a mixture of technology and living beings.

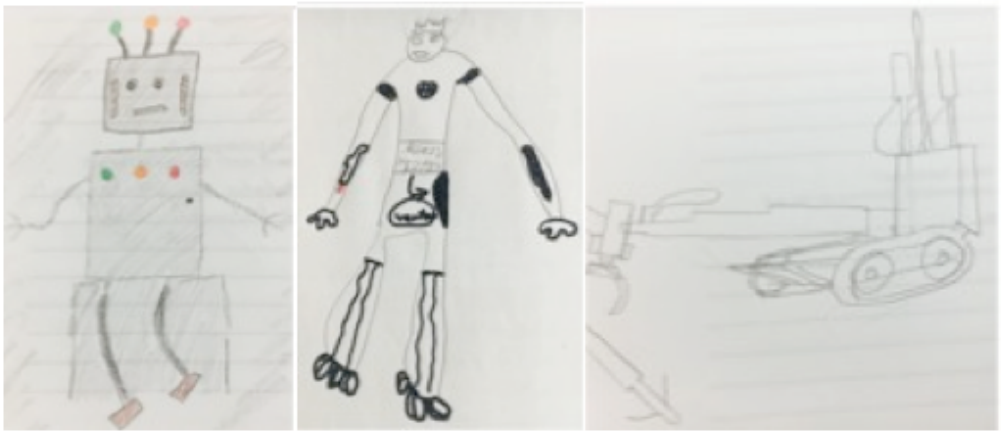


Figure 2: Example pictures, from left to right made by: girl, age 9, boy, age 10, boy, age 10.

The results were interpreted as children seeing robots more as helpers in our everyday life than something that replaces humans.

Many children of primary school age also realized that robots are controllable and adaptable. However, they could not explain much about the last aspect. The painted pictures of the children seemed to be very much influenced by general robot representations in movies, books etc. They allowed only very vague conclusions to be drawn about tangible ideas about robots. The complete results of the study can be found in [31].

In order to be able to compare the student's conceptions of robots with those of adults we performed a follow-up interview with members of the University of Bonn as well as an online survey. The interviews were set up within the framework of Grounded Theory [32]. The questions were based on a self-created interview guide and each took 6 to 12 minutes. During the execution, the interviews were recorded as audio recordings and evaluated at a later point in time. 8 participants were interviewed. All of them were members of the University of Bonn. The age of the participants ranged from ages 18 to 35. In the interviews the preferences of the participants regarding both the appearance and the behavior of household robots were queried. The results were the basis for the online survey with 247 adult participants of a cross section of the German population. The online survey primarily dealt with the question how service robots should be designed. For this purpose, the test subjects were asked about the behavior and appearance of a service robot. A detailed overview of this survey can be found in [33].

In the interviews as well as in the online survey participants explained that the optic of the robot was not as important as the efficiency, but, in the interviews, we found out that the optic is not irrelevant either. In both studies the participants preferred an anthropomorphic robot, human like but distinguishable from real humans. Models like Kuri, LEGO BOOST and NAO (see Figure 3) were most popular within the online survey.

Figure 3: Kuri robot [34], LEGO BOOST robot [35], and NAO robot [26].

In the interviews the participants had the chance to describe their ideal robots besides choosing one from given options. They described the ideal height of the robot to be between 50 and 70 cm. The robot should not be too small, so that they could accidentally step on it, but not too big either, so that it is not frightening. They also wanted a closed design for the robot without loose wires or sharp edges. Another important aspect was movement. The participants wanted the robot to move in such a way that the robot would not show up in front or behind them, so they would not be surprised by them. Most important for the interview participants was that the robot obeys its owner and does not act on its own accord. This suggest that the adults had a much more technical concepts of the robot than the students. Going even as far as specially demanding that the robot should be optical distinguishable from humans. In comparison the students see robots as a mix of technology and living beings.

Observations and evaluations of communication between students as part of a teaching unit on robots

To solidify the results of the previous study and examine the influence of robots on learning programming skills we designed and conducted a study in a computer

science course at a German high school in grade 6. The course had 22 participants between the ages 11 and 13 (all boys, except one girl) and was carried out by two teachers. The observed teaching unit about robotics and first steps into programming lasted 6 weeks with two teaching units per week. Most students had never programmed before. For this unit the school used the NXT-G from the LEGO EDUCATION series with the program LEGO MINDSTORMS EV3 [36] (see Figure 4).

Figure 4: LEGO MINDSTORMS NXT-G robot [36], LEGO MINDSTORMS EV3 sample program.

During the unit the course was split in small groups with 2 or 3 members that shared a robot. The groups were selected by the teachers. They sorted the students by their performance level. All programming was executed within these groups. In the teaching unit the time was split in frontal instructions about the constructions of the robot and explanations for the programming. In the small groups the students tried out programming by themselves. The programming exercises were not explained in the frontal instructions. Details to the study and results can be found in [37]. For our study we used 3 different approaches.

1) The questionnaire from the previous study at the beginning and end of the teaching unit.
2) Observation and audio recordings of the teaching unit.
3) Interviews with the students after the teaching unit.

1) The questionnaire based on our previous work (Chapter: Robot conceptions of primary school children) tested the student's point of view towards robots. We analyzed if the students humanized the robots or if they compared it to a machine. We also asked them to draw or describe their ideal robot. Both surveys were analyzed after the teaching unit. For the results we only considered the surveys from the 16 students who participated in both surveys.

2) Within the teaching unit, we studied the way students talked about robots and programming. We compared the differences in their conversation from the beginning of the teaching unit to the end. For clearer results we concentrated on 3 small groups for the observation. We chose one group the teachers identified as high performing students, one group with low performing students and one group of students in between.

3) In the end of the teaching unit we interviewed 6 students about their experiences in the teaching unit and their opinions on robots. We also tested their knowledge about programming and technical terms from robotics. For the interviews we chose the students from the small groups we closely observed in the teaching unit, and, additionally, one boy the teachers identified as low performing in the beginning with very good results within this teaching unit. The interviews occurred in a separate room, were recorded and afterwards translated into transcripts. Our results are based on those transcripts.

The observation of the teaching unit, the audio recordings, paper survey and interviews result in the following conclusions:
1) The student's view of the robot changed from pet to toy or tool during the teaching unit.
2) The students were able to use the LEGO MINDSTORM program but could not transfer their knowledge.
3) The children in this course preferred an anthropomorphic robot design. They wanted the robot to protect and to obey them.

1) The students' behavior and thoughts towards the robot changed proceeding the teaching unit. At first a lot of students thought the robot was alive and acted on its own will. Most of the students treated the robots like a pet. They decided to give them names, pet them and asked others to pet them, too. While testing a program the students did not understand why the robot failed the given tasks. Most students blamed the robot and not the program. Many students also thought that the robots had feelings like fear and anger.

In the later course of the teaching unit more and more students understood the controllability of the robot. They started to humanize the robot less. The petting stopped almost completely, and the names were used more rarely. Also, the association with human feelings decreased.

At the end of the teaching unit most students understood that robots are controlled by humans via programming. Therefore, the students started their search for mistakes in the program instead of the robot itself. The students with previous knowledge of programming were an exception. They did not change their behavior during the teaching unit. In the beginning of the teaching unit they already acted the way their classmates acted at the end.

2) At the end of the teaching unit the pupils understood how to use the LEGO MINDSTORMS program. Most students were able to program the majority of the given tasks. However, the students seemed to find it difficult to transfer what they had learned. Even at the very end of the teaching unit they were not able to explain the different technical terms. Most students were not sure how to explain the term ‘robot’. They used definitions, mostly compared to humans or computers. To explain the different parts of the robot (sensors and actuators) the students also used human body parts or described the visual appearance. The students hardly ever used the actual technical terms. Something similar was observed in regard to computer programming technical terms. The students usually used examples to explain the term ‘loop’ and were only rarely able to explain an algorithm. The terms ‘command’ and ‘branch’

were not understood at all by the students, although they were used in the context of the assignments.

3) The students were relatively unanimous about the wishes for their personal household robots in the results of the questionnaire. Before the teaching unit most students already wanted an anthropomorphic robot. They stated that the robot should be like a human and able to speak. 56,25% robot representations had two eyes, comparable to those of a human. But most robots used wheels instead of legs. The children also wanted the robot to be able to protect them. Therefore, the robot should be able to fight and use guns. In the results of the second paper survey the preferences towards an anthropomorphic robot were even more present. 75% of the children drew a robot with eyes like a human and most robots used legs instead of wheels. However, the students now wanted the robot to be able to do much more than a human. For example, they wanted the robot to fly or teleport. Regarding the behavior of the robot, the children only stated that the robot should help and obey its owner.

After school learning experience with two different robots

In a German high school, we planned and carried out a robotics course in the afternoon program. The course had 14 participants (all girls) between the ages 11 and 13. The girls chose freely to participate and were not graded. The students had no prior knowledge about robots or programming. The course had 7 lessons and one excursion in a span of 10 weeks.

Within the lessons the students worked with the NXT-G from the LEGO MINDSTOMS series and the associated program LEGO MINDSTORMS EV3 [35]. They worked mostly in small groups of 2 students. The groups were chosen by the students themselves. In the beginning of every lesson the students got a small introduction to the program and tasks to solve during the group project. At the end of the lessons the possible solutions were discussed. Within the teaching unit the students explored the basics of programming. They got to know the technical terms ‘command’, ‘loop’ and ‘branch’ and learned the use of parameters.

For the excursion, the course visited our Humanoid Robots Lab at the University of Bonn. We conducted a 70-minute lesson there with the NAO robot from Aldebaran Robotics and the program Choreograph [38] (see Figure 5). For this lesson the course was split into 3 groups. 2 Groups worked with an actual NAO robot and one group worked with a simulation. The NAO and simulation groups were changed halfway through the lesson. Within this lesson the students explored the remote control of the NAO, learned how to use commands, loops and branches in Choreograph and witnessed demonstrations of programs designed by computer science students of our department.

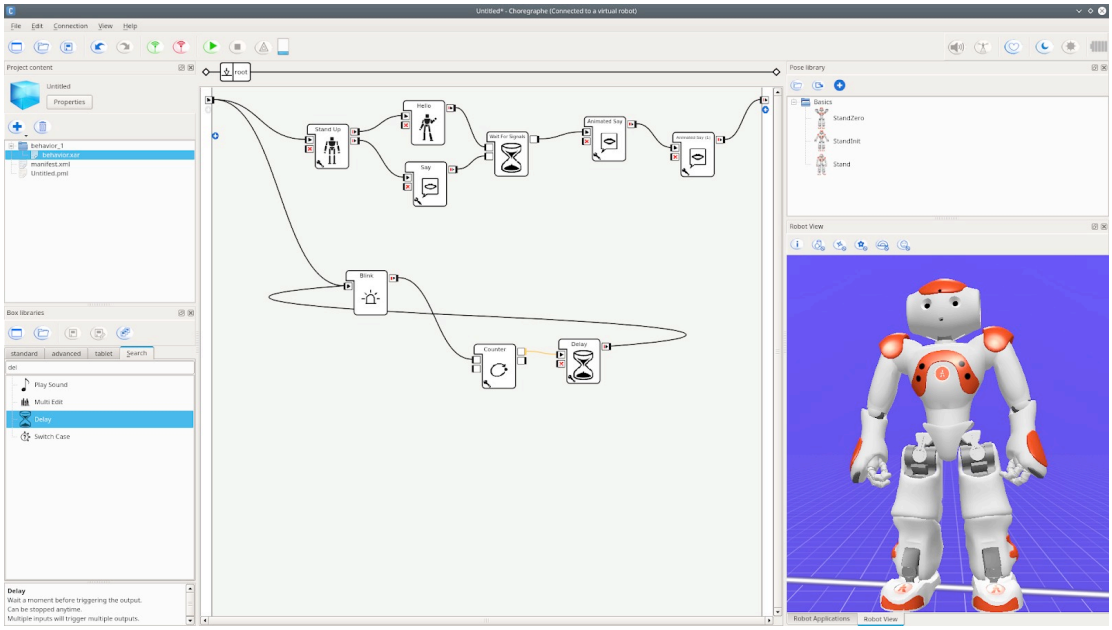


Figure 5: NAO robot [26], Choreograph sample program [38].

At the end of the course the students participated in a test to assess their performance on programming. They were tested on their knowledge in terms of the LEGO MINDSTORMS, the NAO and a hypothetical unknown robot. The details regarding the teaching unit and the test results are explained in [39].

11 of the 14 students participated in the test at the end of the teaching unit. The results are shown in Table 2.

As completely solved counted the answers with correctly programmed solutions for the tasks 1.1 to 2.3. For task 3 all completely explained algorithms counted as completely solved. Half solved answers and answers explained in words counted as partly solved. Therefore, unanswered questions and wrong programs counted as not solved. In the first part of the test it quickly became clear that the students relied heavily on the LEGO MINDSTORMS program EV3. Most of the students explicitly explained how they would proceed in the program and which programming modules they would use.

Task	Completely solved	Partly solved	Not solved
Task 1: Explain in your own words how you can get the Lego MINDSTORMS robot to perform the following actions:			
Task 1.1: drive a straight line	**72.73%**	27.27%	0%
Task 1.2: drive towards a wall and stop in front of it	**54.55%**	45.45%	0%

Task 1.3: reacting to noise with a sound	27.27%	**63.64%**	9.09%
Task 2: Explain in your own words how you can get the NAO robot to perform the following actions:			
Task 2.1: lift the right arm above their head	0%	**81.82%**	18.18%
Task 2.2: walk a straight line and dodge an obstacle	27.27%	**45.45%**	27.27%
Task 2.3: tell how often someone pushed their hand	9.09%	27.27%	**63.64%**
Task 3: Explain how you would proceed in the following task with an unknown robot:			
The robot should run up to a wall (this is always straight in front of it) and collect all battery packs on the way. If there is no battery pack in a field, it should put a screw there.	**54.55%**	27.27%	18.18%

Table 2: Results of the programming test at the end of the after-school teaching unit

For task 1.1 all students wanted to use the standard control block (the main control within the LEGO MINDSTORMS EV3 program). Six students explained how the parameters must be set on this programming module. This task was completely solved by 72.73% of the students.

In task 1.2, all students were aware that they needed a sensor. 63.64% referred directly to the ultrasonic sensor used in the teaching unit in connection with the programming module "Wait". 27.27% of the students suggested the use of an infrared sensor instead. 54.55% of the students described how the parameters of the various programming modules must be set for this task.

Task 1.3 shows that the students adapt themselves on the tasks from the teaching unit. 54.55% of them did use a noise sensor here in order to be able to record the ambient noise, even if not all pupils named the sensor as such. 54.55% students also want to use the “Wait” module again. It becomes clear here that the answers for this task were significantly more incomplete than for the previous tasks.

The second part of the test was about the NAO used in the excursion. For the first sub-task, it can be clearly seen that the students all described the remote control of the NAO from the program Choreograph. The students did not give any suggestions on how to solve the task with programming instead of the remote control. Therefore, no student solved this task completely.

In task 2.2, again 45.45% describe how the program was presented during the excursion and not how they would write such a program themselves. Only 27.27% of the students correctly suggested programming of this task by describing which type of programming modules they would use to solve it.

Task 2.3 was not completed by 27.27% of the students, the remaining students tried to explain that they would look at the given programming modules in Choreograph and then put them together. Only one student indicated a possible program, 27.27% others indicated which types of programming blocks they would need for the task.

In task 3 of the test, the computer programming of an unknown robot should be described. Here, the students' answers can be roughly divided into two groups. The first group described which actions the robot has to carry out in which order to be able to cope with the deposit that was given in the task. The other group described how the robot could follow any path according to the solutions described. Both groups of students would be able to solve this task with the appropriate set of programming modules, although the majority only used simple instructions, and only a small number of the students used control structures. These control structures were not named by any student. Overall, very few pupils described what kind of programming blocks they would need for their program. For example, only 2 students mentioned that they needed a sensor that would be able to detect the batteries and one student wanted to use something like the standard controls of LEGO MINDSTORMS EV3 to make the robot move straight ahead.

Conclusion

In the different studies with students and adults we discovered that their ideal designs for robots vary. The students wanted a robot looking and acting as human-like as possible. They also wanted the robot to be big and strong to be able to protect them. Some of the students even wanted the robot to use weapons. The adults on the other hand seemed more afraid of the idea of a big, very human-like robot. They preferred a smaller model between the size of 50 cm and 70 cm. But more important to them was that the robot could be distinguished from a human. They preferred anthropomorphic robot designs but wanted to have a hint that the robot was still a robot. The main difference between the students and adults seemed to be that the students were not afraid of robots, but wanted them to be their tool, while the adults were more afraid that the robot might think by itself. On one point, however, both groups agreed: they wanted the robot to obey its owner. This point was very important to the majority of the participants in all studies.

In both teaching units from our studies we observed grade progress from the students in the field of programming. At the end of the teaching units most of the students were able to program the NXT-Gs and solve at least some of the given tasks. Within the after-school course it was noticeable that the students were able to use their knowledge from the LEGO MINDSTORMS EV3 program and transfer it to the unknown program Choreograph.

However, in the interviews of the high school course and tests of the after-school course it became clear that the students were unable to explain their programs as

algorithms or use the proper technical terms for the basic programming ideas like loops or branches.

In the beginning of the courses the students considered their robots to be pets and gave them nicknames or petted them in the lessons. Later, this behavior changed. The students started to treat the robot more like a toy or a tool.

In summary, we conducted 3 studies to determine ideal robot designs for students and the influence of robots on programming teaching units. We found that there is a clear difference between the perception of robots in adults and young students. Also, contact with robots helps students to gain a sense of familiarity towards digital concepts. Students were able to transfer knowledge from the known robot to a new programming task. Thereby, robots generally had a positive influence on the learning experience of the students in our studies for their first steps in programming.

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A New Standard for Doing Agile Scrum Team Work in Education

Rob Loke, Amsterdam University of Applied Sciences, Netherlands

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Abstract
Scrum is increasingly becoming an essential product development methodology for project education in modern curricula, however, individually assessing students that work in scrum projects as applied in the professional work field remains extremely challenging until date. In scrum, students team up in order to deliver high-quality products in projects that are directed to real business stakeholders in order to enhance professional productivity and allow for flexibility to product requirements. Our new standard adds up to this methodology in three ways. First, we propose to represent the common language that is relevant to stakeholders, product owners and development teams in terms of epic, user story and task such that team members from different backgrounds learn to comprehend together. Second, we propose a two-stage task allocation approach in which, first, learning outcomes for a course that are set in education designs are preliminary mapped by the lecturer to abstract, state-of-the-art, tasks that are commonly relevant in the expert domain, and, then, concrete tasks for the project at hand are placed on project scrum boards by students during scrum sprint plannings in the course run. Third, we propose to assess scrum teams both at group and individual student level. For the individual grading, we define a novel concept of task balance that we consequently measure inside teams. With the aid of automated tools, the standard has been successfully applied and operationalised in various course runs of our multidisciplinary master where it has proven to be effective in assigning individual grades when needed.

Keywords: Scrum, Education, Team Work, Individual Grades, Task Balance

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Introduction

Imagine a world wherein education can take place outside education institutes in the real professional work field. Artificially created assignments for students by lecturers can be replaced by work that truly matters and that needs to be done and that pays off in the real world. Valuable human resources that are scarce in the labor market such as engineers and data scientists become earlier available to the work field. Scarcity in the labor market due to the foreseen demographic transformation in the Western society will be softened. Lifelong education initiatives will be tailored.

Scrum is an agile framework for developing, delivering, and sustaining complex products (Schwaber & Sutherland, 2017). It is flexible, fast, low cost and allows for agility for instance. In this paper we use the original scrum framework of Schwaber & Sutherland (2017) as a basis. This is the most applied framework in the professional work field.

Application of scrum in education has been hindered, because, in education, we often want individual grades, and, until now, this has not been possible. This is also the case for to education dedicated scrum frameworks such as eduscrum (eduscrum.nl). This ackward and unpleasant situation has now ended because with our newly developed standard that we define and build on top of the scrum framework of Schwaber & Sutherland (2017) it now becomes possible to effectively assign individual grades to students when needed.

In this paper we firstly describe the new standard that we have developed for doing scrum in education and secondly give requirements that are needed to work with our standard. Then we give empirical results of using the standard in several courses that we run and discuss and conclude our work.

Scrum teamwork

We apply scrum as it has been defined in scrum.org (Schwaber & Sutherland, 2017). In the text below we will assume that you are familiar with the terms that are defined in the booklet that you can find online from this reference.

A new standard in education

On top of the definition of scrum we define an additional new standard for education that is based on three conceptualisations:

1. a common language
2. a two-stage task allocation process that involves lecturers and students
3. task balance as a measure to enable individual grading

These concepts will now be described.

A common language

In the actual definition and implementation of a plan in scrum terms, a scrum/Kanban board as well as sprint planning with poker (scrum playing cards) play commonly an

important role for the planning of workloads within a team. The activity boards can be digitally implemented and operated with various tools such as Trello or Quip.

We represent the common language that is relevant to stakeholders, product owners and development teams in terms of epic, user story and task such that team members from different backgrounds learn to comprehend together and understand each other.

The representational hierarchy of workflow in terms of epic, user story and task is common in agile, see for example van Drongelen, Dennis, Garabedian, Gonzalez, & Krishnaswamy (2017) and Canty (2016).

For us this representation is beneficial in order to be able to define a common language in multidisciplinary teams: people from business are more likely to think in terms of epics and user stories and people from for example computer science in terms of tasks. Certainly, people that are familiar with modeling user stories and tasks on a Kanban board often feel that their board represents knowledge. Figure 1 shows an arbitrary example of epic, user story and task.

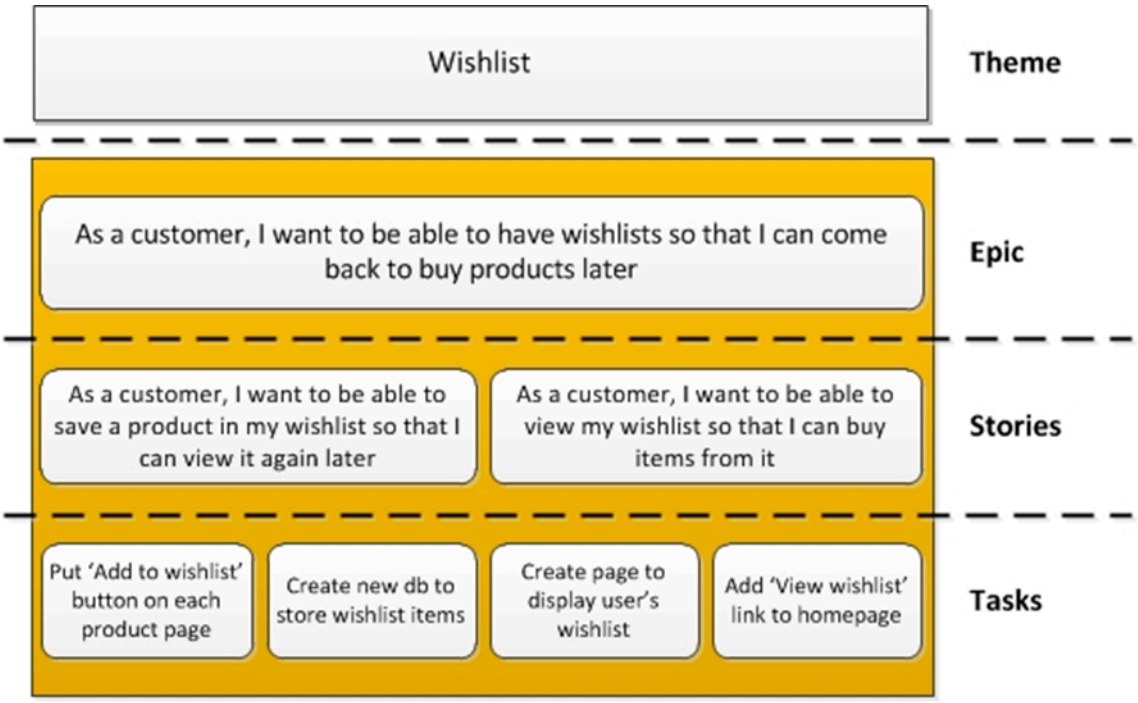

Figure 1: Decomposition of epic in user stories and tasks (copied from https://scrumandkanban.co.uk/theme-epic-story-task/).

Three example cases of epics in the expert domain of applied data science for business are given in the online presentation that accompanies this IAFOR ECE2020 paper that is available at https://vimeo.com/438418681. The epics being discussed and decomposed are:

(1) design a chatbot for a retailer
(2) develop a recommender system for company products
(3) engineer a company dashboard for corporate reputation

A two-stage task allocation process that involves lecturers and students

One-stage task allocation process:

Before defining the two-stage task allocation process we first define the one-stage task allocation process.

In the one-stage task allocation process:

- The stakeholder shares epic and, possibly, user stories in the beginning of the course.
- Students define concrete tasks and, possibly, user stories within their team.
- The lecturer standardises concrete tasks and classifies them into categories at the end of the course.

Sharing or not sharing user stories by the stakeholder in the beginning has an obvious effect on the perceived level of difficulty by the students.

Two-stage task allocation process:

In the two-stage task allocation process:

- The stakeholder shares epic (and user stories) in the beginning of the course.
- The lecturer shares abstract task categories in the beginning of the course.
- Students define concrete tasks (and user stories) within their team.
- The lecturer standardises concrete tasks at the end of the course.

Sharing abstract task categories by the lecturer in the beginning can be done in various ways, e.g., by role-playing the role of product owner who lists product requirements and features, or by listing task categories of common tasks, in readers that are preliminary available to students.

Task balance within a team

The novel concept of task balance within a team enables individual grading---besides already applicable team grading.

The idea is that the lecturer first standardises tasks according to agreed focus and relevancy at the end of the course and then counts the standardised tasks done by each team member.

Figure 2 gives an example of a reasonably balanced team. The interpretation, by the lecturer, of the purple task, is key. If that task is much more complex than a blue task, the team will be balanced. If not, the team will be unbalanced.

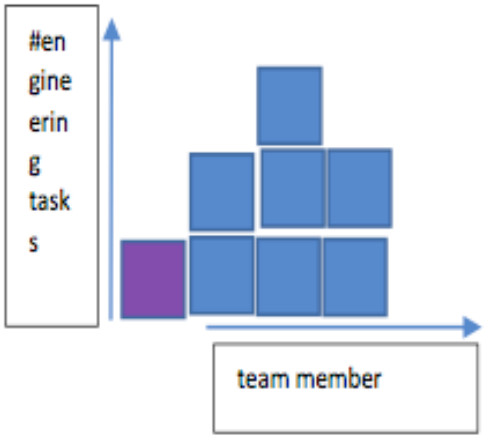

Figure 2: Example of a reasonably balanced team that requires additional interpretation by the lecturer.

Figure 3 gives an example of an unbalanced team, no matter the interpretation of the purple task.

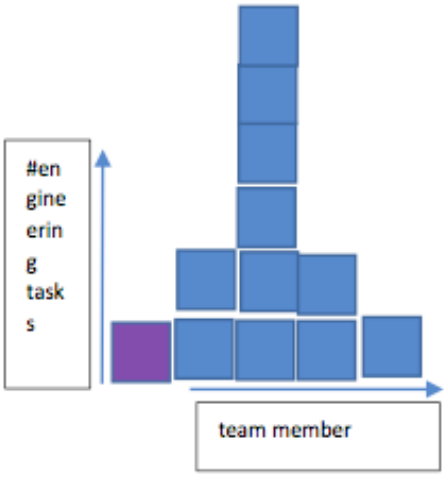

Figure 3: Example of an unbalanced team.

We now define a first, basic measure for task (un)balance:

b = max number of tasks done by a student in the team / min number of tasks done by a student in the team

b_{min} : value under which no individual grades need to be assigned in a team

In this paper we use b_{min}=1.5.

Requirements

We now list some requirements that you will need to take care of when you work with our new standard for scrum in education.

Automated team formation

Divide the students in teams based on background. Optimise for maximum overall diversity summed over groups. The reason is that under the assumption that teams are well managed scrum works best in mixed teams.

We do automated team formation with computational algorithms. Goals are to optimise for mixed teams and to do randomization. Individual student parameters steer the algorithms to automatically form teams. One possible algorithm to do this is the one of Gallego, Laguna, Martí, & Duarte (2013). The input parameters to the algorithm that we consider for the results presented in this paper are:

- Age
- Gender
- Nationality
- Name of bachelor degree obtained
- Bachelor degree type obtained: {BA, BS, BFA, BAS}
- Institute name where bachelor degree has been obtained
- Number of years of relevant professional experience

The output parameters of the algorithm are team number per student.

Clearly define roles for lecturer and students and manage expectations

Clear definition of roles for lecturer and students and expectation management is important.

There are different topologies of doing scrum team work in education at play:

- Set 1 of roles: stakeholder, product owner, developer in development team
- Set 2 of roles: student, lecturer
- Set 3 of roles: scrum master

Be conscious of your role!

Automated tools and derived forms

Use automated tools and derived forms when possible.

Possible choices for automated tools are Slack for general team communication, Trello for scrumboard and related communication, and Github for (programming) task implementation and related communication.

One team grading form per team for explicit registration by students of student tasks is needed at the end of the course for the lecturer to standardise committed student tasks. This form can be streamed by the students themselves from their scrumboard. A possible choice for a digital tool that comes in handy here is for instance google docs.

Empirical results

We now give empirical results that were obtained with the standard in two different courses. Table 1 lists the different course runs with parameters for implementation of the standard (columns 2, 3 and 4) and grading results (columns 5 and 6).

Course run (3week)	Common language used	Task allocation process	Task balance computed	Group grades	Individual refinement of grades within group
Online data mining---dataset	Yes	One stage	No	Yes	No
Database management for business---design	Yes	Two stage	No	Yes	No
Database management for business---system	Yes	Two stage	Yes	Yes	Yes

Table 1: Multidisciplinary Master (1yr) Digital Driven Business @ Amsterdam University of Applied Sciences---2019-2020, 1st run of two courses with three deliverable products and class of 26 students.

Below, we proceed with giving separate results for each effective variant of the standard.

One-stage task allocation without task balance computed

This variant is most appropriate for experienced classes. Categorization and standardization of tasks by the lecturer is done at the end of the course. This variant results in relative team grades that are based upon relevant tasks that have been accomplished in the delivered product to the stakeholder. See Table 2.

provision of categories by lecturer afterwards	standardisation of tasks by lecturer afterwards	team					
task category/engineering requirement	standardized task/feature	1	2	3	4	5	6
data cleaning	normalize-space		x				x
	re	x					
	other				x		
data selector	xpath		x	x	x		x
	css	x	x	x		x	x
dataset	#variables	14	13	36	16	5	14
	..						1
	full text	x	x	x	x		x
engineered proxy solution	luminati	x		x	x	x	x
	..		x	x			
applied framework for dynamic web content	selenium				x		x
	splash						
data scraping	..				x	x	x
	scraped variables in listing page			x		x	
	scraped anchors to detail pages	x	x	x	x		x
	scraped anchor to next page	x	x	x	x		x
	scraped variables in detail pages	x	x	x	x		x
	..	x					
relative team grade		9	9	10	10	8	9

Table 2: Expert variant of standard without individual grades.

Two-stage task allocation without task balance computed

This variant is most appropriate for unexperienced classes. Categorization of tasks by the lecturer is done at the start of the course and standardization of tasks by the lecturer at the end. This variant results in relative team grades that are based upon

relevant tasks that have been accomplished in the delivered product to the stakeholder. See Table 3.

provision of categories by lecturer beforehand	standardisation of tasks by lecturer afterwards	team					
		1	2	3	4	5	6
task category/engineering requirement	standardized task/feature						
entity relationship (ER) diagram	completeness of design	x	x	x	x	x	x
	simplicity of design	x	x	x	x		x
	notation specified	x		x	x		x
	..	x	x				
	..	x	x		x		x
	..	x		x	x		
	addresses spatial resolution	x	x			x	x
relative team grade		10	8	8	9	5	8

Table 3: Rookie variant of standard without individual grades.

Two-stage task allocation with task balance computed

This variant is most appropriate for unexperienced classes. Categorization of tasks by the lecturer is done at the start of the course and standardization of tasks by the lecturer at the end. This variant firstly results in relative team grades that are based upon relevant tasks that have been accomplished in the delivered product to the stakeholder. The relative team grades obtained form a plafond for all individual team members in all teams.

This variant secondly results in individual grades within teams that are derived from the within-team computed task balances.

All individuals in a team are checked by the lecturer in the sense that individually delivered tasks relate to a minimum of required content that is needed to pass the course.
See Table 4 for the obtained results.

provision of categories by lecturer beforehand	standardisation of tasks by lecturer afterwards	team					
		1	2	3	4	5	6
task category/engineering requirement	standardized task/feature						
build web application	..		x				
	setup data analysis framework	x	x	x	x	x	x
	include graphics		x				x
	..		x				
build wrapper	setup wrapper	x	x	x	x	x	x
	..	x					
	..	x		x	x	x	x
develop sql queries	sql query 1	x	x	x	x	x	x
	sql query 2	x	x	x	x	x	x
	sql query 3	x	x	x	x	x	x
	sql query 4	x	x	x	x	x	x
	sql query 5	x	x	x	x	x	x
	sql query 6	x	x	x	x	x	x
	sql query extra			x	x	x	
	save query result		x			x	
	specify data types	x		x	x	x	x
enable spatial analysis	featured high spatial resolution			x			
other categories related to developed user stories	*other tasks related to developed user stories*						
scrum parameters computed and observed	task balance in team	3/1 3	5/1 5	11/8 1.4	3/1 3	4.3/0.5 8.6	3.8/0 ?
	#sprints effectively carried out	3	3	3	2	3	3
relative team grade		8	9	10	9	9	9
individual team-member grades within team		7-8	7-9	10	7-9	5-9	5-9

Table 4: Rookie variant of standard with individual grades.

Discussion and recommendations

The new standard has been successfully applied in the specific expert domain of our master. The task balance that has been computed within a team allows to individually grade team members, in a natural way. The structured processes of one- and two-stage task allocation have allowed lecturers and students to register relevant tasks, at a varying level of perceived difficulty. The mental map of workload that is a result of the common language has proven to be insightful to students during product development. The provision of explicit product requirements and the implicit abstraction of tasks into categories has proven to be insightful as well.

Recommendations

Introducing scrum into your organization is not trivial. Introducing scrum as a learning paradigm is not trivial either and it takes time for lecturers and students to get familiar with it (as is the case in starting with scrum in the real work field as well). Start with two-stage task allocation for unexperienced classes and proceed to one-stage task allocation for experienced classes. Stage 1 in two-stage task allocation thrives from abstract to concrete, emphasizing the crucial role of the product owner, immediately before and at the start of the sprint planning, to define explicit product requirements, in order to decrease the level of perceived difficulty. Compute task balance within a team whenever you want to allocate individual grades.

It would be interesting to see application of our standard in the education community. The standard can be applied to other expert domains, in other university studies, by other universities and education institutes, in other countries and in other languages. When you apply our new standard in your own work, please refer to this paper and our accompanying IAFOR ECE2020 presentation.

Conclusion

We promote a symbiotic world where education can take place with scrum directly in the professional work field. With this aim in mind we presented in this paper a new standard for doing scrum team work that was successfully applied in different courses to obtain grades for individual scrum team members. AFAIK, the first time ever.

Acknowledgements

First of all, all students in the 2019-2020 MSc master class of the multidisciplinary Master Digital Driven Business @ Amsterdam University of Applied Sciences for doing scrum team work with us. All colleagues @ Amsterdam University of Applied Sciences, in particular, Maartje Prevosth for discussing initial course run parameters with me. Martijn Zoet for providing initial feedback during the accreditation of our master program. Last but not least, all colleagues @ CMIHvA, Center for Market Insights, in particular, Riccardo Pinosio for running courses together with us and Frederik Situmeang for setting up courses together with me.

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Organizational Culture as a University Transformation Indicator: Russian Case

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Abstract
Since 2013, fifteen Russian universities have been participating in the "5-100" excellence program through which every university should achieve certain performance indicators by 2020, including the proportion of attracted foreign students, the certain proportion of foreign professors, quality of publications, academic mobility and internationalization of the university and others. Complex of managerial tools allowed Tomsk state university (Russia, Siberia) to rose from 586 to 268 place in 5 years, demonstrating the fastest growth in the world university ranking (THE, QS, ARWU). One of such tools is the analytical support of the organizational culture transformation which is difficult to overestimate. In the situation of limited financial resources and the incomparability of the budgets of foreign universities and the local Siberian University, the main growth tool in the ratings is a bet on the human potential of a university person. It is the university person who will have to make the main changes, and that is why the main block of tools deals with conditions for university personnel: open discussions with administrators about values, creating Code of Ethics, shared governance model, best practices competition, international services development etc. The annual diagnosis of organizational culture (2013-2020), carried out by quantitative, qualitative and phenomenological methods, shows the dynamics and allows to develop professional recommendations. Diagnostic results are in demand by university management, the international university management council, and are discussed at international conferences as a phenomenon of rapid growth in world rankings.

Keywords: Organizational Culture, University Transformation Indicator

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Introduction

The desire to adapt educational organizations to new global challenges and trends and ensure their competitiveness at the national and international levels has forced Russia to establish academic excellence initiative as the main state program to develop the international competitiveness of Russian universities.

Since 2013, fifteen Russian universities have been participating in the "5-100" excellence program through which every university should achieve certain performance indicators by 2020, including the proportion of attracted international students, the certain proportion of international professors, quality of publications, academic mobility and internationalization of the university and others. This program offers government financial and managerial aid to promote individual universities academic excellence and global competitiveness at the rate of the world's best universities. One of the most important political issues in the field of higher education is the implementation of 5–100 Project and the evaluation of its results, as a significant amount of money is invested in a relatively small share of state universities (Agasisti et al., 2018[1]).

In our study, we collect information about the leaders-universities of the "5-100" program, and in our article we will focus in detail on the case of one university as a symbol of informal leadership in the "5-100" program: non-capital, the last imperial university, an example of classical education, in the ranking of universities since Soviet times was always located immediately after Moscow and St. Petersburg universities. Complex of managerial tools allowed Tomsk state university (Russia, Siberia) to rose from 586 to 250 place in 5 years, demonstrating the fastest growth in the world university ranking among Russian universities (THE, QS, ARWU). One of such tools is the analytical support of the organizational culture transformation which is difficult to overestimate.

Organizational culture is "an integral complex of worldview axioms, values, signs, interrelated and hierarchically structured, common to most employees of the organization"[2]. From the very first days Tomsk state university was formed as a research university of the classical type, organically combining natural science, socio-humanitarian, physics and mathematics and engineering education and does not focus on several priority areas. It was based on the German model of the Humboldt University. This model is based on the idea of a university as a temple of science and culture, whose mission is the development of a nation state, therefore, research in such a university is usually focused on national and regional interests.

What distinguished the last Emperor Classical University during the 5-100 program? It were open discussions of the university administration with the university

[1] Agasisti, T., Shibanova, E., Platonova, D., & Lisyutkin, M. (2018). The Russian Excellence Initiative For Higher Education: An Econometric Evaluation Of Short-Term Results. IDEAS Working Paper Series from RePEc. Retrieved from http://search.proquest.com/docview/2189124419/

[2] Schein Edgar, H. (1985), "Organizational culture and Leadership", available at: http://www.untagsmd.ac.id/files/Perpustakaan_Digital_2/ORGANIZATIONAL %20CULTURE%20Organizational%20Culture%20and%20Le adership,%203rd%20Edition.pdf (accessed 1 March 2020).

community about the difficulties give a special meaning and explanation of the declared university corporate culture changes; recall the positive image of the future, so called “World-class University”; reminds of the history, culture and values; show positive examples; set "standards of excellence" and reflection on the University’ uniqueness, it was an anthropological phenomenon in the center of the approach. That is why our research question has anthropological aspect: how changes in university organizational culture influenced on the three main group of the university community?

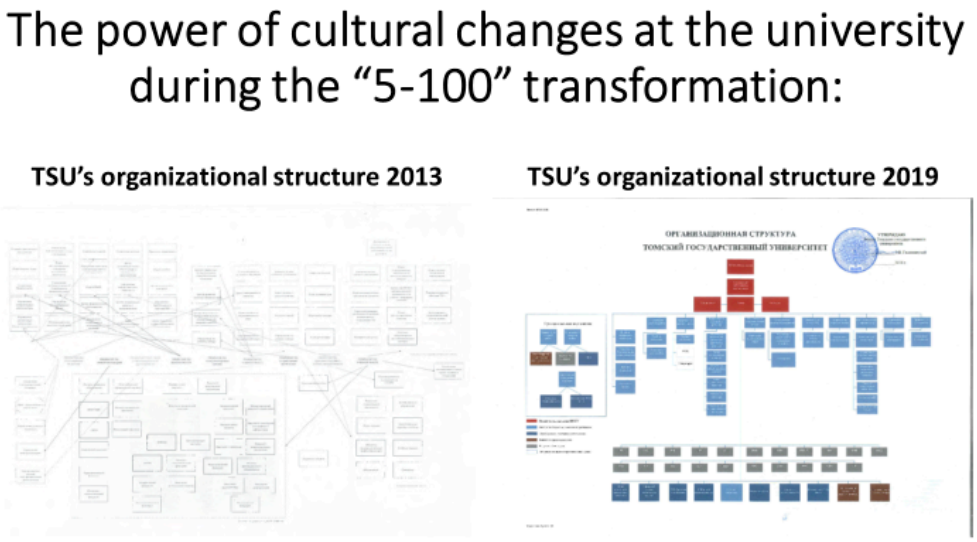

Figure 1: Comparative analysis of the organizational structures of Tomsk state university in 2013 and in 2019.

Before the “5-100” program: challenges

Russian higher education system is one of the world's largest. More than 4.4 million students studied with 480 satellites and 266 private universities with 171 satellites at 502 state universities (2017). These universities, however, operate with relatively high financial constraints because only about 1.61% of government spending goes to higher education: 44% of them come from non-state resources and 53% from the federal budget[3] (Agasisti, Shibanova, Platonova, & Lisyutkin, 2018). Thus, the education sector is facing financial constraints.

The strongest sides of TSU are research and academic reputation is one of the strongest areas, regardless of the historical period of Tomsk State University: historically it was the last imperial university, whose professors were represented by the names of world-famous scientists.

[3] Agasisti, T., Shibanova, E., Platonova, D., & Lisyutkin, M. (2018). The Russian Excellence Initiative For Higher Education: An Econometric Evaluation Of Short-Term Results. IDEAS Working Paper Series from RePEc. Retrieved from http://search.proquest.com/docview/2189124419/

The weaknesses are: universities in Russia are highly fragmented organizations, they have conflicting ideas about how "ought to be done", decision-making is often bottom-heavy, even where deans and presidents are imbued with a high degree of formal authority; old diploma' system of distribution; lack of uniqueness, which allows attracting the best professors; inefficiency of efforts to attract talented applicants in the specialties of the leading scientific schools of TSU; low attractiveness to graduates going to science; the lack of flexibility and flexibility to adapt to the demands of the external environment.

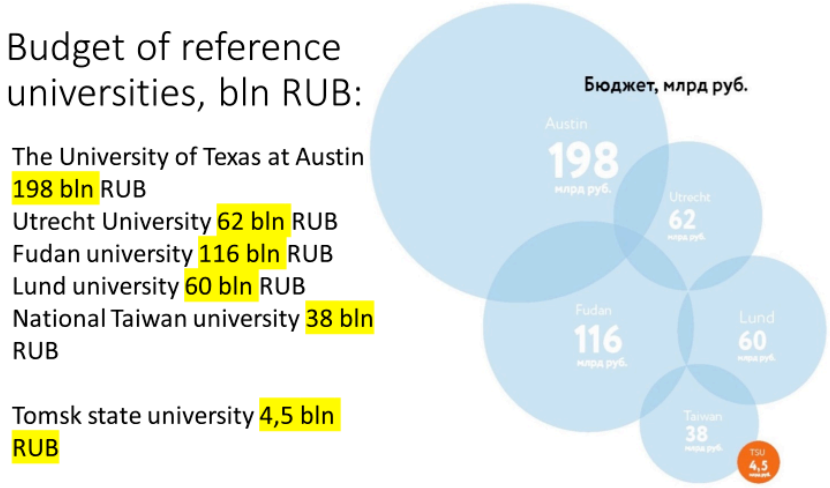

Figure 2: Comparative analyses of the reference universities budgets including TSU.

For example, budgets of National Research Tomsk state university is 0.077 bln dollars (4,5 bln RUB), budgets of reference universities are many times more: Taiwan university's budget is 0.655 bln dollars (38 bln RUB), Lund University's budget is 1,03 bln dollars (60 bln RUB), Fudan univerity's budget is 2 bln dollars (116 bln RUB), University of Utrecht's budget is 1.068 bln dollars (62 bln RUB),University of Austin budget is 3.413 bln dollars (198 bln RUB).

Consequently, the main hypothesis of our article is that even in the absence of referential funding, a provincial university with a strong history of the imperial university, excellent academic reputation, accumulated during the years of the Soviet Union and the first years of the emergence of a new country of the Russian Federation, in the context of the struggle for resources and competition with world class universities was able to create managerial conditions that ensured growth in world ratings of higher education.

According to critical analysis of the current state of higher education and scientific research and showed that leading Russian institutions did not succeed in world ratings[4]. A. Smolentseva mentioned: low rating of integration into the global educational space indicated the internal problems of Russian education; Russia's modern education system has not completely departed from the old system, as the complete modernization of higher education in accordance with international standards requires tremendous resources and time. N. Sabitova wrote: "The language

[4] Smolentseva, A. (2015). In Search of World-Class Universities: The Case of Russia. *International Higher Education*, (58). https://doi.org/10.6017/ihe.2010.58.8476.

barrier, university autonomy, and approaches to assessing the quality of education have shown that for many years Russian educational policy was aimed at increasing competitiveness mainly in the field of domestic education and not to the international perspective"[5]. Furthermore, by Gurban and Tarasyev[6] (2016) it was noted that the weak orientation of the education system towards the real needs of the national economy led to an imbalance in the structure of the labor market needs of graduates of educational institutions.

Focus groups (2013-2015, mixed groups with leaders from three groups of the university community (administrators, teachers and students) showed: ineffective university management system with concentration of powers on the distribution of resources and finances in one hand, which does not allow implementing initiatives at a lower level of management; excessive bureaucratization of university management structures; non-transparency of the system of distribution and coordination of powers, responsibility of units; lack of structural units to solve the key tasks of the university; high motivation to improve their activities and educational process at the university; desire to improve qualifications and improve the educational process.

Now, Russian Federation in the world ranking QS 2021 is represented by 32 higher educational institutions. TSU among them in fourth place, in the top three - Moscow State University, St. Petersburg State University and NSU. For 8 years, Tomsk state university has shown positive dynamics in rankings. TSU entered the 21% of the strongest universities in the world. The university showed a noticeable growth (by 18 points) in the share of foreign students, becoming 95th in the world, as well as in academic reputation (growth by 23 points). The last indicator has the largest weight and accounts for 40% of the total university score. In terms of the ratio between the number of academic staff and the number of students, TSU takes 29th place among the universities of the world. In general, the position of TSU has become higher by 18 points.

[5] Sabitova, N. M. (2014). Current Issues of Financial Education in Russia. Procedia - Social and Behavioral Sciences, 152(C), 911–915. https://doi.org/10.1016/j.sbspro.2014.09.342.

[6] Gurban, I., & Tarasyev, J., A. (2016). Global trends in education: Russia case study. IFAC PapersOnLine, 49(6), 186–193. https://doi.org/10.1016/j.ifacol.2016.07.175

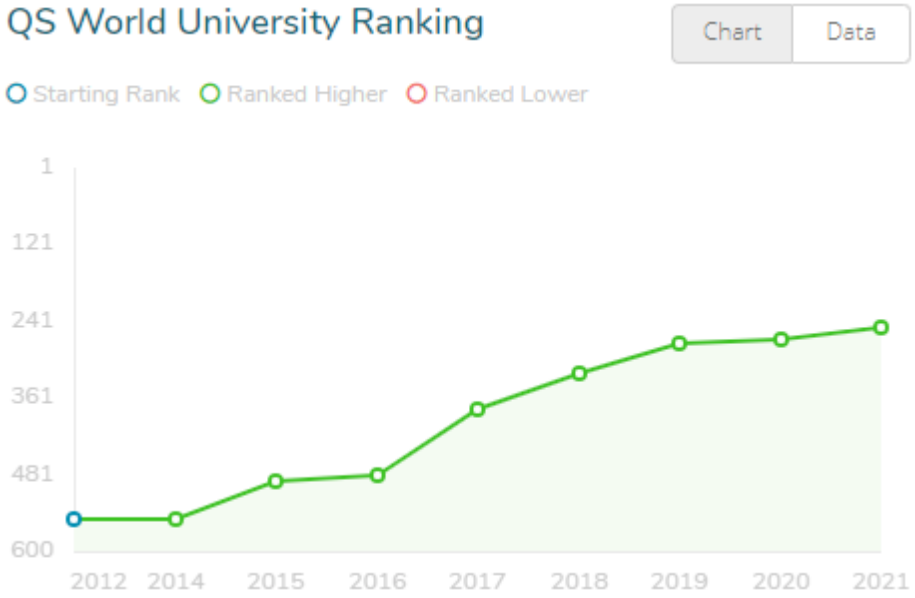

Figure 3: Tomsk state university in QS World University Rankings 2021.

Methods

The configuration of the university's organizational culture was measured by the combination of qualitative and quantitative sociological methods. Based on the data of these methods, the problem configuration field was formulated. On its base the recommendations are developed. Thus, the main task is to identify the organizational culture configuration which is the indicator of transformations. Since 2013 -2020 every year, Tomsk state university has been conducting the corporate culture configuration diagnosis, the results of which are discussed at an international conference HR-trend (2014-2020) with the participation of the rector and the office of strategic management. On the basis of an analytical note on the configuration of corporate culture, related to changes in the culture of the university management decisions are made. The three main groups of the university community (administrators \ managers, professors and students, n = 210, 10% of the total number of all recipients) are surveyed annually using three methods of collecting information. Methods are:

(1) Qualitative projective self-diagnostics organizational method "Metaphor" developed by A. Prigozhin from Israeli-Russian business school[7] allows to see the general idea of employees about the functioning of the organization: its values, vision of the future, openness / closeness of the organization, degree of anthropocentricity, degree of customer focus, vision partners and competitors, awareness of the uniqueness of the university. The "Metaphor" self-diagnostic method clearly demonstrates corporate culture gaps. In this case specialists can talk about three main issues: "Does the organization have its own strategy?", "What is the situation with innovations?", "Does the organization develop?". The annual diagnostics give an objective cut of the main value-semantic fields that university lives in. One of the

[7] Prigozhin A. I. (2003) Methods of organization development, available at: http://portal-u.ru/glava-3-metodyupravlencheskoj-diagnostiki/3-1-metody-provedeniyasamodiagnostiki (accessed 8 January 2020).

undeniable advantages of the "Metaphor" method is its ability to see the layer of basic values of the organizational corporate culture according to the E. Schein (E. Schein, 1985) conception.

(2) Quantitative and qualitative method OCAI by K. Kameron and R. Quinn[8] allows to see the correlation between competing values. K. Cameron and R. Quinn identified 39 indicators that define a complete set of measures of organizational effectiveness. Each indicator was subjected to statistical analysis, which made it possible to identify two main dimensions (horizontally and vertically). Both dimensions form four quadrants, corresponding to their ideas of efficiency, values, leadership styles, and form their own culture: hierarchical / bureaucratic, clan, adhocratic, market.

(3) Qualitative method of mixed focus groups with representatives of the university community allows to clarify the obtained qualitative and quantitative data and to get more detailed and deep reflections on the university corporate culture changes. Participants of the focus groups are the informal leaders of faculties and the staff who did not show interest in the transformation processes. The combination of these two groups gives the objective information. In addition, the survey participants change every year. This article provides materials and data for 2014-2016 as the most vividly demonstrating dramatic changes in the entire quadrant of the corporate culture configuration: the time to get used to constant changes.

Results

"Metaphor" Method

Figure 4: Metaphor method, TSU, all groups of the university community, 2020.

Thus, the majority of pictures on 2013 were devoted to the massive closed main university building without people. In such cases, it should be noted: "No dynamics." Why is everything so static? Is the organization not developing? Does the organization have a strategy? What about innovations?"

[8] Cameron, K. and Quinn, R. (2001), "Diagnosis of organizational culture changes", St. Petersburg, 320p. 41-42 pp.

In contrast the pictures of further years and 2020 have people. 2020 pictures show us another interesting metaphor: the metaphor of a soap bubble that is about to burst, but is still being darned, patched in the hope that it will not burst. For when it bursts, only the main building of the university will remain (administrator's picture). Students' pictures values, mission and goals declared by the university were embodied in 2015-2020 and were successfully supported in the drawings of students (integrity of parts as a system, wards in English, the planet and holding hands of all nationalities and races of the Earth) and professors in the 2013-2020 drawings (Figure 4). It can be said that the values declared by the university first appeared in the drawings of students, and only after that they can be noticed then appeared in the drawings of professors. Based on the diagnosis, it can be concluded that members of the university community are superficial to the process of changes, "do not see" them, do not identify the main strategic tasks of the university development in a large flow of information, and do not associate the ongoing changes at the university with themselves.

OCAI Method: results

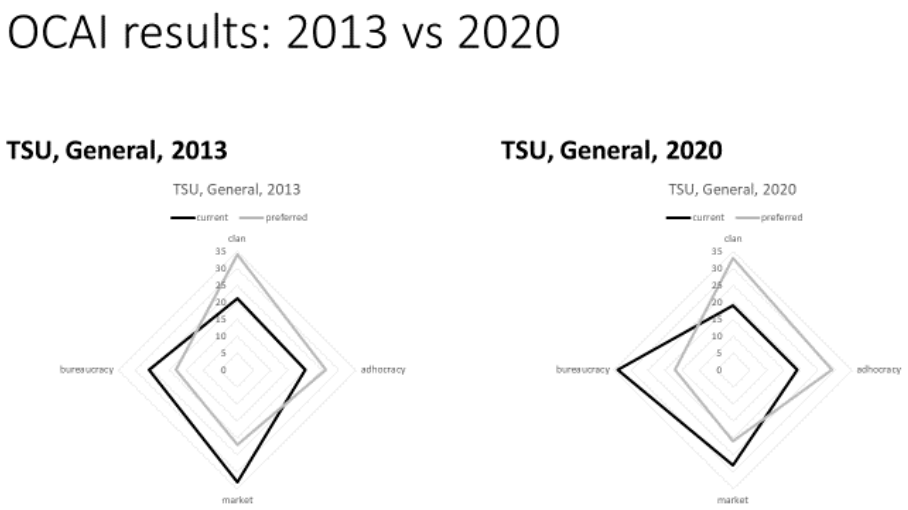

Figure 5: Comparative analysis of the configuration of the organizational culture of TSU in 2013 and in 2020.

The diagnosis of TSU (2013) represents a stretch between conflicting clan and market cultures, which translates into a university discourse: the use of the meanings and semantics of teamwork, the joint achievement of a common goal, and in fact, the strict implementation of primarily "market" indicators of a world-class university. At the same time, the university's culture reads the leadership's orientation toward the strict fulfillment of the goals set and achievement of the planned results. And a "humane" strategy was chosen for the staff: maximum staff involvement and minimum number of cuts. This ambivalent position proved itself in the results of the analysis of university discourse.

The dominant profile of organizational culture, both in the opinion of students and in the opinion of employees, is a clan-adhocratic one. At the same time, the dynamics over the year showed a shift in estimates towards the bureaucratic profile of the

organizational culture as existing, while maintaining the clan-adhocratic profile as the preferred one. This means that employees are oriented at TSU as an organization with a creative atmosphere, with the possibility of flexible professional tasks and ways to solve them, combined with a desire for cohesion, complicity and a collective sense of how we are.

The clan culture (Figure 6) for seven years of diagnosis remains the leader among the faculty and students as desired. The largest gap between the desired clan culture rating and its real level was observed in 2016 and 2018. It should be noted that the clan type of culture is the second most important among the AUP, and in the last 3 years it has become the third most important, which means conflict with the main groups of the university community.

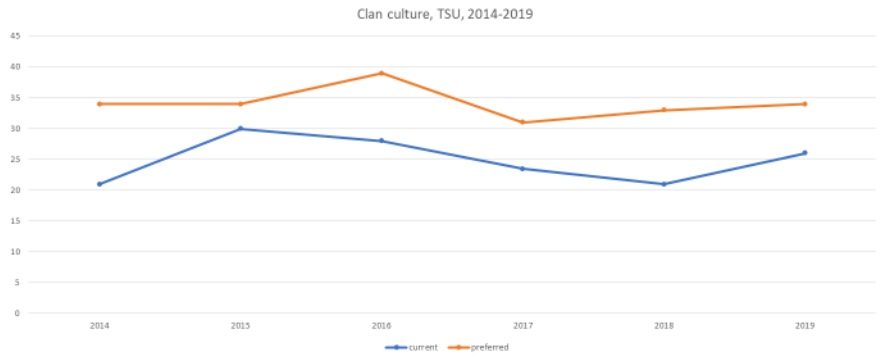

Figure 6: The dynamics of the leading clan culture development (2014-2019).

The market culture (Figure 7), which is the opposite of the clan culture, for six years of diagnosis demonstrates the consistently highest rating of the desired culture among the administrators. It is noteworthy that it was in 2017 in the general chart of the university that the desired and real market culture rating almost coincided, which coincides, in turn, with the university's largest breakthrough in the global QS ranking.

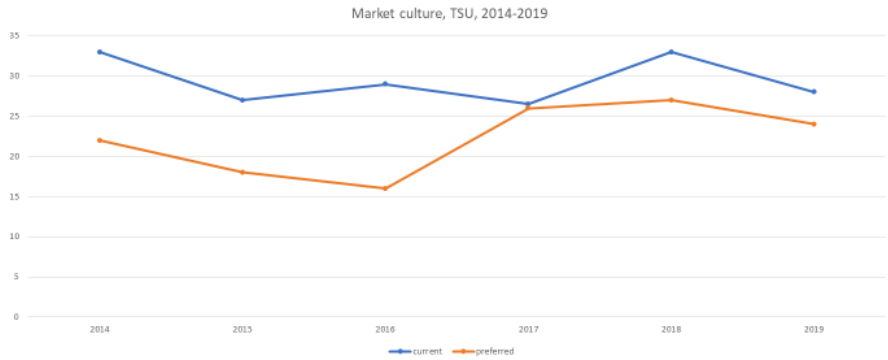

Figure 7: The dynamics of the market culture development (2014-2019).

The culture of adhocracy (Figure 8), which all three groups of the university community make a bet on, is the second dominant, "subconscious" culture of the university, which everyone aspires to, but in reality, the dominant adhocracy is characteristic of universities with a market culture accepted by all categories of the university community.

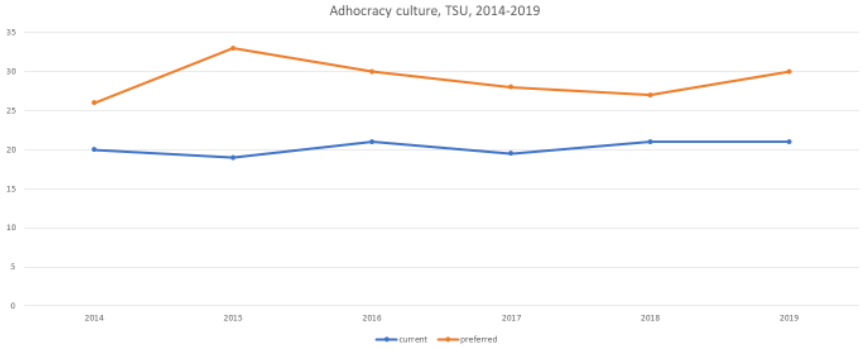

Figure 8: The dynamics of the adhocracy culture development (2014-2019).

The culture of bureaucracy (Figure 9) is an anti-leader 2014-2019. The highest peak of joint "hatred" of all categories of the university community falls on 2017, when the conflict gap was on the verge of 29 points.

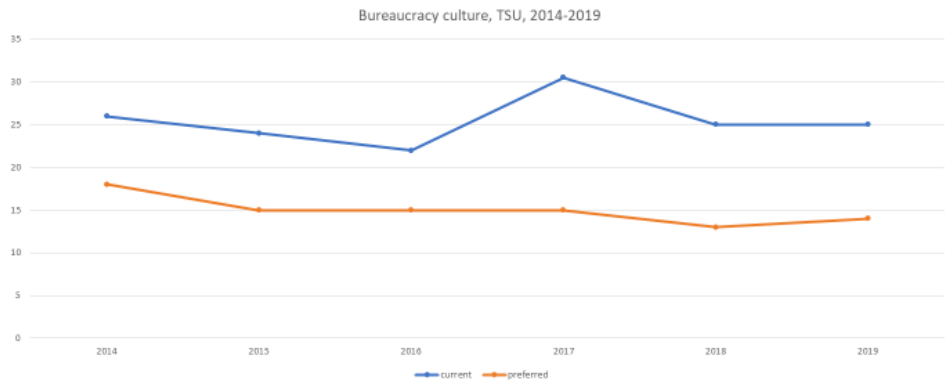

Figure 9: The dynamics of the bureaucracy culture development (2014-2019).

Thus, the leading "gap" in the TSU's organizational culture is excessive bureaucracy, a lack of measures to strengthen the clan culture and culture of adhocracy. As recommendations, the following activities are proposed in the logic of the school of K. Cameron and R. Quinn.

- Redesign of the rapid response system: checking the time between the request and the actual response.
- Implementing an assessment system in which feedback from teachers and students will influence immediate contact.
- Consider the feasibility of using technology that will reduce paperwork.
- Increase the volume of information storage to maintain information flow in the system, especially during periods of high voltage.
- Make an assessment of disruptions. Develop crisis prevention plans.
- The opportunity to communicate on an ongoing basis, where representatives of all categories of the university community could discuss the current agenda: open discussion platforms.
- Introduce 360-degree assessments of department heads from their subordinates, analyze the data and make a plan to improve managers' performance.
- Design a career development program that emphasizes mobility.
- Establish an employee survey program to make monitoring systematic.
- Develop a system for recognizing the merit of employees, reward extraordinary efforts.
- Improve the relationship between support services and line-of-business operations
- Get the CEO to conduct focus group-style interviews with department leaders to find out how well everyone understands the direction for organizational improvement.
- Introduction of elections for administration positions, feedback on the effectiveness of activities and the effectiveness of implemented projects.

Focus group: results

University leaders' focus group shows us the main gaps in the corporate culture of the changing university were identified: the conflict of old and new norms; conflict between written and unwritten rules; the gap between the vision of administration, professors and students; another discourse of three main groups of the university community.

The dominance of clan culture is supported by three independent research methods and does not imply that the university will achieve the rapid change expected by the operators of university superiority. The university is too large and long-term organization (900 years of existence of the university as a social institution), which can be changed with the help of advanced, flexible structures and units focused on the experience of the best university practices, therefore it is called a postmodern university.

The main task of the organizational culture of the university is the preservation of innovative brands while preserving the classic traditional heritage of the university. Despite the new guidelines associated with commercialization and competition, the corporate culture of the university is still focused on maintaining its high goal and the formation of professional and personal identity of employees.

Discussion

The sociological approach to diagnosis made us realize the role and positive benefits of the co-management style and focus on the clan culture. In this regard, the following steps in the design of further changes at the university are possible:
(1) In order to legitimize the new norms of the university, it is necessary to ensure constant communication between the administration and the teaching staff in order to critically discuss the new norms and determine the mechanisms for their implementation. Regular meetings of top management with teams of structural units, as well as public discussions in the university community;
(2) Employees should feel positive changes as a result of the introduction of new standards. Therefore, a system of measures is needed to improve the working conditions of scientific and pedagogical workers, which can improve their perception of the situation at the university.
(3) Student community inclusion and student feedback is also needed due to the global trend of student community "growth" where education becomes a practice that lasts a lifetime.

As a result of this work, the "Roadmap" and the University Code of Ethics were tested and approved with amendments. The annual review of local documents is a key moment to discuss university standards, discuss corporate culture gaps and how to overcome them. In the future, the developed system of methods can be applied to other universities participating in advanced training programs, and more broadly in the study of any organizational culture during the period of transformation.

The following practical results were implemented based on the diagnostic results through the university administration:

- Annually revised Code of Ethics in TSU
- Annually TSU' organizational culture diagnostics and discussion with the university community: "HR trend" international conference as a tool of a middle ground.
- Sociological research center was established.
- The discourse of TSU' normative documents were examined and conclusions of its transformation in the context of new requirements were made. Having a representative function the language primarily registers changes in management style, employee relation, normative and axiological parameters.
- Annually meetings of TSU' administration and research and teaching staff with the critical discussion of norms and execution mechanisms; improving conditions.

These tools allow the university community to build a culture of trust, cooperation and collaboration.

Conclusion

Analytical support of the university organizational culture transformation has applied results and contributes to the analysis of global processes in the higher education system. A set of techniques allows us to identify open and hidden conflicts and stimulate constructive overcoming of these conflicts both at the level of top management and at the level of individual groups of subjects, which ultimately contributes to the development of the organization.

In the activities of the organization, the processes of bureaucratization, stagnation of development are observed with a stake on a collaborative, democratic style of management. There are differences between the vision of leaders, teachers and students: leaders make a bet on the market culture, teachers and students make a bet on the clan culture and appeal to the university as a friendly place of work. Double discourse of language became a sign of the times. At the same time, university's bureaucratization creates a second conflict for the "advanced" management group, which works in the style of project management: the conflict between bureaucratization complexity and the desire, ability and readiness to act a sin the culture of adhocracy. Thus, the existence of the demands of the old - bureaucratic and clan - culture of the classical university and the simultaneous demand of a new academic culture, of which the market, adhocracy and clan are a part - creates a basic crisis, a complex "smart problem" of the modern university.

In the fall of 2020, the Strategic Academic Leadership Program will start, a kind of restart of the 5-100 project, where the main focus will be the formation and implementation of university development strategies, and the ratings will be interpreted as indicators of the effectiveness of this work.

Acknowledgments

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Perceptions of Professional Chemical Engineers toward Immersive Virtual Reality in Health and Safety Training

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Abstract
Following the rapid advancement and growing market of immersive virtual reality (IVR), it is important to understand the impacts caused by these technological innovations. Research on feasibility, reliability, and ease of use of IVR has received considerable attention, but little is known about the specific factors weighing in the decision to adopt IVR in the health and safety (H&S) training setting. Since the success of implementing IVR in H&S training depends on the individuals willing to use it, this paper investigates the interrelationship between influential factors and behavioural intention to adopt IVR among different professional groups. To understand this, a conceptual framework was developed by adaptation of the Unified Theory of Acceptance and Use of Technology (UTAUT2). Data were collected using an online survey from professional chemical engineers. Partial least squares structural equation modelling (PLS-SEM) based on SmartPLS 3 was used to analyse the intention of the population sampled to adopt IVR, followed by multi-group analysis (MGA) to explore the differences between groups of professionals. The findings from this study contribute to the literature of the UTAUT2 model on IVR adoption and inform stakeholders in formulating appropriate strategies to improve the adoption of IVR in different group settings.

Keywords: Virtual Reality, UTAUT2, Multi-Group Analysis, Professional Training Chemical Engineering Education

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Introduction

The chemical process industry is a large, dynamic, and complex sector. Due to these intricacies, professionals in the chemical plants face additional challenges since erroneous interpretations, or assumptions made during operation, may transform small near misses into serious accidents (Nazir, Totaro, Brambilla, Colombo, & Manca, 2012). To cope with the rapid evolution of a digitalized world, universities and chemical industry started to implement new teaching and training methods to upskill their employees (Patle, Ahmad, & Rangaiah, 2014). For instance, books are turned into e-books, while manual engineering calculations/design operation move towards desktop Virtual Reality (VR) software. However, making more people use the above-mentioned examples without changing the content, format, or teaching method has drawbacks. In addition, these formats are insufficient for situations encountered in highly automated chemical plants since desktop VR does not give a real feel of the process and e-learning *per-se* is not sufficient to develop practical skills (Arkorful & Abaidoo, 2015; Colombo, Nazir, & Manca, 2014). Recently, there has been a major shift from non-immersive to immersive virtual reality (IVR) technologies. These technologies were found to be effective in enhancing professional skills and they create a paradigm-shift in several fields including education and training (Ferjencik, 2007; Isleyen & Duzgun, 2019; Manca, Brambilla, & Colombo, 2013). Such new technology provides the users with a full immersive and safe 3D training space where their knowledge is constructed through trial and error approaches reflecting actual situations (Fällman, Backman, & Holmlund, 1999).

IVR technology using serious games and/or simulations is considered to be a good vehicle to improve higher order thinking competencies, including problem-solving and decisions-making skills (Voorhis & Paris, 2019). For instance, aside from the ability to create dynamic, immersive, and 3D simulated chemical plant environments where professionals can interact and move freely, IVR also allows users to have a better understanding of the schematics of the process/plant which are abstract at the representation level (e.g. 2D diagrams) (Nazir et al., 2012). IVR simulations or games that focus on improving problem-solving and decision-making skills are realistic, safe, and reliable tools for new professionals.

However, to achieve the abovementioned objectives for health and safety (H&S) training, it is important for the new learning experience to be accepted and used by the professionals. According to the critical mass theory, sufficient numbers of individuals (i.e. the critical mass) who are willing to try and use readily available new technology is necessary in order to achieve a self-sustaining rate of adoption and to create network-like benefits (Markus, 1987). Thus, the more people that adopt and use this kind of technology, the more valuable it will be.

Several models can be used to assess the acceptability and usability of technology (Sharma & Kumar, 2012; Venkatesh, Morris, Davis, & Davis, 2003). In particular, the UTAUT model has been used by many researchers over a decade (Sharma & Kumar, 2012). UTAUT model has been compared and validated using within-subject longitudinal data from different organizations and it is important in information technology (IT) user acceptance research (Venkatesh et al., 2003). According to Venkatesh et al. (2003), the UTAUT model considers four key factors: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating

conditions (FC). The model also includes four moderators: age, gender, voluntariness and experience. Both the key factors and the moderators are considered to affect the behavioural intention (BI) and/or use behaviour (USE). In this model, the key factors PE, EE, and SI affect the behavioural intention, while the key factors FC and BI influence the use behaviour. Vankatesh et al. (2012) established a new model called UTAUT2 to address a new context of consumers. This model employed hedonic motivation (HM), price value (PV), habit (H), and facilitating condition (FC) as additional key factors that influence BI compared to the original UTAUT model. Moreover, habit also influences USE (Venkatesh, Thong, & Xu, 2012).

It is paramount to understand professionals' concerns about IVR since it will affect their decisions whether to use IVR or not. Previous studies focused on the effect of different constructs towards IVR adoption intention and attempted to develop theoretical models of IVR adoption intention (Hartl & Berger, 2017; Shen, Ho, Ly, & Kuo, 2019). However, the abovementioned studies only focused on the IVR adoption intention of an identified single population sample. Interpretation of results from a lone population could be misleading so to minimize misinterpretation of results it was proposed to assess data by adding more subgroups of data into the model (Sarstedt, Henseler, & Ringle, 2011). Hence, incorporation of socio-demographic data, such as IVR prior experience, into the UTAUT2 model was done.

In order to explore the influencing factors within different professional group in IVR adoption intention, the current study combines the PLS-SEM with the multi-group (MGA) or between-group analysis method. Such a combination is beneficial since it can provide valuable insights about the similarities as well as differences between the groups. Additionally, the current study can provide support for future research by addressing the IVR adoption needs of specific professional groups and by widening the applicability of PLS-SEM and MGA to studies of IVR.

Methodology

Research model

Since the chemical industry training research barely uses the applied theories on technology acceptance, this may be the first reported application of the UTAUT2 model which helps in understanding one's perception toward IVR adoption in H&S training. As this study focused purely on perception, the UTAUT2 model was modified as demonstrated in figure 1.

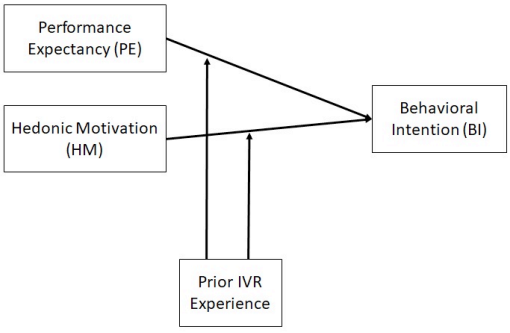

Figure 1: The modified UTAUT2 model.

Venkatesh et al. (2003) defined *"performance expectancy (PE) as the degree to which using a technology will provide additional benefits to individuals in job performance"*. This construct is one of the core predictors of the intention to adopt technology (Venkatesh et al., 2003). Previous studies showed positive results using various technologies such as VR glasses (Hartl & Berger, 2017), social media for health (Puspitasari & Firdauzy, 2019), and e-learning (Ramírez-Correa, Arenas-Gaitán, & Rondán-Cataluña, 2015). Since IVR enables professionals to learn certain H&S procedures more quickly and/or efficiently, the test hypothesis adapted and modified from Venkatesh et al. (2003) proposed in this study is:

H1: *Performance Expectancy will have significant influence on Behavioural Intention to adopt IVR for H&S learning.*

In UTAUT 2, additional key factors were added from original UTAUT model that influence behavioural intention. One of these key factors is hedonic motivation (HM). According to Venkatesh et al. (2012), *"hedonic motivation refers to the fun or pleasure derived from using technology"*. Previous research has proposed this construct and tested the perceived enjoyment as a positive influence on different context such as an e-scooter VR service (Huang, 2020), health apps (Yuan, Ma, Kanthawala, & Peng, 2015), and business simulation games (Wang, Wang, & Jian, 2019). To test this relationship within the context of the IVR adoption intention in H&S training, the following test hypothesis adapted and modified from Venkatesh et al., (2012) is proposed:

H2: *Hedonic Motivation will have significant influence on Behavioural Intention to adopt IVR for H&S learning.*

In addition, since the current study is interested on measuring the differences in attitudes across different populations with the aim of understanding the acceptability of introducing an IVR in chemical operation H&S training, it is important to establish the effects of prior experience of IVR upon the key constructs of UTAUT2 for its adoption. Therefore, the following test hypothesis adapted and modified from Venkatesh et al., (2012) is proposed:

H3: *There is a statistically significant difference between prior experience and without prior experience in the relationships between variables of the IVR adoption.*

Measures of the Constructs

A two-part survey was used in data collection; first part consisted of fourteen closed ended questions used to determine socio-demographic variables using a nominal scale, the latter part involved adapted and modified questions from the UTAUT2 mode that fits the purpose and population under study. Lastly, a 6-point Likert scale was used to measure every item in the questionnaire.

The items included in the study were adapted from already existing documents from other studies that were verified valid and reliable. The words used were modified to better fit the use of IVR games in educational settings. Face validity checks were carried out by academics in the field. Moreover, pilot studies were conducted with postgraduate chemical engineering students and practicing engineers in chemical

industry volunteers to check for misconceptions in the formulation of the questions. Changes in wording and grammar were made based on feedback in order to improve questionnaire clarity.

Data collection procedure

Before sending out the questionnaires, ethics approvals were obtained from the university's ethics committee. All expected ethical procedures were followed in the development and administration of the questionnaires.

A non-probability sampling method (convenience sampling) was used to recruit participants as the population size was unknown and the contact list was made confidential by the relevant authority due to privacy issues. Professionals were invited to voluntarily take part in the survey if they were employed as professional chemical engineers at the time of the research. The data were collected over a three-month period. One hundred and forty professional chemical engineers completed the questionnaire but only 35.71% of them have tried IVR (e.g. head-mounted display VR).

The manual inspection done showed no data missing, no inconsistencies nor straight-lining answer behaviour, hence, all answer sets were used in further analysis.

Data Analysis

Data collected were analysed using PLS-SEM algorithm employed in SmartPLS 3 (Ringle, Wende, & Becker, 2015). Compared to covariance-based structural equation modelling (CB-SEM), PLS-SEM required a smaller sample size and can accept non-normally distributed data (Hair, Hult, Ringle, & Sarstedt, 2017). The minimum sample size was determined using the inverse square root method (Kock & Hadaya, 2018).

In order to identify differences in hypothetical relationships between groups, MGA analysis using PLS-SEM was carried out. According to Matthews (2017), running MGA in PLS-SEM involves a three-step approach: (1) creation of data groups based on the categorical variable of interest; (2) use of three-step procedure to analyse the measurement invariance of composite models (MICOM); (3) assessment of the results from the statistical tests for multi-group comparisons using Henseler PLS-MGA procedure.

Results

Measurement invariance for composite models

Since the creation of groups based on prior experience of IVR was established beforehand, the MGA then continued by testing measurement invariance (Matthews, 2017). Measurement invariance is required in order to ensure that a given measure is interpreted in a conceptually similar matter across specified population (Horn & Mcardle, 1992). In PLS-SEM, measurement invariance can be tested using MICOM procedure which includes configural invariance, compositional invariance, and equality of composite mean values and variances (Henseler, Ringle, & Sarstedt,

2016).

To assess the configural invariance, the measurement models for all groups need to be evaluated to determine if the same number of indicators and the same variance-based model estimation were used and if all the indicator data were treated equally across the specified groups (Henseler et al., 2016). Here, reliability and construct validity were calculated to assess the configural invariance across the groups. As the results reveal in Table 1, both groups have item loadings greater than 0.708, average variance extracted (AVE) greater than 0.5, composite reliability (CR) and Cronbach's alpha greater than 0.6 (Hair et al., 2017). Moreover, as shown in Table 2, both groups have Heterotrait–Monotrait (HTMT) values below the threshold of 0.90 (Hair et al., 2017). Thus, the configural invariance is confirmed since both groups indicate adequate reliability, convergent validity, and discriminant validity.

Table 1. Internal consistency reliability and convergent validity analysis for professionals with and without prior experience to IVR.

Constructs	Items	Factor Loading	Cronbach's Alpha	CR[a]	AVE[b]
Performance Expectancy	PE_1	0.896 (0.919)	0.862 (0.920)	0.916 (0.949)	0.783 (0.862)
	PE_2	0.880 (0.931)			
	PE_3	0.880 (0.935)			
Hedonic Motivation	HM_1	0.965 (0.939)	0.881 (0.845)	0.942 (0.928)	0.890 (0.865)
	HM_2*				
	HM_3	0.921 (0.921)			
Behavioural Intention	BI_1	0.937 (0.944)	0.884 (0.901)	0.928 (0.938)	0.813 (0.835)
	BI_2	0.937 (0.951)			
	BI_3	0.826 (0.841)			

Note: * - Removed due to the lack of outer loading reliability (< 0.7)
[a] - Composite Reliability
[b] - Average Variance Extracted
Numbers in bracket - Values for without prior experience to IVR group

Table 2. Discriminant validity analysis using Heterotrait-Monotrait (HTMT) ratio for professionals with and without prior experience to IVR.

	Performance Expectancy	Hedonic Motivation	Behavioural Intention
Performance Expectancy			
Hedonic Motivation	0.157 (0.597)		
Behavioural Intention	0.762 (0.783)	0.235 (0.509)	

Note: The numbers indicate the pairwise correlations between variables
Numbers in bracket - Values for without prior experience to IVR group

In order to assess whether the composite scores are formed across the subpopulations (i.e. compositional invariance), permutation analysis with 5000 resamples was performed in SmartPLS 3 (Henseler et al., 2016; Ringle et al., 2015). The correlation between composite scores between professionals with and without prior experience is close to 1 and above the 5% quantile, and it is shown in Table 3. Thus, compositional invariance is shown for all subpopulation groups.

Table 3. Measurement Invariance Assessment (MICOM) test for professionals with and without prior experience to IVR.

Construct	Step 1		
	Configural Invariance		
PE	**Yes**		
HM	**Yes**		
BI	**Yes**		
Construct	**Step 2**		
	C = 1	5% quantile of C_u	Compositional invariance
PE	1.000	0.999	**Yes**
HM	0.999	0.983	**Yes**
BI	1.000	0.994	**Yes**
Construct	**Step 3 (a)**		
	Difference	Confidence Intervals – Mean Value	Equal mean value
PE	0.019	[-0.336, 0.337]	**Yes**
HM	0.108	[-0.350, 0.344]	**Yes**
BI	-0.094	[-0.338, 0.348]	**Yes**
Construct	**Step 3 (b)**		
	Difference	Confidence Intervals – Variance	Equal variance
PE	0.333	[-0.731, 0.777]	**Yes**
HM	-0.447	[-0.534, 0.618]	**Yes**
BI	0.118	[-0.476, 0.546]	**Yes**

Note: PE = Performance Expectancy; HM = Hedonic Motivation; BI = Behavioural Intention

The final step is the assessment of the equality in composite mean values and variances. Permutation results allowed examination of differences in the mean values and variances calculated between the constructs score of professionals with and without prior experience. Since the differences on the mean values and variance both fall on the 95% confidence interval, full measurement invariance is established which makes comparison of professionals with and without prior experience possible and providing a more detailed comparison between the two groups (Henseler et al., 2016).

Assessment of the results of the statistical tests for multi-group comparisons

In order to assess whether having prior IVR experience or not are different in terms of the key constructs, multi group analysis (MGA) was done in SmartPLS (Ringle et al., 2015). PLS-SEM has significant advantage in relation to multiple linear regression (MLR), which works with observable variables, since the software is made more specific for composite measurement model.

As suggested by Matthews (2017), the MGA procedure begins by analysing the group separately to determine if there are group-specific similarities and differences. As shown in Table 4, both groups supported H1, which suggested significant relationships between performance expectancy and behavioural intention. However, both groups did not supported H2, which suggested significant relationships between hedonic motivation and behavioural intention.

Table 4. Structural model results for professionals with and without prior experience to IVR.

Hypothesis	With IVR Experience	Result	Without IVR Experience	Result
H1: Performance Expectancy → Behavioural Intention	0.658**	Supported	0.673**	Supported
H2: Hedonic Motivation → Behavioural Intention	0.206	Not Supported	0.022	Not Supported

Note: Significance level: * $p < 0.05$ ** $p < 0.001$

After analysing the group-specific similarities and differences, the significance of any differences between the groups was determined. The result of the PLS-MGA *p*-values in Table 5 showed that there were no significant group differences between professionals with and without prior experience in IVR. Therefore, H3 (statistically significant differences between prior experience and without prior experience exist in relationships between variables of the IVR adoption) is not accepted.

Table 5. Results of SEM multi-group analysis (MGA) for professionals with and without prior experience to IVR.

Hypothesis	Path Coefficient Differences	PLS-MGA p-value	Result
H3: Performance Expectancy → Behavioural Intention (Group Difference)	0.015	0.917	Not Supported
H3: Hedonic Motivation → Behavioural Intention (Group Difference)	0.078	0.609	Not Supported

Note: Significance level: * $p < 0.05$ ** $p < 0.001$

Discussion

The current study provides meaningful insights for available literature on IVR adoption based on the UTAUT2 model. This research demonstrate that, integrating PLS-SEM and MGA approaches works well since these methods are not only useful for analysing IVR adoption behaviour of the population sampled, but also for determining group differences (Matthews, 2017).

The results of MGA showed that there were both contrasting and common aspects in the relationships investigated in the current study from professionals with and without prior IVR experience. Performance expectancy is significantly related to IVR adoption intention for both groups. However, upon comparing the difference between the path coefficients for professionals with and those without IVR experience, there is no significant difference between the two groups according to MGA. This means that regardless of prior experience, as long as the IVR technology can create a reality-like H&S training experience and contribute meaningfully in enhancing user health and safety skills, he/she may be favourably willing to use it.

On the other hand, both groups did not support hedonic motivation toward IVR adoption intention. This implies that most professionals (with or without prior IVR experience) do not perceive a very high level of entertainment or pleasure that could be derived from using IVR for H&S training since they already perceived IVR itself as highly entertaining and additional enjoyment did not seem to influence their acceptance any further.

The observations show that professionals have different needs and demands in terms of IVR. Understanding the different factors that lead to IVR adaptation could prevent mismanagement of the available resource and provide information on the differences among professionals. Hence, it is important to create an appropriate strategy that satisfies the need of the professionals. For instance, the program should be focused on utilitarian factors (i.e. PE) rather than hedonic factors (i.e. HM) since the target population is professionals and not students.

Conclusion

In conclusion, the current study modified the UTAUT2 model on IVR adoption intentions consisting of performance expectancy, hedonic motivation, and prior IVR experience. Using this model, the IVR adoption intention of professionals with or without prior IVR experience were analysed using PLS-SEM and multi-group analysis (MGA) with SmartPLS 3.0. Although the study shows no statistically significant differences between professionals with and without prior IVR experience according to the model tests, the MGA approach is effective in understanding the intentions of multiple groups. The current study provided suggestions for the researchers and developers in formulating suitable strategies to improve IVR adoption based from the measured groups.

Although this research provides meaningful insights for researchers and stakeholders, it is important to bear in mind that the perception of professionals with respect to the adoption of IVR in H&S training may change over time. For instance, at this early stage, professionals may have answered questions based only on their prior experiences with IVR. Thus, it is important for the future research to reinvestigate the adoption of this technology considering other key constructs at various timeline of professional's IVR acceptance process through longitudinal studies.

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Relationship Between STEM Attitude and Empowerment: A Descriptive Study in Costa Rican Girls

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Abstract
This study aimed to examine the correlation between empowerment perception and STEM attitudes in young girls from a Costa Rican high school. 327 young people aged 11 to 18 years from "Colegio de Señoritas". The sample included only girls, from different ethnic and socio-economic backgrounds, living in different parts of the urban area in San José. In-depth, the study was carried out an S-STEM attitude survey ($\alpha = 0.91$) and Empowerment Scale (modified, $\alpha = 0.89$). As a result, the correlation between STEM attitude and empowerment did not confirm a significant relation. However, girls showed a poor attitude in math and the selection of STEM majors, but they have a better attitude in XXI skills and science. At the same time, young girls present a good perception of their empowerment in almost all areas. However, they are not perceived as generating an impact in the class and they also do not consider receiving enough external support, especially in their academic environment.

Keywords: STEM Attitude, Empowerment, Girls, Skills, High School

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Introduction

The information and communications technology (ICT) sector has been growing at a quick pace for the last twenty years. This technological sector is highly dynamic and shows tremendous potential for innovation and for introducing changes impacting deeply on the society in the short-term. Traditionally, the ICT sector demands large numbers of graduates in science, technology, engineering, and mathematics (STEM) disciplines, and its employees are usually well paid. In this challenging environment, one may expect the sector to take advantage of as much brainpower, creativity, and knowledge as possible (Botella, Rueda, López-Iñesta, & Marzal, 2019).

Science, technology, engineering, and mathematics, also known as STEM, are one of the largest fields of study in the educational system. It is also the largest field where women are significantly underrepresented. Over the last century, women have made improvements with assimilating into what was once seen as a male-dominated field. However, significant disparity between women and men in STEM is still existent, and very little progress has been made to achieve a higher level of representation by women in the field (Polk, 2014).

STEM education is capital of importance for countries that wish to have a say on the international platform and accord to knowledge-technological developments considering 21st-century skills intended to enhance students' interest and tendency through science, technology, mathematics, and engineering in STEM education (Tekerek & Karakaya, 2018). Students are expected to generate solutions for problems by using 21st-century knowledge and skills. At this point, the related research concluded that students' interest, attitude, and achievements were affected positively when STEM disciplines were integrated (Tekerek & Karakaya, 2018).

In recent decades, various studies have highlighted the lack of scientific and technological vocations among pre-university students (García-holgado, García-ramos, & Peñabaena-niebles, 2020).

Research on horizontal sex segregation in the labor market, that is, the tendency for men and women to work in different fields of occupation, documents a process of girls and women dropping out of science, technology, engineering, and math (STEM) career path at a higher rate than boys and men throughout the life course (Raabe, Boda, & Stadtfeld, 2019). The participation of women continues being low in STEM professions: 28% according to the UNESCO report (García-holgado et al., 2020).

That girls tend to increasingly prefer subjects other than STEM over their school career is one example of this phenomenon, which past research has investigated through various factors, including socialization. Early-life socialization happens mostly within the family, but the role of peers becomes more important as children grow older. During adolescence, interaction, and exchange with friends, especially in school, is a crucial setting for socialization (Raabe et al., 2019). A significant minority of women choose and access STEM programs at the tertiary level, which appear to be excluded from the options of studies in secondary school girls.

Adolescence is an important period of life, not only because of peer socialization, which has implications for long lasting attitudes, norms, and values, but also because

it is the time when people make life choices regarding their careers. Those decisions can have long-lasting effects on life outcomes, such as income and social status (Raabe et al., 2019).

In order to increase the participation, retention, and attainment of females in STEM in the educational institutions and workplaces and nip gender disparities in the bud, prospective and existing STEM girls/women some studies suggest do it by ought to be empowered. (Boateng & Nyarko, 2016)

Empowerment can serve as a powerful instrument for women to achieve upward social and economic mobility and achieve power and status in society. It is a source of mobility, equality and emancipation, both at the individual and at the societal level. Empowering women is important, and it indirectly leads to a growing demand for education for girls and enhancing their participation in informal and alternative education system. (Tayde & Chole, 2010)

As such, some study delves into the perceptions of women in STEM concerning the manner empowerment activities should be conducted based on their gender experiences in their disciplinary domains (Boateng & Nyarko, 2016). Considered Psychological empowerment is a multicomponent construct that involves the mechanisms through which people gain control over their lives and environments (Speer, Peterson, Christens, & Reid, 2019).

The discourse on empowerment in this decade has become increasingly stronger concerning studying and working in STEM, according to these studies surge the following question: Does girls' perception of empowerment have a relationship with the attitude they show towards STEM careers?

Methodology and design

This section below describes participant selection and data analysis and outline the sampling strategy, overview the function of the two instruments.

In the present study the researcher explored and correlated STEM attitude and educational empowerment perception.

Hypothesis: Psychological empowerment perception is positively related to the Student Attitudes Toward Science, Technology, Engineering, and Math.

Sampling

The aimed to recruit high school girls from a variety of grades that differed in their course level, age, knowledge but the same institution. In all, over 10 groups of high schools 5 grades were recruited for participation in this study from Colegio de Señoritas de Costa Rica. The sample began as a sample of aleatory. Participants were recruited when they were in their classes. Of the more than 10 groups recruited, all indicated their interest in participating in the study. Once they agreed to participate, all students in the group were recruited for apply in the study via the course webpage. In this way, all the students in the same class were considered participants in the study. In total, 327 girls aged 11 to 18 years (MD = 15) from “Colegio de Señoritas”

responded to the two surveys. The sample included only girls, from different ethnic and socio-economic backgrounds, living in different parts of the urban area in San José de Costa Rica.

Measures

Adaptation of Scales into Spanish. The S-STEM and Educational Empowerment Survey measures were adapted into Spanish by the researcher. The Spanish version of the scale was examined by field experts, all of who have a good command of their native language (English) and work in the education field. Taking feedback into account, the researcher edited the scale items. Spanish language experts examined the form, and necessary editing was done. The extent to which the translation conveyed the accurate meaning of its original translation was examined. The removal of the item of each sub-dimension was not deemed suitable, because all of them were appropriate to Spanish, and could not cause contradictions in terms, but in Empowerment Survey was necessary removal a sub-dimension was not deemed suitable, considering the fact that they were not appropriate to the educational environment and did not serve the purpose of the assessment. The pilot study of the scale was conducted with 15 individuals to determine points that were not understood by the students. S-STEM ($\alpha = 0.91$) and Educational Empowerment Survey (modified, $\alpha = 0.89$) demonstrated reliability.

S-STEM Survey

The S-STEM surveys are robust instruments that elementary, middle, and high school STEM education program leaders can use to understand students' psychological states and the impact programs may have on student attitudes toward STEM disciplines. Measure STEM Attitudes were explained with the following dimensions Mathematics (8 items), Science (8 items), XXI skills (20 items), STEM Careers (12 items).

Educational Empowerment Survey

Educational empowerment is a 21-item scale adaptation of the constructed and validated by Spreitzer (1992, 1995) was used to measure psychological empowerment. The response format of the inventory was a 6-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). Spreitzer (1995) explained psychological empowerment with 8 dimensions: meaning, competence, self-determination, impact, social support, comprehensive, access to information (comprehensive), and access to resources.

Procedure

Once the entire class agreed to participate, they were taken to the library and they were invited to use a computer or tablet to answer the online surveys. It took the students about 30 minutes to complete the two surveys in each group.

Analysis of Data

SPSS package, excel and Minitab programs were used to analyses the data obtained from research. Simple analyses were made by using descriptive statistics and

correlation which is one of the statistical analyses. Analysis was conducted to determine if, as hypothesized, a positive correlation existed between S-STEM attitude and empowerment perception

Results

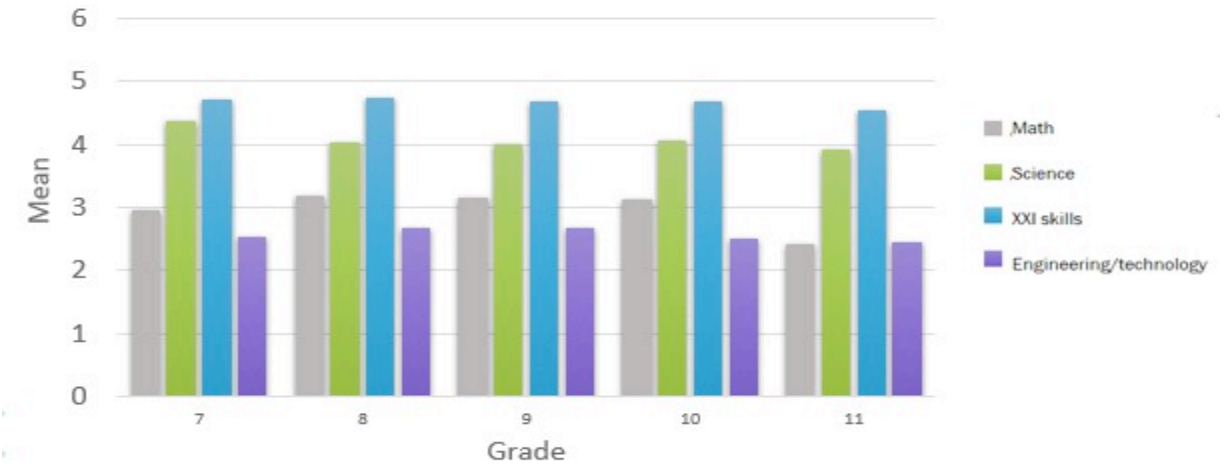

Figure 1: S-STEM results according to high school grade

Students report a less interested attitude towards engineering and mathematics skills. However, they consider that they do have 21st century attitudes.

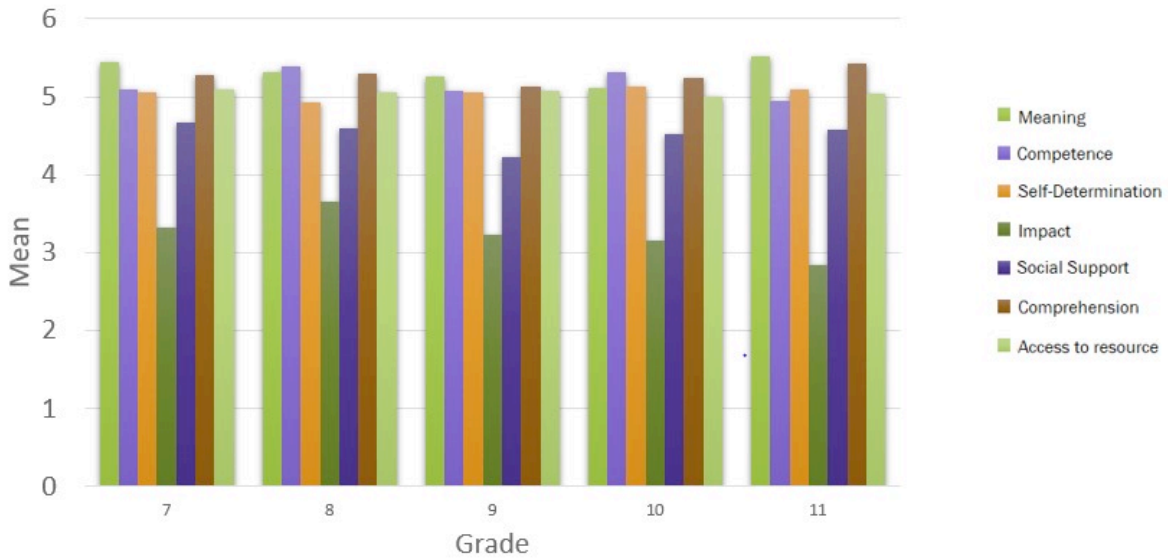

Figure 2: Educational Empowerment Survey results according to high school grade

On the empowerment scale, the students report having the psychological attitudes of an empowered girl, however, they consider not receiving support from their peers.

	Math	Science	XXI Skills	Engineering technology
Meaning	0.196	0.221	0.423	0.225
Competence	0.263	0.274	0.426	0.298
Self-determination	0.261	0.405	0.502	0.513
Impact	0.083	0.13	0.244	0.195
Social Support	0.181	0.237	0.401	0.352
Comprehension	0.194	0.179	0.349	0.336
Access to Resourse	0.214	0.271	0.297	0.254

Table 1 : Correlation Between STEM Attitude and Empowerment

There was no significant positive or negative correlation in any of the cases studied.

Conclusion

The current article tries to find the relationship between attitudes in STEM and the empowerment of girls in Costa Rica. First, the attitudes that girls showed towards STEM careers and skills for the 21st century were investigated, the results are consistent with literature and girls report having less interest in math and engineering skills, a situation that remains constant in all grades. Also, students do consider having XXI skills.

On the other hand, the girls report having skills for school empowerment, without conflicts to assume the challenges and daily tasks. However, they consider that they do not receive enough support from their peers.

Finally, a significant correlation was not found between the attitudes of the students with STEM careers and empowerment, therefore, the fact that they are young empowered in their educational environment does not seem to have a negative or positive relationship with their attitude towards STEM careers.

For future works, will be interesting to explore if active participation of peers, professor, and family may positively impact students' sense of belonging and desire to positive attitudes in STEM.

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Preparing Students to be Global Citizens

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Abstract
Graduate attributes are university defined aspirations for students as they emerge into the professional world. They represent the desired transferable skills, understanding and qualities that a student may expect to achieve at the end of their learning journey; consequently, they also define the values and principles underpinning academic practices. Many HEIs seek to engender Global Citizenship(GC) in graduates to prepare them for life, employment and employability within the context of a complex and uncertain landscape and an increasingly interconnected world. The competences associated with GC include learning dimensions such as perspectives, attitudes and behaviours that cannot be directly imparted; rather students have to construct their own learning through reflection, self-challenge and self-appraisal. The role of educators is to create suitable environments and learning opportunities to support students to achieve this learning across both the formal and informal curriculum. Furthermore, in order for students to fully benefit, this learning requires to be explicit and measurable, to enable them to articulate their attributes to a potential employer or sponsor (Oliver and Jorre de St Jorre, 2018). We propose a phased approach for embedding the learning dimensions of GC throughout the curriculum using an adaptation of a 'Exposure, Immersion, Mastery' model (Charles et al. 2010). This approach facilitates the pre-defining of levels of competences required at each stage of the programme and for these to be recognised within learning outcomes, teaching and assessment methods. The authors' direct experience of two highly successful Erasmus+ Strategic Partnerships (EQUIIP, PEETS) informs this model.

Keywords: Graduate Attributes, Intercultural Competence, Learning Outcomes

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Introduction

Higher Education Institutions play an essential role in enhancing and advancing our society by aspiring to equip graduates with the knowledge, skills, qualities and values to succeed not just as expert professionals, but as leaders, innovators and influencers of positive change. The student journey seeks to transform them into holistic, versatile, life-long learners in order to realise their full potential, as well as engender in them a strong awareness of their civic responsibility to the communities they serve, both locally and worldwide. These aspirations contribute to a University's generic graduate attributes that go beyond the traditional scope of the core subject expertise and proficiencies (Bowden et al. 2000) and are intended to permeate throughout the formal and informal curriculum and institutional culture. University defined attributes are intended to encompass the holistic vision for the graduate. They seek to prepare students for life, employment and employability in the 21st century, within the context of a complex and uncertain landscape and an increasingly interconnected and cosmopolitan world (Rizvi 2009). The United Nations Sustainable Development Goal 4 (SDG4) and the 2030 Agenda for Sustainable Development (2015), commit educators to ensuring by 2030 that all learners are able to acquire the knowledge and skills needed to promote sustainable development, including "global citizenship and appreciation of cultural diversity". But how can we achieve this and how can we be confident that our graduates are emerging as the 'Global Citizens' we envision for them?

What is Global Citizenship?
A global citizen is someone who identifies with humanity as a whole, understands the challenges and opportunities of our wider global communities: societal, environmental, political or economic and is committed to improving lives, addressing inequalities and creating a tolerant, inclusive and sustainable planet. The Global Citizenship Foundation defines Global Citizenship Education as "a transformative, lifelong pursuit that involves both curricular learning and practical experience to shape a mindset to care for humanity and the planet, and to equip individuals with global competence to undertake responsible actions aimed at forging more just, peaceful, secure, sustainable, tolerant and inclusive societies." (Global Citizenship Foundation 2017). Educational Institutions have a responsibility to promote global citizenship by engendering in their students an understanding of their role and potential contribution to the wider global community, emerging as graduates with the attributes of a Global Citizen (Leask & Carroll, 2013).

What does this mean for educators?
The concept of graduate attributes, first established in Australia, is centred on a competency-based model of higher education which bases each part of an educational system around pre-determined goals or competencies. Intended learning outcomes, teaching methods, learning opportunities, and assessments should all contribute to the students' achievement of the specified goals by the end of their programme of study (Leask, 2013). Internationalised graduate attributes provide the overarching institutional context for the internationalised curriculum and determine the international, intercultural and global learning dimensions that require to be embedded throughout all aspects of the formal and informal curriculum. These need not explicitly state international, intercultural or global per se, but these dimensions

may be implicit e.g. 'Have ethical and social awareness' or 'Be able to communicate effectively to diverse audiences'.

The beneficial relationship between global citizenship graduate attributes and employability is transparent across all sectors. Increasing global interconnectedness through communications and mobility affords opportunities for greater, more effective international partnership working and collaboration. This has intensified the demand for interculturally competent employees capable of operating in diverse and multinational contexts. Another important question is therefore 'do our graduates completely recognise these attributes in themselves?'. For our graduates to fully benefit from development as Global Citizens, they need to be able to articulate this as competencies and demonstrate how these were realised or acquired to potential employers, sponsors or business partners (Oliver and Jorre de St Jorre, 2018). Thus graduate attributes need to be operationalised and explicitly mapped throughout the formal curriculum. This is an area for which many academics struggle. Some subjects, such as pure sciences, lend themselves less easily to identifying the dimensions of global citizenship than other subjects and for many regulated programme developers there are often tensions between the core needs of the professional regulator and the ability to retrospectively fit in 'added value' as this is often considered, to the core programme curriculum. Leask (2013) argues that the inclusion of international and intercultural dimensions should be a planned, developmental and cyclical process that requires review of all existing learning, teaching and curricula and a 'reimagining of new possibilities'. For this to be achieved across the curricula of a University requires a shared institutional understanding of the aspirational values and competencies and a structured approach for embedding these within the philosophical underpinnings of a programme and the strategies for learning, teaching and assessment. Some HEIs, for example Leeds Metropolitan, have taken a whole institution approach to internationalising the curriculum recognising the inadequacy of education that "does not seek to prepare students to meet the global challenges" (Jones & Killick, 2007).

The attributes for being a Global Citizen often represent a set of aspirational perspectives, attitudes and behaviours. For the formal curriculum to prepare the students to realise these aspirations and become interculturally competent, the teaching and learning activities have to be designed to promote higher order learning that enables students to explore diverse cultures and challenge perspectives, values and norms. Intercultural competence goes beyond knowledge of other cultures; it is the ability to think interculturally, see from others perspectives (Deardorff 2006) and be able to apply these skills in diverse contexts. The role of the teacher is to provide the appropriate tools and environment to enable students to construct their own learning by confronting their innate biases, analysing their interactions with others and challenging the limits of their global perspectives. However, behavioural and attitudinal changes cannot be taught or imposed, they take time to mature and are difficult to measure. It is not sufficient to capture intercultural competence learning in one module or study unit. This learning needs to be embedded throughout the student journey to facilitate a transformative and meaningful learning experience.

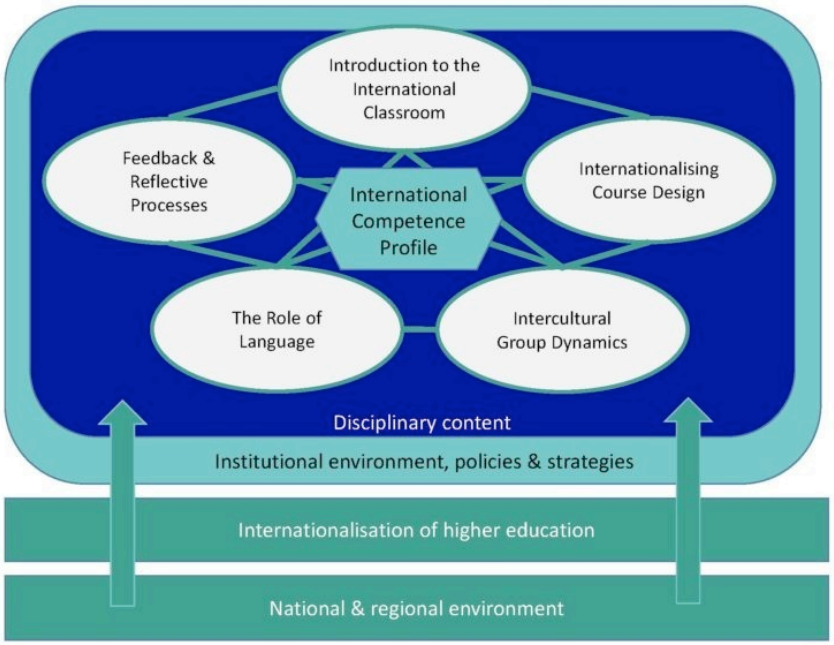
How can this be achieved?

Very few HEI programmes, new or existing, these days are afforded the luxury of a complete blank canvas as a starting point for designing and delivering the curriculum; for the most part there is an expectation to integrate elements of existing programmes

and embrace multidisciplinarity. Thus infusing learning dimensions to engender the attributes for global citizenship into existing curricula requires time, creativity, and a shared understanding of the aims, purpose and underpinning philosophy. Leask (2015) proposes a structured and iterative process to support the embedding of international, intercultural and global dimensions into the existing curriculum based on a five stage action research cycle. The cycle challenges educators to be both creative in introducing new and multiple possibilities for learning teaching and assessment to engage students and go beyond the core, discipline-specific, requirements of the curriculum; but it also recognizes that there may be elements of learning and teaching practice that already promote internationalised learning e.g. student exchange, engaging in culturally diverse group work and accessing international literature. However, these may not be explicit within the curriculum and specifically the learning outcomes which will require to be reframed. Many educators are resistant toward or feel ill-prepared for such radical change. They may be unable to conceptualise how this additional learning can be included into an already content rich curriculum, often dictated by professional or regulatory bodies. As a consequence, we risk failure to provide a meaningful, transformative student experience and a profound misalignment of the learning with the institutional goals and aspirations for its graduates.

A number of projects have sought to address this by providing support and guidance for educators to design and deliver internationalised and intercultural programmes. One such project is the Educational Quality at Universities for Inclusive International Programmes (EQUiiP) (https://equiip.eu/)(see box 1).

Box 1. EQUiiP.
Educational Quality at Universities for Inclusive International Programmes (EQUiiP) project has produced an integrated, flexible programme of continuing professional development drawing extensively on the international and intercultural evidence base, to support HEI's and educators with the internationalisation of the curricula, and an International Competence Profile for Educational Developers. The programme consists of 5 integrated modules which combine theory, practical activities and resources to support HEI educators through the process of internationalising the curriculum. The modules are: Introduction to the International Classroom; Internationalising Course Design; Intercultural Group Dynamics; The Role of Language; Feedback and Reflective Processes. Each module is accompanied by a thematic text explaining the conceptual and practical foundations of the module. The Figure below, taken from EQUiiP Platform (https://equiip.eu/) highlights the integration and interaction between the modules and the competence profile and how the programme content is contextualized in relation to local, national and international higher educational policies and practices.



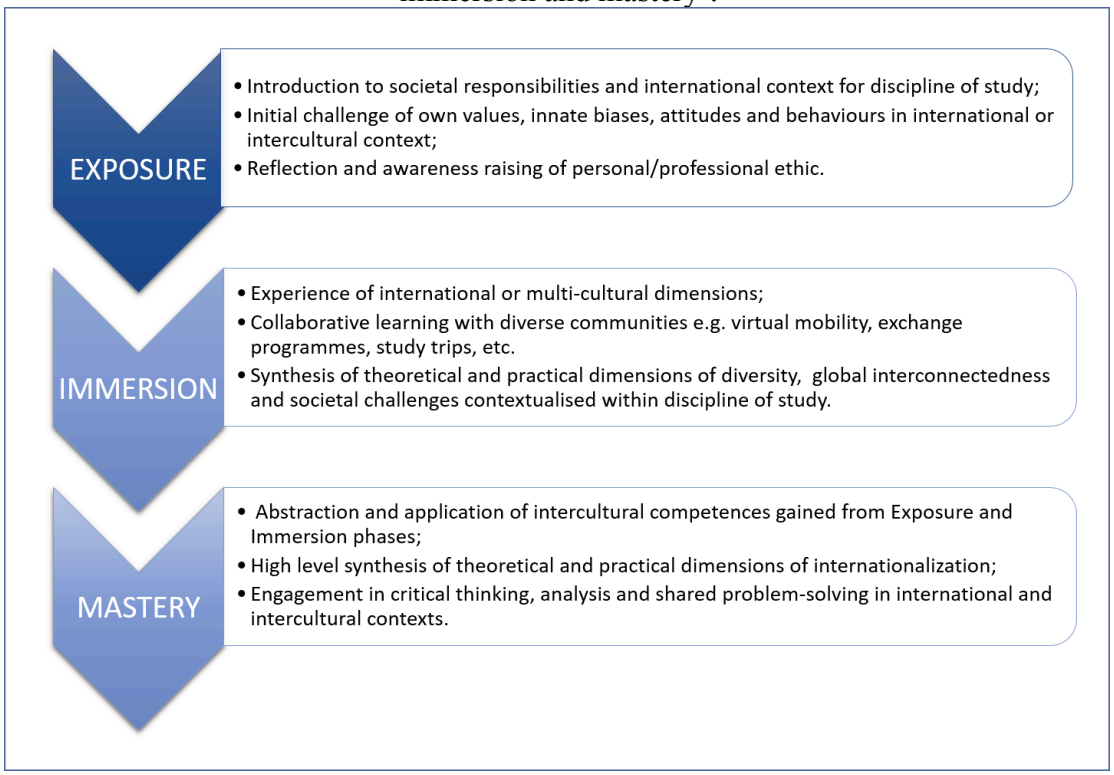
The EQUiiP programme facilitates participants to develop an individual portfolio to demonstrate their own skills against the competence profile, to enable assessment and EQUiiP Certification. The programme and modules are available through an open source platform to enable them to be incorporated into the existing support for university teaching staff. The EQUiiP programme is formally recognized as an Erasmus+ 'Good Practice'.

In 2013, Jones (2013) described a Curriculum Pyramid to support the internationalisation of the curriculum. An institution's Graduate Attributes sit at the pinnacle of this Pyramid which provides a framework for interpreting and translating these throughout the various levels of the programme from broader discipline levels such as Sciences, Arts, Humanities, down to module or unit level specific to an individual course or programme. This facilitates a cascade of vertical and horizontal alignment throughout all stages of the formal curriculum and student learning journey.

The 'phase level' of Jones' pyramid model (Jones, 2013) allows programme developers to structure the students' learning experiences as a continuum throughout the programme of study. One approach to implementing this is by adopting and adapting a model of 'exposure, immersion and mastery' from the 'Interprofessional Education Pedagogy' (Charles et al. 2010). This enables the level of knowledge and skills required at each stage of the programme to be pre-determined and then be recognised at a modular or unit level within learning outcomes, teaching and assessment methods. This also facilitates students to explicitly map their specific learning activities and achievements against the graduate attribute goals.

An example of this phased approach to intercultural competence graduate attribute development through Exposure, Immersion and Mastery is shown in Figure 1.

Figure 1; Continuum of learning experiences adopting a model of 'exposure, immersion and mastery'.



Exposure

The exposure stage should occur during the early stages of a programme. It aims to introduce the student to the concept of global citizenship through the development of their understanding of professionalism, societal responsibilities at a local and global level and where appropriate, professional ethics, conduct and standards relative to their subject discipline. To many students undertaking their first year of a 3 or 4year undergraduate degree, thinking about their professional identity or employment and the next steps after graduation, may seem a bit premature; particularly for those students on professional/vocational programmes i.e. Nursing, Accountancy, Quantity Surveying who are confident of their career pathway. However, the development of intercultural competencies and professional behaviours is a continuous and transformational process, and therefore it is important for learners to be given time

and opportunity to reflect on and critically evaluate their own competencies (Deardoff, 2006). It could be argued that the seeds should be sowed at the pre-application phase of higher education when students are still making their choices of course and University; to signal expectations of their learning journey and personal transformation.

The exposure stage introduces them to the international context of their discipline; why global interconnectedness is important and how it impacts them, and stimulates them into considering the possibilities this affords. It should provide opportunities for students to challenge their individual values, innate biases, stereotypes, attitudes and behaviours within an international and intercultural context, whilst developing essential transferable learning skills in reflection and self-evaluation.

Whilst it is the ideal for students to be learning in diverse multinational classrooms, this may not always be achievable; but it is also not essential for this exposure stage. Educators should be able to create environments which expose students to diverse perspectives and international practices, for example through case studies, visiting international lecturers, accessing multinational research and literature on policies, customs, regulations and authorities and facilitating group projects, debate and critical discourse. Reflection that encourages critical self-evaluation from these activities, plays an essential role in the assessment of outcomes throughout all phases and this can be supported by self-perspective inventory tools such as 'The Intercultural Development Inventory' (Hammer, 2009) or the 360degree self- reflection questionnaire (Gilmour, 2019). Such tools can be adapted and contextualized to suit a programme or an institution and can be revisited at the different stages of the students' learning journey. They represent a measurable means of assessing progress but also act as preparation for more immersive intercultural experiences.

The introduction of an e-portfolio during the exposure phase cannot be stressed enough in order to collate and consolidate evidence and artefacts, not just to measure outcomes but to act as a reflective journal and an aide memoire to support students to articulate their achievements upon graduation. The portfolio acts as an important learning tool in promoting reflective inquiry and supporting lasting transformative learning (Lyons et al, 2013); required to engender intercultural thinking and competence to prepare students as global citizens.

Immersion

In the immersion phase, students should be given opportunities to engage in collaborative learning with diverse and international groups and communities. By this point they should have an understanding, acquired during the exposure phase, of the international context relative to their subject discipline and some of the potential opportunities and challenges this presents for their future professional practice and employability in a globally connected society. They should also have an awareness of their own innate values, biases and attitudes that influence their sense of professionalism within international and intercultural contexts. The immersion phase seeks to provide opportunities for students to develop through experience the knowledge, skills and attitudes needed to interact successfully with others from different backgrounds. We cannot expect our students to develop a knowledge of all countries and cultures across the globe. But we can prepare them to think and

communicate interculturally. By this we mean: recognising and appreciating others perspectives; being sensitive to others customs, cultures, ethics and beliefs; embracing new and diverse ideas and ways of thinking and the opportunities this affords; demonstrating flexibility and adaptability; experiencing other languages.

The learning in this phase requires students to not only mix with diverse communities but collaborate on projects with a shared set of goals. The purpose is to create an environment that promotes the synthesis of the theoretical and practical dimensions of diversity, global interconnectedness and societal challenges contextualised for the discipline of study. Students will construct their own intercultural learning through reflection on their experiences of working, problem solving and learning with and from their peers and colleagues.

At the planning stage of programme design or review, educators should seek opportunities for embedding an immersive transnational or intercultural learning experience. These may involve study abroad opportunities such as an International Exchange for a full trimester or even academic year; International elective placements, work experience or volunteering projects which enable students to work alongside other students, professionals and volunteers from diverse backgrounds; or focussed International study trips. However, not all programmes can accommodate study abroad and not all students on a programme are able to engage in these. Therefore, innovative opportunities for Internationalisation at Home (IaH) are growing more traction. For instance, virtual exchange (COIL, SUNY REF); internationalised summer schools (virtual or on campus), where students can act as facilitators as well as participants; or local intercultural community projects.

Virtual Exchange facilitates authentic opportunities for students to work and collaborate with transnational peers in partner institutions, from their own classrooms as an alternative to a study abroad experience. Students are taught together and work collaboratively on discovery based projects in transnational groups, which enables them to share knowledge of their subject discipline and compare and contrast international practices, policies and the social, political, economic or environmental drivers and influencers of these. Communication is through videoconferencing, social media and virtual learning environments which facilitates the development of other transferable and 21st century skills.

The co-development and teaching of an International Virtual Exchange is not without its challenges and opportunities for educators too. These include development of their own intercultural competencies through navigating: different institutional contexts or pedagogic approaches to teaching and assessment; different levels of familiarity with online tools and media; different levels of student commitment and/or experience of for student led team working; as well as logistical factors such as time-zones and language (McKinnon et al. 2015).

Assessment of immersive collaborative learning experiences can take a variety of forms. Outputs of a group project, e.g. a report, a proposal or even a material product, demonstrate learning against the subject specific learning outcomes and go some way to evidencing the journey the group has taken together to achieve consensus. Direct observation of participants' performance with feedback from supervisors, host families, faculty etc. or self-evaluation pre and post facilitate a conscious awareness

of their intercultural learning progress. Students should be encouraged to collate artefacts such as photographs, wikis or blogs, correspondence to populate their e-portfolio, evidence their learning and support their critical reflection. Through critical reflection, students should be encouraged to demonstrate their learning around not only the intended learning outcomes of the module/study unit but also emergent learning from their own self-evaluation and broader intercultural interactions; these may be unique to their own experiences but play an essential role in their transformative learning journey (Bennett, 2009).

Mastery

The final phase of this model involves mastery and application of the intercultural learning concepts acquired during the exposure and immersion phases. The purpose is to encourage engagement in critical thinking, analysis and shared solution finding and demonstrate the flexibility and sensitivity to think, communicate and respond interculturally in novel and diverse contexts. These can be facilitated through higher level projects embedded in immersive collaborative learning experiences that seek to address real world societal challenges. An example of good practice is the award winning (Collaborative Award for Teaching Excellence - CATE, 2019) 'Promoting Excellence in Employability and Transversal Skills' (PEETS) programme (see Box 2.).

Box 2. Promoting Excellence in Employability and Transversal Skills' (PEETS).
PEETS is a collaboration of Glasgow Caledonian University, Lahti University of Applied Science, The Hague University of Applied Science and Constructionarium (Scotland) Ltd. (Gilmour, 2019). Initially part funded by Erasmus+ this Strategic Partnership includes a variety of multidisciplinary and intercultural learning opportunities and activities. It is a six-month learning experience for mostly third-year students interested in environmental / renewable energy issues with either technical (engineering), business or marketing backgrounds.

Up to 50 students and staff from different disciplines and backgrounds (including up to 14 nationalities) would participate in the initiative on an annual basis. This would include

Completion of a self-assessment questionnaire at the start and end of the initiative
360degree "App" on intercultural competencies
Induction activities including creation of self-introduction videos
Individual and group research and preparation of presentations to share with the students from different countries.

Participants would then attend a 10-day Intensive Study Period (ISP) in either Scotland, Finland or the Netherlands. Students are split into multidisciplinary and intercultural groups and provided with a range of tasks including the planning and construction of 3 X 5M mini wind turbines. They also share cultural activities (eg ceilidh) and foods from "home". This exposes students to new experiences and approaches to communicating with different disciplines and cultures. Occasionally, "intercultural incidents" arise, resulting in potentially significant challenges for individuals and/or the team. Students are encouraged to "talk-through" such

challenges which is facilitated by "time for evening reflection" as well as the support of student mentors.

In order to increase the intensity of the learning experience for the students and to expose them to work situations outwith their control, further challenges would be introduced. This included bringing forward deadlines by 12 hours for group presentations and "tender submissions". The final challenge introduced was when the students were informed they had to revise their 3 group tenders into one combined tender. This really tested their critical thinking, flexibility and creativity.

The 10-day intensive study periods provided an excellent, albeit time limited, opportunity for testing out Kolbs (Kolb, 1984) experiential learning cycle of having an experience, reflecting on it, making meaning from it and then trying out what you have learned.

Analysis of student feedback questionnaires revealed enhancement of a range of key employability attributes including self-confidence, intercultural awareness, communication and resilience. One student even claimed "it was the best experience of my life".

To attain a level of mastery, students need to be appropriately equipped for intercultural learning before, during, and after an immersive collaborative experience (Deardorrf, 2011). She exhorts the need to prepare students with an "understanding of intercultural competence frameworks, vocabulary, and concepts so that they can apply them to the learning that occurs" (Deardorff 2011). This will enable them to better articulate their individual learning through critical reflection as well as communicate concrete examples of their competency achievement to future employers, sponsors or potential business partners.

Conclusions

The development of global and inclusive perspectives, attitudes and behaviours is a continuous process that requires time and reflection to achieve. This higher order learning lends itself to a constructivist and transformative learning model whereby students construct their own learning from experiences and interactions with others. Educators require to facilitate suitable learning environments, tools and opportunities appropriate to the stage of the student's learning. Learning opportunities need to be embedded throughout the formal curriculum and made explicit within the learning outcomes and assessments to enable learners to recognise and articulate their achievements. The exposure, immersion, mastery model provides a simple means of scaffolding the learning throughout the programme and aligns with Jones (2013) Curriculum Pyramid to support the internationalisation of the curriculum. Critical reflection is an essential component of the learning and assessment process and students should be encouraged to reflect upon their wider intercultural experiences in order to augment and contextualise their learning within the formal curriculum. This approach promotes an ethos of lifelong learning as learning through life and this mindset should be fostered throughout the student's university experience.

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Impact of Student Learning Community on Student Success and Retention

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Abstract
Student success and retention are two of the major challenges in higher education institutions. Student learning communities (SLC), one of the potential solutions for improving student success and retention, have been gaining considerable attention in higher education institutions. The variation in this paper, aimed to provide coordinated support that promoted the development of essential academic and social skills for undergraduate students. We started the first phase of the SLC in our school, which was administered by a group of second-year students across two semesters. The SLC team members were allocated to two working-groups: "Academic enhancement" and "Extra-Curricular". The academic enhancement group collectively developed learning materials for peer assisted study sessions (PASS). Members of this group were also appointed as teaching assistants for selected first-year modules. They also organised so-called "Buddie-buddy" sessions scheduled to coincide with other activities run by them. The Buddie-buddy sessions intended to aid students preparing for their upcoming assessments. The extra-curricular group designed activities to socially-involve students. They were scheduled in timetable "dead-spots" – between core lectures where students sought opportunities to engage in interesting and beneficial activities on-campus. The results of the survey completed by first-year students indicated that participating in the activities run by the SLC promoted the culture of collaboration and engagement in learning. It had a positive impact on their self-reported outcomes and overall satisfaction within the school. The SLC was also conveyed by students to have furthered their academic success, and the retention of these first years also saw a significant improvement. The confidence, skills and social energy fostered by being a member of the SLC was another profound effect highlighted by the SLC team members.

Keywords: Student Learning Community, Peer Assisted Study Session, Student Retention and Progression

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Introduction

A higher education is not only beneficial in helping students gain crucial academic and social skills, but also opening doors towards additional job opportunities. In the current competitive job market, a higher education can be the differentiating Sfactor amongst job applicants. With education playing a vital role in peoples' lives, it can be difficult to disregard that student success and retention are prominent challenges in higher education institutions. It is reasonable to suppose that if students fail to perform well during their higher education, they are more inclined to drop out. This trend would then inevitably reduce the number of students completing their higher education with a qualification. Consequently, students are preventing themselves from reaching their full academic potential, closing many of the doors that could have been available to them, and will continue to do so.

To address this problem from a higher-education standpoint, the endeavour was to create a Student Learning Community (SLC), an effort that has been gaining considerable attention amongst higher education institutions and is recognised for improving student success and retention (Thomas et al., 2018; Dagley et al. 2016; Scott et al., 2017).

Thomas and Dagley highlighted their use of course restructuring to aid the improvement of student success and retention in their learning communities. In the course structure of Thomas et al. (2018), a combination of group-based academic work such as group-projects, and compulsory extra-curricular activities such as plays and social events, were incorporated with the aim of strengthening students' social networks and their familiarity with the institute; a means to help students integrate better with the institute. Similarly, the course structure of Dagley et al. (2016) also encompassed a combination of group-based work, social activities, and the use of an academic advisor. Another feature present in this learning community of Dagley et al. (2016) was the practice of a smaller course as a pre-requisite for a harder course, to provide students with sufficient and additional preparation. Graduate Teaching Assistants (GTAs) were also utilised for administering recap sessions and monitoring the progress of students, after which hours for tutoring were allocated if needed.

In stark contrast to the work of Thomas et al. (2018) and Dagley et al. (2016), the work of Scott et al. (2017) did not include any course restructuring, and instead emphasised two key parts of their learning community, an "Academic Boot Camp", which was a 3-hour session designed to help incoming students integrate into a different environment, and hour-long monthly meetings with students to support them during their education. As students would be unfamiliar to the workloads at the institute, the boot camp aimed to help create familiarity with the resources available, whilst also help to create social networks between students (Scott et al., 2017). The camp sought to do so by providing guidance on academic success, describing methods to achieve it, and separating students into groups. The monthly meetings on the other hand, not only diverged from the one-time nature of the boot camp, but each meeting had its own purpose. The first involved peer-mentor-led focus groups to address areas of concern and success in students where students could learn from each other. The second intended to advise students on how their most recent grades would affect their stay at the institution and/or possible repercussions; it was thought that many students would not know how to proceed with less than adequate grades. This meeting also

provided an opportunity for students who did not know how to access their grades online, to check them here. The third and final meeting was intended to aid and encourage students that were near probation or removal from the institution to work harder, as well as provide exam preparation advice.

With our proposed SLC in the School of Informatics at the University of Leicester, the objective was to deliver coordinated support that promoted the development of essential academic and social skills for undergraduate students. The encouragement of academic skills development would foster perseverance in students, promoting student retention and success (Kuh, 2001). As for the development in social skills, this would stimulate the accustoming of students to the university, furthering the prospects of academic success and retention (Kuh, 2001). Dependent on the success of this effort, the school would benefit from greater student engagement and achievement. With further expansion, the methods of this Student Learning Community could be implemented across the university and amongst others to facilitate improved student success and retention. The commencing phase of the SLC was designed for first-year undergraduate students. This was a beneficial starting point, as students that found early studies problematic would struggle to improve the academic and social proficiencies needed for future success in higher education (Kuh, 2001).

The following describes how the SLC was formed in our school, the list of activities performed during the commencing phase of this project, followed by its outcomes and students' feedback.

SLC Team Member Selection and Training Session

For the Student Learning Community (SLC) to have a robust driving force, capable of developing the academic and social skills of first-year students, its establishing members needed to be considered rationally. The most obvious choice was to recruit second-year Informatics students. As they had recently completed their first year, their knowledge on first-year course content would be "fresh", so to speak. Secondly, their experiences would be crucial in understanding what incoming first-year students would struggle with, and hence would help them devise better approaches for assisting them. Thirdly, having students as SLC members would provide incoming first years with someone they could relate to, which would hope to help build quicker, stronger connections and levels of trust. The two highly favourable factors that went into selecting candidates were their academic performance and class engagement thus far. Another very important set of selection criteria was to have representatives from all gender, ethnic and demographic groups as equality was one of the aims of the SLC.

As the newly recruited second-year students were unaccustomed to utilising the pedagogies of a higher education institute, and unaware of the skills needed to be a successful SLC member, a training session was a necessity. Two additional and equally significant objectives of this session were to assess the abilities of the students to see whether they would be more suited to helping academically-struggling students or designing extra-curricular activities, and to assess the compatibility of the SLC members and how well they work collectively. In such an environment where providing a sense of community to first-year students is important to develop their

academic and social skills, it would pose a significant problem if the SLC members could not collaborate with each other and provide an example for the students. The workshop in question consisted of individual activities spread across a single day. The first activity was targeted at getting the SLC members familiar with each other and involved "ice-breaker" exercises. What followed were three programmes of approximately 90 minutes in length, each addressing fundamental skills to be learnt: "Effective Group Working", "Designing Extra-Curricular Activities", and "Teaching Approaches". Each of these programmes involved an introductory presentation to the respective topic by professors of the institute, followed by a practical individual activity and a group activity to apply their knowledge, and finally a discussion where students reflected on their work and learned valuable insights for self-improvement. The first programme aimed to introduce the SLC team to practices and skills needed for effective teamwork and provided a teamwork model to adapt to when these students took part in the group activities throughout the workshop. The second programme, "Designing Extra-Curricular Activities", aimed to teach students on the process behind designing engaging activities; something which some of them would be doing as part of the SLC. The third programme, titled "Teaching Approaches", introduced students to various pedagogies; another thing that some students would be doing as part of the SLC. Through analysing the performance of students in the workshop, the workshop concluded with splitting the SLC members into two working groups: "Academic Enhancement" and "Extra-Curricular".

Activities Performed by the Academic Enhancement Working Group

The academic enhancement group was tasked with promoting the development of first-year students' academic skills throughout two semesters. Peer-Assisted Study Sessions (PASS) were introduced as a weekly recapping session conducted by the SLC team members, intended to go over the content taught in that week. Alongside PASS were so-called "Buddie-buddy" sessions, a means for first-year students to prepare for forthcoming exams. These sessions coincided with exam schedules to provide support a few days prior. The sessions themselves involved letting students attempt exam-style questions and presenting techniques to answering specific types of exam questions. The third activity of the academic enhancement group was to support first-year students as Teaching Assistants (TAs) during their timetabled laboratory sessions. All the members of the academic enhancement group partook in this role and were involved in aiding students that were struggling to complete the computer-lab activities assigned to them.

Activities Performed by the Extra-Curricular Working Group

The extra-curricular group in contrast, was assigned the task of designing activities to be run throughout the course of two semesters. These activities hoped to develop the social skills of students and help them build social networks with others from the same course. To increase the likelihood of engagement from first-year students, the activities were purposefully scheduled in timetable "dead spots" – between core lectures. This would be effective in attracting students that were usually searching for engaging and constructive on-campus events during this time away from lectures. The following were some of the activities designed and organised by this working group:

- Fun interactive activities for induction week.
- A programming competition.

- A crossword challenge.

Achievements and Student Feedback

To evaluate the effectiveness of the proposed SLC, we surveyed both first-year students and SLC team members to find out the impact that the SLC had on their learning experiences. As presented in Figure 1, results from a survey of 80 students indicated a significant percentage felt that the activities provided by the academic enhancement group had a positive effect on their learning and success, specifically the PASS and Buddie-buddy sessions. Participants found them useful in satisfying gaps in their knowledge, which they were able to apply in exams to gain marks otherwise unattainable. These results show that the SLC was successful in meeting one of the original aims of this endeavour, which was to improve student success, and gives evidence that the SLC was able to support the development of academic skills (a subobjective).

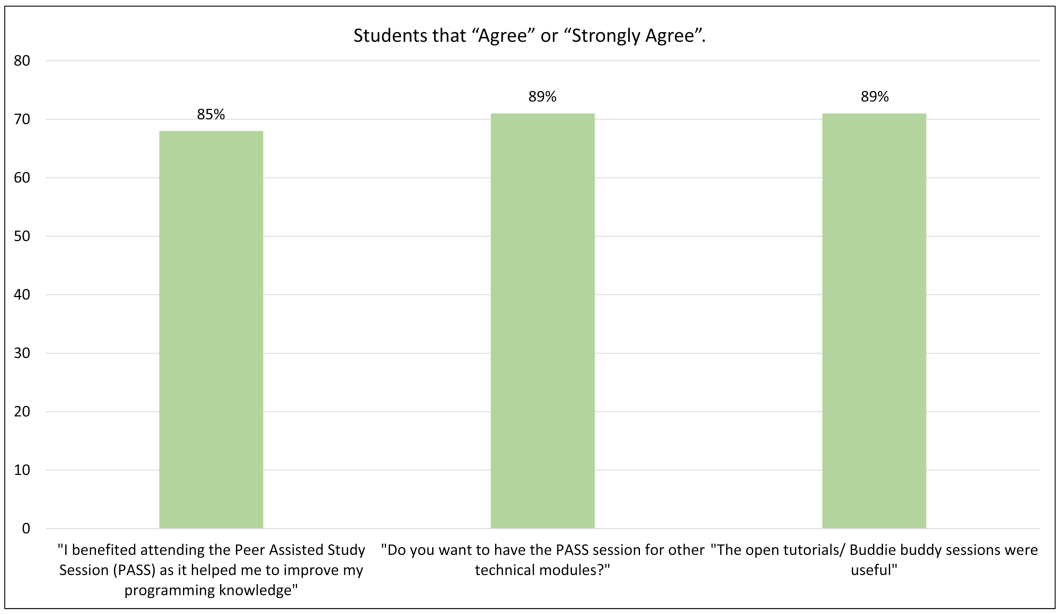

Figure 1: The number of students that answered “Agree” or “Strongly Agree” to the survey.

In reference to the TA positions that the academic enhancement group undertook, students mentioned their appreciation, stating how they benefited from attending the computer-lab sessions because of how effective the TAs were in helping them. This was anticipated from the deliberate recruitment of second-year students to the SLC, in the hopes that they would be able to understand what first years would struggle with, after being “in their shoes” the previous year. Additionally, their strong knowledge on course material would have placed them in a prime position to help struggling students. Similar studies reported that peer teaching and student-to-student mentoring were simple and cost-effective solutions to increase student learning experiences and eventual retention (Boyle et al., 2010; Collings et al., 2014).

84% of the students that completed the survey rated their experience on extra-curricular activities as positive. Common themes expressed by the participants were that the events were influential in building friendships and incorporated a lot of fun

activities, which realise the intended ambitions of having activities which attracted students and helped to build social networks between them. The identified theme of building friendships also supports that the SLC was involved in the betterment of students' social skills (another subobjective).

These results and the informal feedback received from students explained that the SLC helped to create a sort of environment that students could feel a part of. This obviously helped students to become more familiar with the University and to learn more about the community on-campus. This was an outcome shared in the work of Thomas et al. (2018) and Dagley et al. (2016), where students also expressed their positivity over feeling a part of a community. In relation to how the students related well with the SLC members, it is perfectly plausible because of how the SLC members were students just like the first-year students (an outcome which was originally hoped for). And it could have been this factor which encouraged better engagement and friendships between the first years and the SLC.

Given the student feedback, it is clear that the use of second-year students for the SLC played a key role in aiding first years in their studies. Aside from the positive feedback, the second-year students were capable and responsible for organising themselves and ensuring the first years benefitted from their actions. And these results present the benefits of having students take responsibility in learning communities and contributes a better understanding of what can come from involving students in their own education.

Feedback from the SLC team members

From the SLC members who completed the questionnaire, all of them reached the consensus that being a part of the SLC had been a positive experience, with many quoting the word "amazing". The reasons behind such a positive involvement shared many similarities between members listed below:

- Increased conSfidence in public speaking.
- The development of useful skills such as leadership, organisation, event planning.
- The enjoyment of teamwork.

Although the learning community of this paper was intended for improving the success and retention amongst first-year students, the involvement was evidently also beneficial for the second-year students. It could be interpreted that because of the positivity that these SLC members had towards the learning community, it reflected in the work they did and led to a better quality of help towards struggling first-year students.

This study and the feedback from both SLC members and the students attending the activities ran by SLC members, describe how well the SLC project managed to reduce the attainment gap for first-year and partly second-year students at the School of Informatics. The success of the SLC also resulted in a significant improvement in continuation. The percentage of first-year students who did not proceed to the second year had dropped significantly to only 2.75%. This figure shows that the SLC was successful in meeting the second of the original aims of this endeavour, which was to improve student retention. This also closely aligns with the work of Dagley et al.

(2016), Scott et al. (2017) and Thomas et al. (2018) which all showed improved retention rates from their learning community applications.

Conclusion

The student learning community in this paper set out to improve the success and retention of undergraduate first-year computer science students. Like many studies reported in the literature, a significant number of students expressed that the SLC had a positive effect on their learning; students reflected on how gaps in their knowledge were addressed, enabling further success in exams. Alongside this success, also came a considerable improvement in the overall retention rate of students.

The positive outcomes brought on by the SLC in this paper were not only restricted to the initial aims of improving student success and retention, but also proved beneficial for the second-year students involved in managing the SLC, such as helping them to develop useful skills. Feedback from surveys indicated that the academic and extra-curricular activities designed by the SLC improved the academic and social skills of first-year students, whilst also providing a sense of community for them. This paper contributes a successful variation of a student learning community and offers activities that, when combined, have been fruitful in showing improvements in student success and retention. However, it is important to note that the success cannot be attributed to just one specific activity/activities, but rather a combination of them all, and other factors like student engagement and the enthusiasm of the SLC team members.

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Orientation Courses for Migrants in Germany: Between Civic Adult Education and Neoliberal Tendencies

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Abstract
Migrants coming to Germany are obliged to take part in 'integration courses' to obtain residence titles. The curriculum proclaims these orientation courses as 'value-based political education'. This paper analyzes the perception of the impact of the courses from the perspective of participants and teachers, focusing on neoliberal fixations in tradition of the 'Chicago School' of Economics on efficiency and on 'forming' useful citizens as a shift in orientation of civil society. Adult education roots, however, in the ideals of emancipation and the Enlightenment. Political programs of migration and political education as well as the Concept for a Nationwide Orientation Course along applicable legal regulations were examined. The qualitative research design contains a partly standardized empirical survey among participants and tutors of the described orientation courses, based on a documentary analysis concerning the legal regulations and a thematic analysis. The data analysis is carried out with a coding scheme with subcodes in relation to the objectives. The results allow the conclusion that, within the framework of the orientation courses, the rules of the local society are taught, so that the participants are expected just to accept them. Policy analysts argue that the ongoing neoliberalization is a 'critical juncture' in times of transformation, which provides risks for individuals and societies, e.g. losing the philosophy of solidarity. Lifelong learning as part of new work in an agile society gets instrumentalized against a humanistic, learner-centered approach. The performance goals and efficiency-trimmed conditions should therefore focus on individual development of the learners.

Keywords: Migration Policy, Neoliberalization, Lifelong Learning, Learner-Centered Approach

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Introduction

Migrants coming to Germany are obliged to take part in ‘integration courses’ to obtain residence titles. The curriculum proclaims these orientation courses explicitly as ‘value-based political education’, which contributes to the ‘promotion of social participation’ and enables ‘dealing with one's own life reality’ (BAMF, 2017). In that regard, it can already be seen that the service company sets conditions for being part of it and 'examines' the extent to which a contribution to the company can be made. In this respect, the two perspectives are whether the orientation course with the content-giving curriculum on the one hand and the practical implementation of this content on the other hand contribute to the successful cultural integration. Particularly thinking about the latter aspect, it can be analytically determined whether a certain assimilation does not take place when ‘mediating’ a culture that is foreign, with norms and values as well as behaviors in everyday life (see the assimilation paradigms according to Esser, 2001). In this respect, attitudes and requirements can certainly lead to states of segregation within a society. The link between interculturality and the new forms of work requirements such as creativity and agility will also be examined in terms of a positive effect on integration-promoting potentials among migrants.

The tendencies towards governmental liberalization and efficiency gains have a social impact on the social balance of power and, thus, indirectly on the protection of minorities (Altvater, 1981). State deregulation in social policy promotes social individualism, which is the most important benefit to the upper, established population. This is due to the principle of justice to create a livelihood for the individual, and the economic potentials for the public (Nachtwey, 2008). At the same time, this shifts the importance of social actors such as trade unions, parties, and business associations. This is about a transformation of the state, according to which the order and market regulation function is placed above the social policy function.

Main Perspective

Policy analysts argue that the ongoing neoliberalization of social welfare policy is a ‘critical juncture’ because it is taking place during a time of transformation, which provides risks for individuals and societies, e.g. losing the philosophy of solidarity. Lifelong learning as part of new work in an agile society is instrumentalized against a humanistic, learner-centered approach. The performance goals and efficiency-trimmed conditions prevent individual development and motivation of the learners and has consequences for the professionalization of tutors working with adults. Changes in social policy reflect the growing influence of the market-oriented philosophy of neoliberalism in the tradition of the Chicago School of Economics in policymaking, with representatives such as Milton Friedman or Joseph Schumpeter. In this context, there is a tendency in the Western industrialized countries that neoliberalization is increasingly developing into the leading logic for public policymaking. This goes hand in hand with a strong change of orientation in civil society, where economic thinking also determines a variety of areas of life: business, organization and association life, family life, and working life. Hayek's Road to Serfdom (1944) criticized the idea of a welfare state that would undermine the autonomy of markets.

Theoretical basics

This leading perspective of government policy and legislation in social science is not free of critics (such as Jürgen Habermas). In particular, the modern sociological system theory, founded by Talcott Parsons and Niklas Luhmann, is based on empirical observation and analysis of the functionality of modern society without neoliberal tendencies. Lifelong learning is a central point of life here, so that pedagogical learning theories such as cognitivism, with representatives such as Kurt Lewin or Jean Piaget, could also be used as a concept for the nationwide integration course.

The concept of neoliberalism is intended to express a transformation of the relationship between the state and the economy, which is reflected in both legislation and political programs. In pure neo-liberal form, the performance and competitive character permeates all areas of society life, if megatrends such as globalization or supranational governance of transnational organizations such as the European Union (EU) are not able to do so. A lack of budgetary power of the municipalities to carry out the local tasks on their own responsibility have an influence on everyday social life (Foucault, 1978).

Therefore, the strategic-relational perspective of the state as a social actor, but also drivers of hegemony concepts (Poulantzas, 1978), are implicitly included, when the crisis of the Fordist-Keynesian welfare state raised the central question of state legitimacy. The concept of 'new constitutionalism' (Gill, 2000) describes the disciplining effect of the neoliberal attitude of political action supported by basic economic values.

The idea of the development of society is based on the general economic idea of 'human capital' (Stewart, 1999) In this respect, the neoliberal paradigm also fits in with the theories of the modern working world. However, the extent to which lateral leadership, open innovation management, and agile working methods in the VUCA world also include the opportunity for the target group of migrants, and how globalization could really be found in the social fabric, the social context of this example. Further research will be carried out.

Concept of culture and intercultural communication

Defining the concept of culture is difficult from a variety of scientific points of view, which is why this work is limited to the capacity for integration or the will of migrants. The culture of a society has a component of constant change and renewal (see Eco, 1977), as well as a static construction of classification standards and recognized rules of conduct, which also includes the consideration of migration and integration.

At the beginning of the 1980s, the theory of assimilation according to Esser was developed, which provided the programmatic basis in the current Federal Republican integration policy. At the same time, Esser points out that in globalized, modern societies there is no need for identification with the nation, but at the level of 'citizenship' principles of 'individual freedom and norms of fairness and democracy' (Esser, 2001). The sense of citizenship is disconnected from the question of national

affiliations, such as a liberal-democratic basic order or allowing pluralized paths of life in the local place of the closer environment. As a critique of Esser's theory of assimilation, the blurring can be attributed, for example, to the factor of attractiveness of an immigration country or the influence of national integration policies on the integration process.

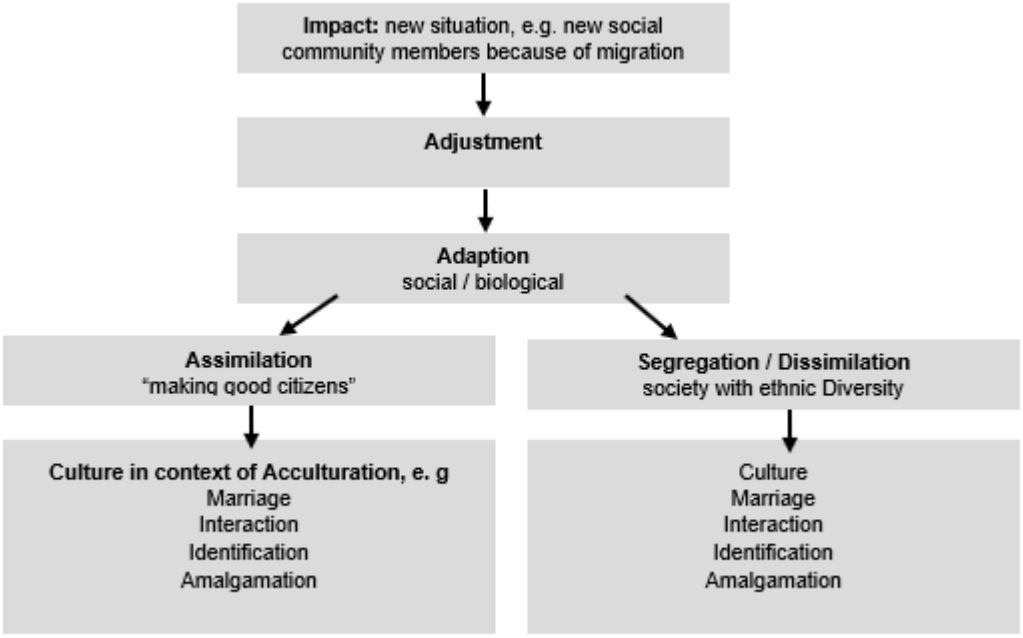

Figure 1: Assimilation Theory according to Esser

The counterpart to the theory of assimilation is the hybrid cultural theory according to Homi K. Bhabha from the field of postcolonial studies, which assumes that there is room for migrants to act in order to influence the host society and enrich the culture found. Bhabha criticizes the mere coexistence of different ethnic groups as an overarching consensus, although division through cultural plurality inevitably takes place, and thus a valuable moment of development is lost. In this respect, there are critical positions on cultural difference, social authority, and political discrimination (see Bhabha, 2000).

Specifically, Bhabha speaks of ways of bringing the migrants' experiences into a participatory procedure, for example as an opportunity to enrich the curriculum of the Federal Office for Migration and Refugees (BAMF) with intercultural elements. The 'controversy' of political education is defined by content, social importance, and access to education.

Orientation Courses for Migrants in Germany

The influences mentioned so far can particularly be seen in legislation, using the example of immigration policy. Therefore, an overview of the requirements for the integration courses will be given as a specific example of foreseen migration conditions.

The BAMF is a federal agency in the business sector of the Federal Ministry of the Interior (BMI), which is responsible for the framework conditions for the

implementation of integration courses. In concrete terms, authorization procedures are also carried out, integration statistics are drawn up, and the authorization and procurement to independent welfare institutions for the implementation of the course units, which in turn take over the function of supervisory authority if participants do not appear in classes.

The holistic requirement of the integration course is to enable immigrants to cope with the affairs of their daily lives without any support. In this respect, the Residence Act differentiates the integration courses, a further development of language skills and knowledge of the current legal system, culture, and history of the Federal Republic of Germany. In addition to topics of everyday interaction in life situations, which are taught through linguistic exercises, listening comprehension and reading comprehension, the focus is above all on the ability to write, e.g. writing letters and dealing with forms.

With regard to the level of language, this objective has to be achieved within 600 lessons (UE) in all-day language lessons (each with 300 hours for the basic and advanced language course) and a further 100 UE of political education in the orientation course. The orientation course concludes with the multiple-choice test 'Leben in Deutschland' (LiD), which checks on cultural integration with a total of 33 questions in a processing time of 60 minutes. The revised new edition concerns the extended orientation course to 100 teaching units (UE) within the modules 'Politics in Democracy', 'History and Responsibility', 'Human and Society' and an excursion.

The basic principles of political education are expressed in the Beutelsbach Consensus, which provides, among other things, for the relation to the world of life and the topicality of these issues. The Beutelsbach Consensus was established in 1976 by the Baden-Württemberg State Centre for Political Education and is a principle for political education. The principles for policy teaching contains the logic of the curriculum for the acquisition of knowledge in the orientation course aiming at the following three general learning objectives:

1. Affective learning objectives to achieve a positive assessment of democracy.
2. Cognitive learning goals rely on a gain of knowledge based on previous experiences, in which everyday situations are classified.
3. Competence development and expansion through case-by-case application of the mediated content.

The focus of the content is the relationship of the individual to the community, in which an open concept of culture is based; intercultural competence and tolerance are the maxim of action. In line with the effort to activate participants, weighing and analyzing options for action within norms and conventions is an example of tolerant and constructive coexistence.

Research design

Based on the previous remarks, empirical consideration is based on a qualitative research design, in which the opinions and assessments of teachers and participants on the integration success of the orientation course were queried. The aim of the study is to show to what extent and under what conditions the students can and may participate in the lessons and to what extent these opportunities are used. In this

context, there may be several factors that may complicate cultural negotiation, which are based on neoliberal influences. Therefore, the focus of this work is that the participation in the orientation course, which is often mentioned in the curriculum of the orientation course and thus also required by BAMF, is subject to restrictions under the given conditions.

Data Sources

The collection of the subjective experiences and perceptions of teachers and participants on the targeted implementation of the instrument orientation course is based on conclusions from the personal assessment of the challenges and needs. The aim is to investigate the competence of the teachers and to take the subjective views on the life-related relationship of the participants, partly already presented in content.

The research data collection group consists of scientifically educated adult trainers and is heterogeneous in terms of teaching experience, gender, and age. The target group of teachers in the orientation course also has varying degrees of prior pedagogical experience. With regards to the participants, only the passing of at least one orientation course was a binding selection criterion. Due to possible language barriers, interpreters supported weaker participants.

Methods

For the implementation of guidance-based focus interviews, a questionnaire was used as a survey tool for both the interviews of the instructors and the participants.

The instructor surveys were conducted with nine teachers in the period from 19. - 26. June2018. The 25 questions (excluding the biographical questions) revolved around the course content, the methods, conflicts that arose, role interpretation and objectives as well as attitudes and evaluations regarding the course success.

In the interview, the participants were interviewed, and the language skills were also evaluated in an evaluation of a pretest, a leading question with 18 questions in five thematic blocks was created. After the collection of bibliographical data, the topics two to four dealt with the views of the participants and with their learning experiences, the course management as well as with problems, feelings, and the problem of wanting to finish the course prematurely. A total of twelve people (five female and seven male) were interviewed, including the pretest participants, on 1st August 2018. The interviews were conducted parallelly in two rooms, recorded and documented using historical logs. They took between 15 and 30 minutes.

The analytical preparation on basis of the research-leading questions of the data material was based on the method of qualitative text analysis (Mayring, 2015). The systematic analysis of the data material with exploration and structuring has a complexity reducing alignment based on the formation of categorization of empirically collected material. On basis of the discussion guide, categories are formed deductively, but new categories are inductively generated. In the process of category formation, text passages are summarized, paraphrased, and categorized.

Using MaxQDA, Version 18.2, a qualitative data and text analysis system, was able to manage codes and coding, and transfer them into the analysis (Kuckartz, 2014). In this way, three main categories ([1] language as a basic barrier to communication, [2] structural requirements and teaching-learning situation, [3] orientation-providing content and values: What has been learned?) were generated, which are related to each other. Due to the small population of respondents, a generalization of qualitative type formation due to the combination of identified expressions is not representative. Regarding the interview group, the interpretation, however, shows some probability in relation to tendencies to confirm the hypotheses.

Conclusion

The deductively developed hypotheses were mainly confirmed with the survey's statements on commutated level:

1. Qualification of the lecturers only in the language part qualitatively assured – pedagogical competence not tested in political education, which is absolutely recommended! The basic attitude and values of the lecturers are not questioned by BAMF, but these have an implicit effect on the teaching design and expression development of the participants.
2. Indoctrination instead of participatory integration in practice – curriculum provides for methodological diversity but is sustainable
3. Start of the orientation courses is too early in the integration process, since the participants should get to know the political system - the orientation course does not necessarily make sense as a block seminar - rather accompanying to reflect on everyday experiences with a life experience!
4. Qualification level of the participants is not included to determine the level of political experience, e.g. with an entrance test. The level differences in the orientation course have no consequence.
5. Social performance claim is recognizable in implementation and test procedures – individual-related personality formation is not recognizable. Both remain the responsibility of the individual and his or her individual initiative due to the lack of participatory integration.

Based on the answers, these can be inductively extended by two further generalizable findings:

1. A critical reflection of evaluation is missing concerning the further development of the training concept. In the course, attributions of participants initiated by the curriculum are resolved in a structured manner and discussed critically. A success check of the educational institutions must be evaluated concerning intention and meaningfulness to the teaching objectives of the curriculum and be reflected critically.
2. Positive integration performance is only possible due to a further increase in the previously undersized time quota in the orientation course to contribute personality-building measures in the course implementation using situational methodology.

To put it in a nutshell: the framework conditions of the orientation course give little room for cultural negotiation and teaching cultural values in the integration course is more positive if it is an element of participation. This is proved likely, based on the feedback from the interviews on both sides. The willingness to teach in an orientation

course was mainly associated with personal interest in the topics. Most instructors work on a fee basis for the training provider, which often discourages the high level of preparation and often prevents the inclusion of the world of life.

Most respondents - teachers, and participants - see a discrepancy between the requirements of the curriculum and the level of the ‘Leben in Deutschland’ test. The test does not allow a statement as to the extent to which the participants are prepared for life in Germany, since no attitudes but only knowledge are queried, add several teachers. This fact and the complementary online offers for the test led to ‘vacuum learning’ on the test questions and not the gain of knowledge, which made the courses less attractive.

Teachers see conflicts primarily due to cultural differences of the participants, and different learning cultures are a challenge. In this respect, further training could be helpful in dealing with these differences, if intercultural competence and pedagogical aptitude, e.g. for the use of different social forms of teachers, would also be specified in the orientation course.

Concerning the question of empowerment, it is entirely clear that a significant proportion of teachers have not yet dealt intensively with this issue. It seems that, therefore, ‘social participation’ cannot be fulfilled, since the teachers have not developed a concept for implementation.

Cultural characteristics are not considered enough, which can be justified with Esser's theoretical paradigm, to which the Federal Ministry literally endorses. This type of teaching, thus, tends to bear characteristics of knowledge transfer in the style of assimilation, in which knowledge of culture is to be enshrined in the textbook, presented statically, and accepted by migrants. Both in foreign language teaching and particularly in the part of political education (orientation course), the neoliberal consciousness of the state becomes clear on the one hand, on the other hand, the methodological-didactic design and implementation of the concept gives reason for criticism.

Following Bhabha's theories, the orientation course provides a lot of time and space for discussion and encourages the instructors to introduce rather open questions to the group. It would be conceivable, and, according to Bhabha, an opportunity to question every presented circumstance in the most critical way, to compare it to the participants' own cultural experiences. In contrast, according to Esser's theoretical approach, there is less need for discussion and criticism of the existing German system since the focus is on the transfer of knowledge of German customs. Migrants are a minority who have to adapt, to a certain extent, in order to be able to act in everyday life and in their professional life, but Esser's theory is already strongly anchored in the conception of integration courses, that their presence in the classroom are little questioned.

This act of queuing for learned and probably often memorized knowledge in the form of a multiple-choice test is a characteristic of Esser's assessment of integration. The test does not examine the views or opinions of the participants, which Esser himself calls a ‘certain 'lead' culture’, and the limits of the feasibility of Bhabha's sociological theory. This situation leads to the fact that norms and values, which are to be taught in

the course, are taught more head-on than discursively, which seems to be quite effective from an assimilation point of view. However, either due to the nature of the mediation, the group dynamics or also low due to lack of time, the important element of the negotiation is lost, and the orientation course departs from its objective of the transfer of value.

The qualitative method of empirical design offered the opportunity to take the subjective view of teachers and participants on structural requirements and the concrete teaching design. At the same time, the limitations of this work must be addressed with a lack of validity due to this design, and possible starting points for further research must be identified. However, it is not possible to make an absolute statement about the influence on the mediation of cultural values, practices, and symbols that have been noticed in this research, since a still clearly profound empirical study would be needed. On basis of the above-mentioned aspects of an indoctrinating basic orientation of the state implementation of the requirements from the curriculum, it is necessary to discuss whether a competence-oriented form of communication of everyday-related scenarios of the culture alien to the participants should be pursued.

It is undisputed that the test limits the scope of the questions from the classroom, strengthens a focus on the sample questions during the preparation of the learning, and does not allow room for the participants' own experiences and life-related relationships. In addition, the probability of 25 percentage points on the correct response in rate mode is greatly increased, because incorrect responses are not sanctioned with point reduction. In this respect, there is no structured control of the learning objectives as an implementation of the requirements stated in the curriculum and in the teaching materials on basis of concrete tasks. The design of the structural framework seems to have a significant impact on the sustainability of integration performance, so there is a need for further research.

A world society based on solidarity as a regulatory idea includes the idea of ‘readiness for social balance’ (Kößler, 2000) and the promotion of the ecological perspective. Accordingly, living conditions must change, triggering conflicting learning and experience processes in one's own society to combat dilemmas of global justice deficits. An important starting point, therefore, is self-criticism and a reflection on the stately mechanisms of education. Thus, the challenge for Germany is a development towards an immigration society.

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Practices and Perspectives on Heritage Language Maintenance with Digital Technology among Japanese Immigrant Families in the United Kingdom

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Abstract
This paper examines the level of engagement in heritage language (HL) maintenance using digital technology among Japanese immigrant families in the United Kingdom. It does so with reference to the theoretical concepts of Capacity Development, Opportunity Creation, and Desire. The data were drawn from semi-structured interviews and unstructured observations of eight pairs of nine to eleven-year-old Japanese immigrant children and their parents at their homes in London and Bristol. The findings demonstrate positive perceptions towards the usage of information communication technology (ICT) for HL maintenance among families, although this continues to be viewed as supplementary in nature. It also provides details on the use of informal and formal HL learning and the background to HL maintenance among those families. It also highlights the need for increased parental involvement and greater consideration of the challenges involved in encouraging children to engage with HL interaction, even in the presence of ICT. The discussion also addresses the importance of considering immigrants from different socioeconomic and ethnic backgrounds, quantitatively verifying the impact on HL learning with ICT with respect to its validity and user access, and encouraging the corresponding development of the IT, education, and animation industries.

Keywords: Heritage Language, ICT, Immigrants

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1. Introduction

Immigration and settlement in a new society can be one of the most dynamic and complex processes in an individual's life. It has significant implications for heritage-language (HL) maintenance in the lives of immigrants, for whom the emergence of media technology is now impacting the interaction with HL and heritage culture. However, the topic of HL maintenance using technology among young Japanese immigrants at primary school level has not been addressed. Hence, this research addresses Japanese language maintenance through the use of information communication technology (ICT) at home, aiming to explore 'in what ways Japanese immigrant children's engagement with digital technologies supports the maintenance of their HL at home.'

2. Literature review

2.1. Immigrants in the UK and their 'heritage language'

Globalisation has led to more people having transnational lives, an increase in intercultural interaction, and the extinguishing of geographical borders. Such changes have also influenced policies and practices pertaining to language education, as an increasing number of people across the world are becoming multilingual (Singh, Zhang & Besmel, 2012). Their lifestyle in terms of culture and language is diverse. A significant number of children from immigrant families in the UK speak a language other than English. For those children, maintaining the language their parent(s) speak(s) at home is a complex and considerable undertaking. For the purposes of the subsequent discussion, the term 'heritage language' is specifically applied to describe the language that immigrants speak at home and in their community (Fishman, 1991).

2.2. HL maintenance and the challenges

To maintain their HL proficiency, immigrant children have to maintain robust contact with their HL, which cannot be achieved without continuous effort. In terms of life in the UK, HL maintenance is a challenge as their dominant language is English. Many immigrant children are likely to be encouraged to learn English due to pressure from school (Kouritzin, 1999) and a desire to merge with mainstream society (Kouritzin, 1999; Fillmore, 2000). Although proficiency in English is clearly important for success in the UK, it does not necessarily have to involve the loss of HL. Researchers claim that HL is a great resource that should be cherished and developed for a linguistically and culturally diverse world (Brecht & Ingold, 2002). Several have suggested there are possible negative consequences associated with loss of HL, from disjunctions in parentS-child relationships (Portes & Hao, 1998; Fillmore, 2000; Tseng & Fuligni, 2000) to isolation from immigrants' ethnic community (Imbens□Bailey, 1996). Moreover, many HL studies conclude that maintaining HL for immigrant children is significant because it has a strong influence on their academic performance, ethnic identity, and unity with wider society (Hamers & Blanc, 1992; Lee, 2002; Guardado & Becker, 2014; Jang & Brutt-Griffler, 2019).

Although the importance of HL is clear, limited learning environments mean that parental involvement in children's HL maintenance is key (Guardado, 2002; Tannenbaum & Berkovich, 2005; Babaee, 2013). Given the need for support by

parents to encourage children's HL maintenance, studies have paid attention to the perception of HL maintenance and *literacy practices* among families (Hashimoto & Lee, 2011; Kwon, 2017; Liang, 2018).

The term *literacy practice* here refers to those events and activities immigrants engage in at home to support children's HL development. Hence, parental involvement and their perceptions are key for HL maintenance and immigrant children's HL literacy practice at home.

2.3. Japanese immigrant families and their HL environment in the United Kingdom

Japanese parents are extremely interested in teaching HL and Japanese culture to their children, but it is very challenging. Kwon (2017) states that Japanese and Korean parents have a strong belief in passing down their HL to their children. Thus, Moreover, Hatano (1995) claims that, to be "regarded as a member of Japanese society" (p. 255), a high standard of Japanese literacy is essential in the Japanese community. Oriyama (2011) claims this is very important for Japanese immigrants, even outside Japan. The formal Japanese learning environment in the UK is comparatively accessible for immigrant children. There is one Japanese day school (*Nihonjin Gakko*) in London and eight Japanese Saturday supplement schools (*Hoshuko*) located across the UK. However, as Danjo (2015) points out, they are primarily for the children of future returnees; they are not schools that teach the Japanese language from scratch but schools with a standard Japanese curriculum for Japanese speakers. Nevertheless, large numbers of students in the UK, especially at *Hoshuko*, are permanent residents and often have difficulties keeping up with their studies. Thus, although Japanese overseas educational institutions are relatively available in the UK, there is an unignorable and unmet need for non-returnee children with current HL maintenance to study at those institutions.

2.4. Immigrant children and their use of technology in HL

Technology has not only transformed our lives and had an enormous impact in multiple contexts, but it has also changed immigrants' cultural access to their home countries in terms of mobility, information, and synchronous and asynchronous communication. For example, Immigrants can immediately obtain numerous different versions of the latest news and media products from the country of origin (Karim, 2003; Lam & Rosario-Ramos, 2009). Lam and Rosario-Ramos (2009) demonstrated how media and social network services (SNS) support social relationships among immigrant adolescents. As such, the use of technology is becoming a notable aspect in research on migration and this is also the case for HL maintenance. Consequently, several studies have found that the use of media technology is one of the most beneficial methods of HL maintenance. Kwon (2017) identified that using media and ICT can interact with immigrants' home culture and motivate learning HL. Szecsi and Szilagyi (2012) explored the potential of web-based technologies focusing on immigrant professionals and their families' perceptions of the roles of media in terms of building a sense of belonging and cultural identity for immigrant children. Following this research, Morgan and Peter (2014) studied the impact of web 2.0 technologies on the maintenance of HL among secondary and high school immigrant students.

Building on the existing research literature, present studies pay attention to the use of ICT among adolescent immigrants in terms of its inherent value. However, there has been little detail on the literacy practices, environment, and content of media in HL maintenance at a time when the use of technology is pervasive, even at younger ages. Moreover, given that children are especially likely to lose their HL in the early years of school, Fillmore (2000) argues there should be more research on HL maintenance under media interventions with younger children. Therefore, this research targets immigrant children at primary school level to explore current media use in relation to HL maintenance in conjunction with parental involvement.

2.5. Theoretical framework

To explore the influence of digital technologies on maintaining HL at home, I utilised a framework for examining the vitality of the language developed by Grin (1990, 2003) and Lo Bianco (2008, 2009). This consists of the three basic principles of Capacity Development, Opportunity Creation, and Desire (COD) that are required for language usage to happen. Capacity development refers to the development of a person's level of proficiency in the language through transmission of the language in formal and informal settings; Opportunity Creation refers to the development domains in which learners are encouraged to use the language in fruitful ways; and Desire is created by the reward and inherent motivation to acquire language proficiency, resulting in effort and investment in learning the language. While language knowledge in terms of Capacity Development is undoubtedly important, it is therefore necessary to have the opportunity to actually use the language in order to increase the desire to engage in such use (Lo Bianco & Peyton, 2013). The principal idea underlying this approach is to "distinguish between conditions that are necessary to foster language use in language revival contexts and those that are sufficient to produce increased language use" (p. 6). Efforts at language revival often focus on teaching and learning the language and making associated legal decisions and policies, while COD is "based on the clear understanding that all three elements must be co-present in any language revival activity" (Sherris & Peyton, 2019, p. 6). COD was devised as a tool to support communities and governments in revitalising the use of regional and minority languages (Lo Bianco & Peyton, 2013).

2.6. Research questions

Drawing on COD as a theoretical lens through which to view language and literacy and employing a qualitative research method, this paper examines in what ways Japanese immigrant children's engagement with digital technologies supports the maintenance of their HL at home. The research questions are:

1. How do children in Japanese immigrant families engage with HL as language and literacy practice through ICTs at home? (COD)
2. How do families perceive the use of those ICTs? (CD)
3. How do parents support their children's ICT use for HL maintenance? (CO)

Through these questions, I aimed to investigate the role and use of ICTs in terms of the possibilities and challenges that arise in home settings, paying attention to what ICTs make possible for HL literacy [Capacity Development], how ICTs yield

experience of HL exposure [Opportunity Creation], and how ICTs can attract families to engage in HL interaction [Desire].

3: Methodology

3.1. Research method

I conducted face-to-face semi-structured interviews and unstructured observations with parents and their children at their homes. They were about one hour each. The data collected were primarily in Japanese but partially in English. The media technology in this research were ICT as hardware and software and the targeted devices were any electrical device that involves human-technology interaction in HL via the internet, such as mobile phones and tablets. The data obtained from the research were analysed using thematic analysis (Braun & Clarke, 2006).

3.2. Participants

The participants in this research comprised eight Japanese families consisting of parents and their children attending local schools at Key Stage 2 Years 4-6 (from nine to eleven years old) who have lived in the UK for more than five years. Family names were changed to pseudonyms to ensure confidentiality. All families were middle-class with highly educated parents who were enthusiastic about their children's maintenance of Japanese. All child participants had a better command of English than Japanese regardless of the length of their stay in the UK, yet all maintained certain levels of HL.

4: Findings

A. Informal HL learning with ICT as casual and leisure time (COD)
A1. Video calling with families and relatives

Online video calling was a popular way to use ICT and six families mentioned that they talked with relatives once every two weeks or so. It was carried out as a regular HL maintenance activity, except for the other two families whose close families and relatives in Japan were unavailable due to having passed away or other private issues. However, two participant children did not appear to enjoy speaking. This was because they had less ability in speaking than listening and some were shy and did not know what to say. Some participants mentioned that online conversation was very helpful; however, maintaining a periodical and smooth conversation with relatives in Japan can be difficult depending on the characteristics of the family.

A2. The utility of watching streaming content in Japanese

It was found that every child participant watches them on their computer and tablet and such informal learning use comprised the majority of their HL interaction with digital technology. In particular, Japanese animation, so-called *anime,* is extremely popular worldwide and this was the case among all the participant children. Children watched them nearly every week. Notably, two children mentioned that some of the Japanese animations were popular in the UK and that their British friends also watch them. For those participants, it seemed they naturally felt familiar with such

programmes through friends in the UK. Four children identified and enjoyed the difference between Japanese and other animation. They thought Japanese animation in Japanese was somehow different and more interesting. Because some kinds of humour are only conveyed in the Japanese language, it motivates children to watch the animations in Japanese. However, parental encouragement also influenced their actions.

A3. Assisted writing to redeem literacy level using technology

Writing Japanese was not very common among the participant children due to its inherent difficulty; nevertheless, it is worth highlighting as their comments also revealed the possibility of assisted writing in HL using ICT. In line with Fitzgerald and Debski's (2006) findings, participant children did not like to write Japanese and it was not usually customary for them to do so in their normal life in the UK other than in coursework for private classes. In the context of ICT use, 'writing' could be more accurately described as typing and inputting Japanese words and sentences with digital devices.

At the same time, the child's mistake was caused by difficulty in linking speaking Japanese to writing in Japanese. For example, in the case of 'soto ha samui,' 'suto' and 'soto' both sound similar. Similarly, 'ha (は)' is pronounced as 'wa (わ)' when speaking as it works as a Japanese particle (*joshi*) but it has to be written as 'ha.' It is understandably difficult for immigrant children who have less experience in writing Japanese. For such children, it seemed helpful to input the speech to a text function in HL.

Although there are no data in Japanese, speech entry is said to be three times faster than typing (Ruan, Wobbrock, Liou, Ng & Landay, 2016). Thus, it is possible to infer that those participant children who take extra time typing in Japanese are more likely to appreciate such speech recognition as it makes inputting faster and smoother. Indeed, speech input using digital devices is becoming more popular these days, even among children (Sengupta & Garg, 2019) and this research showed that its ease of use was likely to enable children to output what they wanted to express in HL.

B. Practicality and inactivity in formal HL learning with ICT (COD)

Although it was not commonly used, this theme discusses cases where ICT was used as a formal HL learning tool through a subscribed tablet-based learning course and Japanese learning apps. Such learning materials are basically designed for Japanese students to cover the Japanese school curriculum relevant to the targeted school year. There was only one family among the participants who subscribed to the e-learning course, but they found it very valuable. They worked on the course two days a week and her daughter Sayaka showed me how she practices Japanese letters (Figure 1). Her frequent use of the app was manifested in her confident and accustomed manner.

Figure 1: Writing letters

Five families had installed drill practice apps in Japanese. There are many Japanese learning apps available and all seemed useful for HL maintenance. Ms Maeda pointed out the merits of these. *"I think it is good to have multiple gateways for learning. Whatever they learn, such as multiplication tables, Kanji and word books, they will learn differently and have different impressions when they learn from games."* She believes that learning apps are good because they provide an alternative form of stimulation that allows knowledge to be absorbed smoothly. Participants who actually used ICT for HL maintenance realised the advantages; however, three of the five participants who had downloaded free apps before said that they no longer used them due to issues with continuity. That is because some apps were downloadable only in certain countries because of targeted marketing. Moreover, because they are free, the contents are limited to trial use and non-subscribers.

C. The priority of and in HL maintenance (OD)
C1. Families' general approach to HL maintenance

All families expend certain efforts to maintain their children's Japanese and, as Kwon (2017) claimed, travel to Japan where formal 'offline' HL schooling seems to be the main method of HL maintenance among participants. Seven families travelled to Japan during the holidays every year and four children attended Japanese school almost every time to maintain their Japanese and interact with the Japanese culture. All parents mentioned the very powerful impact of HL maintenance using this approach. However, parents complained about the limitations regarding the period of stay, its cost, and a huge amount of labour involved. Therefore, except for Takeshi, all children had a routine schedule in which to learn Japanese in a Japanese language circle, attending *Hoshuko* on Saturdays, and a tutoring school (*juku*) which provides very high-level education. However, most parents confessed that it was difficult to encourage their children to work on formal learning. This is not only because of the strict formality involved, it also relates to children's position as immigrants. Moreover, they were busy with playdates and other lessons such as sports and music.

C2. Parents' avoidance of ICT based HL maintenance as the main learning resource

Following the findings in C1, in this section I focus on how HL maintenance with ICT is perceived if it is not the main channel. While several researchers (Szecsi & Szilagyi, 2012; Morgan & Peter, 2014; Kwon 2017) have reported the use of

technology as an effective approach to HL maintenance, this research showed that parents considered HL learning digital devices to be useful but not sufficient as educational material. They generally considered ICT to provide good opportunities to interact with Japanese people and Japanese culture, but no parents regarded media technology as the main source of HL learning. Participants' current maintenance of HL through travel to Japan and formal HL learning is not a perfect strategy. Given participants' priority regarding offline HL maintenance and that it was normally parents who decided their children's HL maintenance strategy, such views reflected an acceptance of ICT as a way to interact with HL [Opportunity Creation] but there was no strong passion towards making HL maintenance with ICT a primary choice [Desire].

D. Knowledge and opinions about ICT among parents

D1. Flexibility and optimisation of HL maintenance with ICT usage (OD)

Based on previous findings on HL maintenance and how families perceive ICT, this section addresses how ICT is used and why. Most participant children used ICT quite freely in terms of content but their use was limited to a short period of spare time when they did not have any other things to do, reflecting the busy schedules mentioned in C1. In addition, participant parents faced a dilemma in their approach to HL maintenance and felt ICT may help to solve this. This is that the inputting assistance offered by technology sounds very helpful yet might mean giving up mastering the HL. Regarding this issue, parents commented that they wanted their children's level of HL literacy to be as good as possible but, as permanent residents in an English-speaking country, many showed an understanding of their children's limited ability in HL.

Writing is a difficult aspect of literacy and typing Japanese makes it even more difficult for immigrant children who lack confidence. However, it seems that, due to the prevalence of assisted writing for everyone, parents might feel less pressure to ensure their children fully master writing Japanese and admit ICT usage is a realistic technique for coping with HL literacy.

D2. Confusion about adopting ICT as hardware and software (CO)

This sub-theme considers the issues parents encounter when they apply ICT for HL maintenance. Although parents made positive comments, ICT remains a supplement. This is because some parents experienced difficulties utilising the digital contents and digital devices due to their lack of IT literacy. This then deterred their children from using media technology. Still, no participant experienced actual inefficiency with digital devices yet one mother wondered about its effectiveness when hearing her friend's story.

Indeed, it might be less effective than paper-based and orthodox methods as some parents instinctively avoided it and Hanus and Fox (2015) found there to be lower outcomes with a gamified study than one that was non-gamified. In fact, as De Witte and Rogge (2014) pointed out, researchers' opinions on the effectiveness and efficiency of learning with ICT have been largely inconclusive. Therefore, it is understandable that doubts about its effectiveness remain among parents. However, for immigrant children who feel especially reluctant to study HL, gamified HL study

was valuable as one of the choices to encourage children, as Ms Smith continued. *"It might be alright (...), even with tablet and they do not fully learn."* From her comment, it seems that even if there is uncertainty, using ICT is considerably better than nothing when it comes to addressing the challenges of HL maintenance among immigrants.

E. Children and parents' behavioural patterns in HL maintenance
E1. Children's preference: simplicity and passivity (D)

Through my interviews, I noticed tendencies towards activity among participant children, signifying an easiness with the process. Although frequent conversation with relatives in Japan and the popularity of Japanese programmes was introduced in theme A, it is important to note that this was not always voluntary. *"If I let my daughter choose what to watch, it will be English ones. So instead I put on Japanese programmes for her. That is quite understandable as it is easier for her though…" (Ms Brown)*. Like Ms Brown, most parents mentioned that they intentionally put on Japanese programmes and encouraged their children to watch them. Because interacting with HL is not easy for children, several researchers (Guardado, 2002; Tannenbaum & Berkovich, 2005; Babaee, 2013) claim that the key in HL maintenance is parental support, which is a must even for leisure purpose with ICT. This involves taking initiatives such as putting on animation programmes in HL and setting up video calls to create further opportunities.

Although children like to watch Japanese animation, only two children mentioned that they read Japanese comic books in Japanese even though these have the same content. This was irrespective of their reading ability. Similarly, reading was less preferred by participant children if it was in Japanese. Nevertheless, because they enjoy watching animation more than reading comic books, viewing should be an easier and unlaboured activity for them as Robinson (1997) argues that reading requires more activity and work than watching. In terms of this inclination, this aligns with findings from Al Madi and Khan (2015) that showed audio-video multimedia can enable children to "recognise an overwhelming number of concepts easier" (p. 1). I surmise that this might be especially applicable to immigrant children who need to digest more from HL materials than non-immigrants.

E2. Limitations in home-based HL maintenance by parents (CO)

This section demonstrates how parents perceive difficulties and examines how ICT can help in HL maintenance under participants' existing efforts. As well as the physical limitations of paper books in HL, one mother analysed parents' limitations in terms of content and topics. By contrast, ICT alleviates such limitations as immigrants can access more materials in HL. There is no difference between printed books and e-books in cognition and comprehension (Rockinson-Szapkiw, Courduff, Carter & Bennett, 2013; Connell Bayliss & Farmer, 2012). Nevertheless, it was still uncommon to read books with digital devices and participants would rather read hardcopy books in spite of the quantitative limitation, which aligns with the findings of Rideout (2017). Rideout (2014) also notes parental scepticism and this, along with parents' tendency towards ICT avoidance discussed in D2, might be related to parental doubt and a lack of interest and knowledge in e-books.

Another parent referred to their limitation with regard to listening. She thought that a limited listening experience was not desirable for HL maintenance and that ICT can deal with this issue equally as well. *"As I want her to listen to a Japanese voice other than mine, I think (ICT) is beneficial to experience listening to another Japanese voice. " (Ms Brown)*. Under life in a residential country, the number of HL speakers immigrant children usually meet is limited. As Swain claims, immigrant children's limited HL development is due to error-permissive family communication without any improvement motivation and opportunities for correction (as cited in Kim, 2001). ICT might therefore be able to provide more linguistic chances and stimulation as external but familiar HL speakers. Furthermore, when children display passive attitudes, an automatic soundstream inputs HL information continuously.

5. Conclusion

Overall, the findings show that participant children regularly use ICT in HL and complex family attitudes and perceptions of HL maintenance emerged. Overall, ICT is welcomed as a beneficial tool for enhancing HL capacity and increases opportunities to engage with HL among Japanese immigrant families. However, it remains supplementary despite its further possibilities. Answers to each of the research questions are as follows.

5.1.1. How do children in Japanese immigrant families engage with HL as language and literacy practice through ICTs at home? (COD)

The findings indicate that Japanese immigrant children often use ICT as a tool to interact with Japanese materials in Japanese and this enables those children to acquire Japanese as a HL. Within such language socialisation activities, [Capacity Development] and [Opportunity Creation] are observed, especially in relation to formal online HL learning, video calls to families in Japan, and watching Japanese programmes online. This is due to ICT's ability to promote the [Desire] of immigrant families. Furthermore, ICT can support deficient literacy levels through assisted writing, which serves further [Opportunity creation] with literacy practice and yields a [Desire] to use HL.

5.1.2. How do families perceive the use of ICT? (CD)

Japanese immigrant families regard ICT as fairly positive thanks to its entertaining and convenient functions, but they do not consider it their first choice for HL maintenance. This is because parents are aware of their limitations regarding their maintenance and ICT can help compensate for this through [Capacity Creation], motivating their children's HL maintenance during their spare time by increasing their [Desire], however, parents are concerned about the effect of HL [Capacity Creation] with ICT. Furthermore, the unintelligibility and difficulties involved in adopting ICT and ICT based HL maintenance inhibit them from taking further actions, which is reflected in a negative [Desire].

5.1.3. How do parents support their children's ICT use for HL maintenance? (CO)

To make effective use of ICT for HL maintenance, parental involvement is a must. Immigrant parents first need to collect information and pay attention to ICT and HL learning with ICT as it is normally parents who decide on ICT usage and a HL maintenance strategy. Even if ICT is entertaining, they often have to encourage and watch HL activities with their children who may find HL maintenance difficult due to their preferences and language ability. It is therefore important to identify engaging and useful content for their children for [Capacity Development], set up the initial conditions, and ensure their appropriate use as [Opportunity Creation].

5.2. Implications and recommendations

Although the active usage of ICT for HL maintenance is common among these immigrants, this could be extended through additional parental and industrial support so that a better HL maintenance environment can be created. Parents should be encouraged to acknowledge how much their children could learn HL with ICT, even if it is 'just for fun' using informal activities, and consider formal HL learning with ICT to cover HL maintenance as one of their choices. In addition, the IT industry needs to facilitate easier application of both hardware and software while the education industry needs to become more aware of the emerging needs of distance learning and overseas users in the current globalised society. Finally, the animation industry should note its power and impact in terms of its influence on language learning among children. These can be facilitated by further academic research, the results of which should be widely publicised to help parents and educators. Research on participants from diverse socioeconomic backgrounds should also broaden knowledge in this field. This research was conducted with middle-class Japanese immigrant families, which meant that all the parents were enthusiastic about their children's HL education. Hence, these Japanese immigrant children lived in an extraordinary environment with a large investment in HL maintenance and access to world famous animations in Japanese. Moreover, although this research referred to capacity development by ICT for HL maintenance in terms of subjective attitudes and perceptions, obtaining quantitative measurements of each HL maintenance activity will provide further persuasive support for the findings. Furthermore, the value, usability, and social acceptability of assisted writing among immigrant children should be explored to develop a wider understanding of HL maintenance. Although listening, speaking, and reading HL are already accessible through ICT; applying ICT to the hardest activity, writing, will provide a more effective environment in which to facilitate HL maintenance.

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Contributing Factors to the Successful Online Learners of English

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Abstract
Distance learning has become an alternative for training institutions worldwide during the corona pandemics. With its advantages, online learning is likely to become a mainstream in the coming years. With the purpose of identifying the contributing factors to the success of English online learners, a combination of qualitative research and quantitative research has been carried out through an online survey among 301 internet-based learners from 3 different universities in the North of Vietnam. The findings show that technology assistance, learners' characteristics, and teachers' roles are the three major parameters generating the success of an English online learner.

Keywords: Contributing Factors, Online Learners, Successful Online Learners of English, Self-Discipline, Technology Assistance, Teachers' Roles

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Introduction

"A world of technology-driven innovation is continuously and rapidly growing". (Pradit et all, 2016). The phenomenon has rendered various changes in other aspects including online learning, which has been expanded and developed since the appearance of the Internet. Online education is defined as a distance education form which takes advantages of computer and the internet as the transfer means with minimum 80% of the course content delivered online (Allen & Seaman, 2008). Rudestam & Schoenholtz-Read (2002) emphasized the use of computer-based programs in the newly-employed staff training programs in the 1980s. It was not until 1989 that online educational programs was initiated through CompuServe by the University of Phoenix. The event made a variety of reputable training institutions to follow suit (Carlson & Carnevale, 2001).

Parallel with offline educational environment, distance learning has been step by step experienced since mid-1990 and officially started in 1998 (Arenson, 1998) with the emergence of a numerous online courses designed by well-known universities across America including New York University, Western Governors University… (Arenson, 1998; Allen & Seaman, 2008), an estimate of over 1.6 million students made enrollment in online courses offered by the University of Phoenix, and 6 years later the number witnessed a tripled increase.

Despite the fluctuations in the development, distance learning has become a mainstream in recent context (Hope Kentnor, 2015). With contemporary version, online education utilizes computers and the Internet as the correspondence mechanism with minimum 80% of the course contents taught online (Allen & Seaman, 2011; Shelton & Saltsman, 2005). Today, the advancement in communication technology and the availability of internet connection, distance learning has become much easier and more widespread. As stated by Hope Kentnor (2015), distance education continues to perform its critical educational roles in the United States due to its capability of creating greater access, and "in some respects, an affordable option.". It can be said that high-end communication technology has sparked the flourishment of online education and "has led to the changing landscape of education and the proliferation of the distance education" (Hope Kentnor, 2015). Growing with the same increasing pattern with the information technology, online education has been the fastest revolving form of distance education and widely-accepted.

With the assistance of the Internet, online education offers huge advantages which cannot be found in other educational forms. Just as financial aid and scholarships make education possible for for those who are unable to afford the cost, distance education makes education attainable for those who are unable to sit in the traditional classroom (Hope Kentnor, 2015).

In the context of the corona virus pandemics, online learning has become an alternative for almost global tertiary training institutions. The number of the higher educational institutions which have opted to choose this learning mode has been growing each day. Charles Hodges et al. (2020) emphasized "moving instruction online can enable the flexibility of teaching and learning anywhere, anytime." As mentioned by Dennis Kira and Raafat Saddle (2006), online learning presents new

opportunities to engage more with the students and student-centered learning, thereby enhancing the learning experience.

Like traditional learning, to become a successful online learner is dependent on various factors. As examined by Boyd (2004), four decisive factors affecting the online learning process includes the technical factors, the environmental factors, the personal factors, and various learning characteristics, which successful online students tend to exhibit and possess. Sun (2014) also concluded that self-motivation, self-directed learning, and self-regulation of learning were the keys to the success of online learners.

With the purposes of examining the main factors contributing the success of online learners, the research is designed to find the compatible answers to the research questions:

1. To what extent do personal characteristics contribute to the success of online learners?

2. To what extent do technical factors contribute to the success of online learners?

3. What are the teachers' roles in online learning?

Literature Review

Distance Learning

Numerous factors related to distance learning have been researched. Charles Hodges et all (2020) emphasized, "researchers in educational technology, specifically in the sub discipline of online and distance learning, have carefully defined terms over the years to distinguish between the highly variable design solutions that have been developed and implemented: distance learning, distributed learning, blended learning, online learning, mobile learning, and others".Roffe (2004) defined distance education as a method of teaching where students and teachers are physically separated. Distance education can be conducted through combining technologies ranging from correspondence, audio, video, computer, and the Internet. As mentioned by Allen & Seaman (2011) and Shelton & Saltsman (2005), today's version of distance education is online education which utilizes computers and the Internet as the main channel to implement the teaching-learning process in which 80% of the course content is carried out online. These possibly leads to the conclusion that online education is the process of delivering knowledge through the assistance of computers and the internet. In online education, majority of interaction is via online methods.

Characteristics of successful online learners

The cornerstones possessed by successful online learners have been researched and summarized in multiple contemporary researches. Palloff and Pratt (2001) declared the voluntariness, self-discipline, and high expectation in the process of discovering knowledge are the four cornerstones of the specific properties on successful online learners. Correspondingly, Boyd (2004) has concluded the mainstream characteristics of successful online learners including mastering technology, which means online

students are supposed to be capable of using technology effectively. The second factor mentioned by the author is the learning environment, which is made up of "time and space", and other significant supports. The next property to create a successful online learner is "certain personal characteristics, including a healthy balance between autonomy and interactivity, self-motivation and self-discipline, and a high level of integrity". The final factor possessed by an internet-based learner is the student's active style of learning that requires "a more self-directed learning orientation". Vu Phu et all (2014) made parallel conclusions on the online characteristics. Accordingly, "self-discipline", "school administrators' expectation", "course login frequency" made great contributions to the success of the online course takers.

Factors affecting online learners' success

Numerous factors influenced the success of online learners. This claim is proved by various researches. Barbar Lockee et al. (2002) states, "distance education systems consist of a complex array of infrastructures and personnel. As emphasized by the authors the instructional, technological, implementation, and organizational are the driving forces leading to the success of online training. Marcus (2004) emphasized the significance of pedagogy in online training when the author demonstrated "the lack of understanding of online pedagogy and online learning styles" is the main cause leading to "the demise" of "online institutions". In the same way, Bernard et al. (2004) conceded that online education is a different teaching medium requiring a different pedagogy. Arenson (1998) also appreciated the role of educators in online education by mentioning that certain educators' failure in recognizing the differences between online and offline teaching was the cause resulting in the closure of certain training institutions. The results from a survey conducted by Pei-Chen Sun et all. (2008) show that learner computer anxiety, instructor attitude, e-Learning course flexibility, e-Learning course quality… are the critical factors affecting e-learners' satisfaction. In the same way, Pauline (2019) identified four main factors contributing to the online learning success of which students' facilitation of learning is emphasized. Shubham (2018) listed technical difficulties in the top 3 factors affecting learners' motivation.

Boyd (2004) have summarized the four set of factors contributing to the success of online learning process. Accordingly, the first factor is the capability of using technology effectively. The second driving force of online learning success is the environmental factors. As stated by the author, environmental factors affecting the success of learners are made up of time, place, and other significant supports. As much time as possible, as he maintained, must be spent accomplishing required assignments as well as participating in weekly "asynchronous discussion". Also related to the environmental factors, the author indicated that online students are also required to be free from their work or family distractions during the time contributed to learning process. With regard to the personal characteristics, the author has summarized the main properties possessed by an online learner including being confident and competent in class discussion, being capable of cooperating in learning process (seeking help from instructing, raising questions, joining teamwork…; being highly self-motivated and self-discipline; being responsible. For this category, the author concluded "successful online students are highly motivated by their goals and their ability to shape their learning experience". In addition, the author affirmed

"honesty, integrity, and authenticity" are other qualities required from an online learner. Having synthesized from multiple sources, the author mentioned 4 integral components generating learning characteristics of online learners which are "learning styles, reading and writing skills, and self-direction".

H. Lu et all (2019) identified the critical factors driving the success of distance learning systems from learners' perspectives. The findings are allocated in different categories including students' competence and demand, instructors' impacts; characteristics of online learning contents, technological factors, system support and institutional management support.

The aforementioned sets the basis for the hypothesis that technical factor is the main factor resulting in the failure of success of online learners. Kentnor (2015) also acknowledged "technology and innovations should be used to "motivate, inspire, and educate the students of the 21st century". Tesone et al. (2002) clarified the possibility of adding presentation with streaming video/audio to lecture and forums designed for the courses.

The second driving factor is the learner-him/herself. Successful online leaners are capable of exhibiting competence in self-directed learning, self-motivation, generating comfort in their own learning (Cahoon, 1998b). In addition to the technical and personal factors, teachers- their pedagogy- also the decisive factors to create a successful learner.

One more essential contributing factor forming a successful online learner is the environmental factors shaped by time, space, and other supports from family, peers, or organizations, school. One more factor acting as the self-motivator for online learners is school expectation.

Methodology

The context

Due to the wide spread and uncertainties of the corona virus, in Vietnam as well as in majority of other countries worldwide lockdowns, travel limitations, and school closure are common place. To maintain the training process, moving education online is a must. Charles Hodges et all (2020) emphasizes, "Moving instruction online can enable the flexibility of teaching and learning anywhere, anytime". Accordingly, the list of institutions of higher education making this decision has been growing each day. (Charles Hodges et al., 2020). Becoming a mainstream at least during the covid time, numerous institutions of higher education in Vietnam have implemented online training since the beginning of February, 2020, which means it has been nearly 2 months until the time of the research implementation. On the day when the research survey has been launched the participants have already finished minimum one online course.

The participants

Having participated in the survey are 301 online learners selected among 322 respondents from 3 different universities in Hanoi. No specific criteria are set for

selecting students to participate in the survey. All of these students have accomplished minimum one online course during the outbreak of the Corona virus outbreak in Vietnam from 17 February to the first week of April, 2020.

Data collection

The research instrument applied by the study is a survey which employs both qualitative and quantitative methods for data collection. The survey is designed in the form of a 30- itemed questionnaire developed by the author based on the literature and adapted for fully online learning.

In the questionnaire, the researcher used the five-point Likert scale (1=strongly Disagree, 2=Disagree, 3=Neutral, 4= Agree, 5 = strongly agree) for the questions asking participants to indicate to what extent they agreed or disagreed. The questions focus on three specific areas of online learning.

Items 1-7 focuses on accessing the impacts of personal characteristics on online learning. Items 8-18 focuses on technological factors. Items 19-24 aims at identifying the impacts of pedagogy on successful online learning. Items 25-28 refers to the individual and school expectation. Item 29 aims at identifying the key factors driving the students' success in online learning. Item 30 is an open-ended question investigating other factors affecting online learners' success in English learning. The results were analyzed using SPSS, which provided means and deviation for each item.

Reliability analyses were also conducted to measure the internal consistency of items in the questionnaire by using Cronbach's alpha. With the alpha value of .914 which according to George and Mallery (2009) declares excellent internal consistency.

Reliability Statistics

Cronbach's Alpha	N of Items
.914	29

The second source of the data is from the interviews with 10 online students who had participated in the questionnaire. The interview was designed with 5 different questions related to the driving factors creating students' success in online learning.

Results & Discussion

The results from the questionnaires and interviews are arranged into three separate sections in correspondence to the three research questions.

Research Question 1: To what extent do personal characteristics contribute to the success of online learners?

Questions 1-7:

The first seven questions of the questionnaire listed the personal characteristics of online learners which make great contributions to the learning success. Those characteristics exposing learners' efforts in the process of learning include self-preparation before joining the class; accomplishment of assignments, integration in the interaction between students and students, between students and teachers; expenditure of extra time with peers and professors; impacts from background knowledge and environmental factors.

Table 1. Impacts of online learners' characteristics on learning success

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	301	1.0	5.0	4.133	1.0078
Q2	301	1.0	5.0	3.947	.9222
Q3	301	1.0	5.0	3.801	1.1255
Q4	301	1.0	5.0	4.249	.8333
Q5	301	1.0	5.0	3.917	.9397
Q6	301	1.0	5.0	3.900	1.0848
Q7	301	1.0	5.0	3.106	1.2995
Valid N (listwise)	301				

From the table 1, it can be seen that most of the respondents confirmed their agreement on the facts that students' efforts have great impacts on their failure or success of the learning process. All students' responses generated the means of over the average values above 3.8 except for question seven recorded at the mean value of 3.1.

For the question 1, "The self-preparation before joining online classes make me better understand the lecture", a majority of the respondents (means:4.133). In details, nearly half of the participants (44.85%) conceded that students' discipline in preparing the lesson before taking part in online class made great contributions to their understanding of the lesson. Specially, another 40.20% of the respondents showed their firm agreement on this discipline.

Question 4 also received overwhelming favor from the participants (means: 4.249) of which over a half (51.5%) of the students agreed that the learning process requires intensive interaction between students and teachers, and the correspondence among the students. The supportive percentage recorded from this question was 40.2%. The data collection (means:3.9 for both) from the response to the other questions 2,5 showed that in addition to the official time of online class participation, students are required to spend much extra time for accomplishing assignments as well as consulting teachers and peers.

Questions 3,6 investigated the negative impacts affecting students' learning concentration. With the means of 3.8 and 3.9 respectively, high percentages of the respondents agreed that the noise, the attractions from other websites, and also the background knowledge negatively affect the students' learning focus.

Question 7 investigated the students' agreement on the positive impact of online learning on speaking skills. With the mean of 3.1, a lower percentage of online learners was in favor of the fact that online learning is able to encourage speaking skills.

The analysis of the data reveals that students' personal characteristics were the main factors contributing to the success of failure of the online learners. The conclusion is in line with the results of the survey question 29. With nearly two thirds (mean: 3.8) of the survey respondents were supportive of the view that students are the major factors deciding the failure or success of the online learning process.

Table 2: Key factor driving students' success in online learning

	N	Minimum	Maximum	Mean	Std. Deviation
Q29	301	1.0	5.0	3.860	.9935
Valid N (listwise)	301				

Questions 25-28

Table 3. Impacts of individual and school expectations' on online learners' success

	N	Minimum	Maximum	Mean	Std. Deviation
Q25	301	1.0	5.0	3.455	1.1841
Q26	301	1.0	5.0	3.764	1.0300
Q27	301	1.0	5.0	3.409	1.0112
Q28	301	1.0	5.0	3.289	1.1043
Valid N (listwise)	301				

The questions 25-28 investigated the influence of individual expectations and school expectations on the success of online learners' students. The individual expectations examined included possibility of passing the final exams, possibility of being granted with scholarship (Questions 25 and 27). The results (Means 3.4 for both) clarified that individual expectations determined their success or failure in the process of learning.

With the aims of determining whether the school created any pressure on online learners' efforts to achieve the success, the questions 26 and 28 examined the impacts from the schools' expectations (pressure from teachers, requirements from the courses…). The table 4 revealed that most of the participants gave supportive responses to the fact that expectations from individuals and from the school were the decisive factors resulted in the success of online learners.

To support the discussion drawn out from the survey data, an interview was conducted to examine other contributing factors to the success of online learners.

With the question: "How important is the individual effort to the success of online leaners", most of the interviewees recognized its pivotal function in generating a successful online learner.

"Personally, I think individual efforts play a significant role. The reason is that online learning is implemented with the assistance of the online application like Google Hangout or ZOOM, which makes students have their microphones and cameras off to ensure the concentration. Those things create difficulties for teachers in controlling the class. Therefore, it is the student that decides the success or failure of themselves in the online learning process". (ST1)

Other participants in the interview also strongly agreed with this statement by remarking: "Whether it is online or offline, individuals' efforts become dominant factors compared with other factors determining the online learners' success" (ST2) or "Self-discipline in online learning is vital due to the strict requirement of self-awareness from online learners" (ST3). Specially, an interviewee also wondered the external factors may have affected the online learning success, therefore individual efforts is a must "(ST4)

The discussions based on the data survey and the interview leads to the possible conclusion that students' personal characteristics made considerable contributions to the success of online learners. The finding is in agreement with the conclusion drawn out by various studies. As emphasized by Boyd (2004) emphasized, "student must possess a more independent learning style that tends toward a more self-directed learning orientation, as well as better-than-average reading and writing skills. Similarly, Cahoo (1998b) admitted the successful online learners possessed the tendency of showing the properties which are associated with self-study capabilities made up of motivation, active participation in variety of activities. As also stated by the author, online courses provide students with "sufficient freedom", therefore they are required to be a greater controller of the learning process.

Research question 2: To what extent do technical factors contribute to the success of online learners?

Questions 8-18:

Questions 8-18 aim at findings students' responses on the impacts of technical factors, especially the assistance of online tools on the failure or success of online learners. With the overwhelming positive results of 3.2 and above (see the table 2) most of the participants agreed that online tools played a vital role in deciding the success of students in their online learning process.

Table 4. Impacts of online learners' characteristics on learning success

	N	Minimum	Maximum	Mean	Std. Deviation
Q8	301	1.0	5.0	3.462	1.2067
Q9	301	1.0	5.0	3.442	1.2114
Q10	301	1.0	5.0	3.203	1.3350
Q11	301	1.0	5.0	4.209	.8161
Q12	301	1.0	5.0	3.578	1.1452
Q13	301	1.0	5.0	3.648	.9809
Q14	301	1.0	5.0	3.654	1.0615
Q15	301	1.0	5.0	4.136	.8434
Q16	301	1.0	5.0	4.060	.8620
Q17	301	1.0	5.0	4.153	.8850
Q18	301	1.0	5.0	3.791	.9448
Valid N (listwise)	301				

The set of 3 questions 8,9,10 investigated whether the online tools acted as an active assistant in improving English skills including writing, reading, and listening of online learners or not. The figure 1 gives an illustration on how students agreed on the assistance of technical factors in their learning. In details, over 48.17%, 44.85%, and 39.53% respectively conceded that online tools have improved their writing, reading, and listening skills respectively. The percentages of respective 14,29%; 14.95%; and 12.96% strongly supported the ideas that technical factors are of great importance to students' improvement in the aforementioned skills.

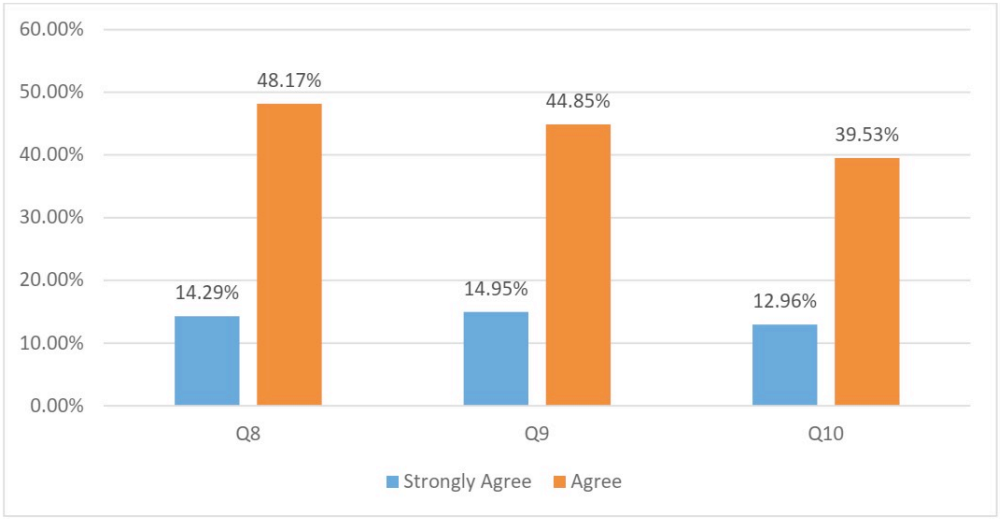

Figure 1: Impacts of online tools on students' English skills of Reading, Writing, Listening

The findings from the table 2 and the figure 1 is consistent with remarks given by the interviewees. With the question, "What do you think about the impacts of technological factors on your success in online learning?", most of the respondents strongly agreed on the positive side of the technological factors.

"With the assistance of technology, I myself could use the internet to conduct my own research based on the contents given by the lecturers" (ST1)

"Personally, I gave the online semester 8/10 points. Although this was the first time we have experienced an online semester for such a long time, I was able to take part in the lessons actively with fully understanding of all the contents and fulfilling all the lecturers' requirements of homework and assignment. My writing skill has much improved through online learning because I could be able to use certain online tools in my preparation for writing" (ST2).

"I find the online learning semester quite effective. Specially, my writing skill has much improved because I myself was able to update new vocabulary, structure, as well as ideas for my writing from certain websites". (ST3)

A summary from other students' feedback on the technology impacts show that the technology is an essential agent for the online learning to be conducted.

The aforementioned analysis from the data and the interview leads to the conclusion that the technological factors acted a contributing factors to the success of online learnings. This conclusion is in accordance with the findings of various other researches related to the technological factors. (Howard Community College, 2001; Cahoon, 1998a, pp. 5-13; White, 2000). Specially, Boyd (2004) stated the possess of "appropriate technology" and competence in using that technology is a must from every online learner.

The questions 11-18 emphasized the significance of such online platforms as google classroom.com, quizlet.com, quizzi.com, peardeck.com, the software triptico, flipgrid.com, google sites, kahoot.it…, and even google translation in accelerating the online classroom atmosphere, assisting students in reviewing vocabulary and reviewing the lesson contents.

Particularly, the questions 11, ,15,16,17 received 100% agreement from the respondents (Means: 4.2, 4.1, 4.0,4.1 respectively). The other results of 3.5-3.6 were the reactions for the question 12,13,1,4.

The question 18 aimed at determining whether "e-books act as an effective assistant in online learning". A large percentage (mean: 3.7) of the positive responses were recorded. Details can be observed from the figure 2 with 27% of the respondents strongly agreed, and another 49% agreed.

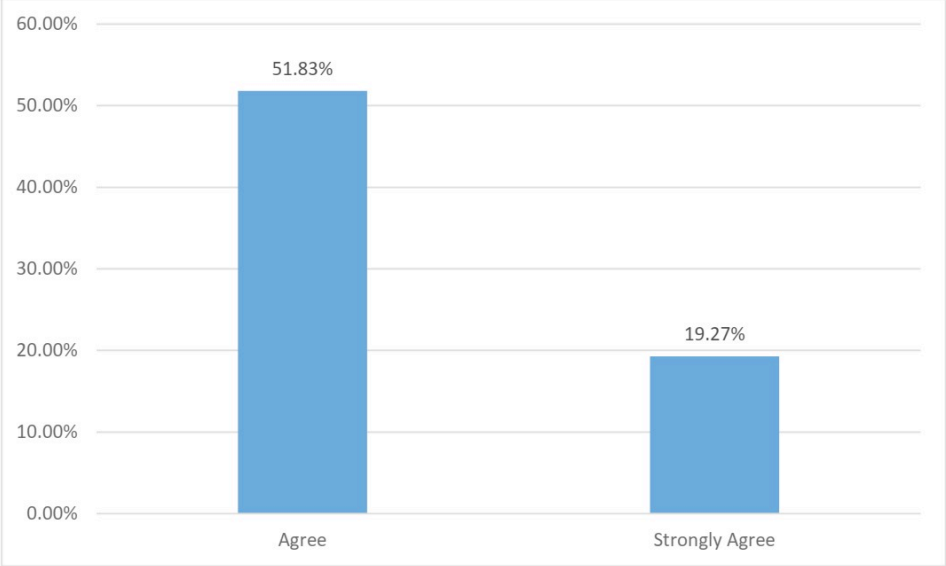

Figure 2. The decisive roles of e-books in assisting online learners

The findings were in accordance with the results from various related studies. As indicated by Jose (2017), the games are possible to be considered an "effective stand-alone learning tools" in case "learning objectives are properly integrated into the game dynamics". Abrams & Waslh, 2014; share the parallels from their studies that the games act as "an effective tool" in learning vocabulary.

Research Question 3: What are the teachers' roles in the success of English online learners?

The questions 19-24: Teachers' roles in the success of English online learners

The questions 19-24 were designed to seek the support for or against the positive impacts of teachers on online students' success. The questions focused on students' feedback on the teaching activities (teamwork, individual work.); teachers' enthusiasm; teachers' rigor; requirements of progress tests and final tests…The overall results (means of 3.5 and above) demonstrates that a quite high number of students agreed on the roles of teachers in their ways to online learning success.

Table 5: Teachers' roles in online students' learning success

	N	Minimum	Maximum	Mean	Std. Deviation
Q19	301	1.0	5.0	3.887	1.0491
Q20	301	1.0	5.0	3.538	1.0752
Q21	301	1.0	5.0	4.017	.8811
Q22	301	1.0	5.0	3.605	1.0984
Q23	301	1.0	5.0	3.831	.9099
Q24	301	1.0	5.0	3.771	.9886
Valid N (listwise)	301				

With the purpose of determining whether teachers take the decisive roles in their online learning, the question 19 got a high percentage of supportive response (Means: 3.887) from the participants. Similarly, other factors from teachers' including

teaching activities like team work, individual work; teachers' strictness in class management and in teaching process… were the decisive things that the online course takers confirmed (means: 3.538, 3.605 respectively). In addition, the progress tests as well as the rigorous requirements of the final examination performed the accelerating function to the lead online learners to the success. This has been classified by the results of the questions 23 and 24:

Question 23: The progress tests help me review the knowledge content effectively
Question 24: The requirements from the rigorous final exam force met take efforts in online courses

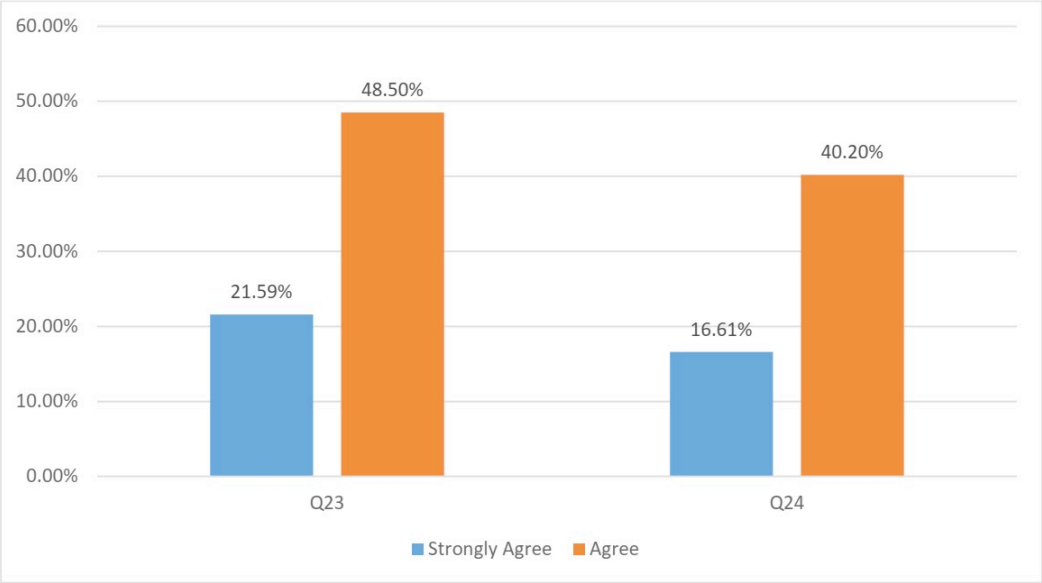

Figure 3. Impacts of progress tests and final exam on online learners' success

From the figure 3, it can be observed that over two thirds of the respondents (means: 3.8) agreed that the progress tests took effects in promoting their learning process, particularly 21.59% strongly agreed with this view. With a lower proportion of agreement, 56.81% of the respondents agreed the final examination with its rigorousness was the factor encourage online learners.

With the question 21, most of the respondents admitted that teachers' strictness played a significant role in ensuring online learners' success. (Means: 4.107)

From the results, it can be concluded that teachers' roles in online education is essential. Despite offline or online teaching, teachers play the roles of the instructor and the inspirer who is capable of instructing and inspiring their students to work actively. In addition to the online activities employed to implement the teaching effectively, teachers with their strictness and with the application of progress tests and final exams, online students are much motivated in their learning process. The findings are likely in accordance with the replies to the interview question 1 "What are your expectations from lecturers in online classes?. ST1 stated that the teachers- with their enthusiasm and creative teaching methods inspired us and helped use achieve the learning goals. Some students expected enthusiasm, more frequent

interaction from teachers. “Teachers need to give more specific explanation, more mini games to create the class atmosphere” (ST5). To put it in a nutshell, it can be said that contributing to the success of online learners’ teachers’ roles are unavoidable.

Those conclusions are in accordance with the findings from various other studies. As declared by S. Om (2006), individual attention from instructors to students and “responsiveness to students’ concerns is the most influential factor to significantly increase the satisfaction of students taking online classes”. Palloff and Pratt (2003) have summarize the major factors affecting the online learning of which they emphasized the effective role of “online facilitator”. Giving the amicable findings with the aforementioned authors, Raven (2010) declared:

“Teachers in online courses take on multiple roles. They facilitate of moderate discussions, they respond to individual students and to the class as a whole, and they manage the flow of content through assignments and responses. Their presence and immediacy seem to impact student satisfaction and learning.”

From a study of 3800 students who joined 73 courses selected among 264 web-based courses provided by State University of New York, Swan (2001) summarized the major factors making significant contribution to success of online learners including transparent and logical course structure, course instructor’s frequent and constructive interaction, and the final factor is “dynamic discussion”.

Conclusion

This study examined three sets of factors contributing to the success of online learners in English learning: (1) impacts of personal characteristics, (2) impacts of technical factors, (3) impacts of teachers.

The first set of factors focuses on e-learners’ personal characteristics. The findings demonstrate that personal characteristics of online learners, which are made up of self-discipline in preparation for the lesson, willingness in accomplishment of assignments, readiness in integration in the interaction, …have made critical contributions to the online learners’ success.

In addition, student’s success in e-learning much depends on technical factors. This conclusion is drawn upon the research question 2, which emphasizes not only the competence of learners in using the technology effectively but also the capability of actively joining in the online games as well as the online platforms.

For the final set of factors examined, teaching activities (teamwork, individual work.); teachers’ enthusiasm; teachers’ rigor; requirements of progress tests and final tests…are critical to the success of online learners.

Based on the aforementioned, it can be concluded that the findings are generally in consistent with the online learning literature. These can be considered to be new in the corona virus outbreak since based on the findings, online instructors will be able to identify to what extent their students’ efforts may achieve the success in online learning. In the same way online learners will be capable of how to adjust themselves

on the path to the achievement. Additionally, the online platforms, which previously became the dominant factors in facilitating students in traditional classrooms, now have taken the opportunity to be an effective tool in virtual classrooms.

The study has made certain novel discoveries (based on the open-ended question in the questionnaire).

(1). Online learning makes the internet abuse in google translation possible, which have made e-learners lazy in learning vocabulary.

(2) Besides teachers' attitudes, students' devices, teachers' physical appearance contributes to the success of online learners.

(3) Online examinations have caused pressure for e-learners

(4) Unexpected factors coming from the noise, the personal chores, or the distance class management possibly lead to the neglect or inattention of online learners.

(5) Quizlet, Kahoot, Google Classroom, and some other online platforms virtually become integral parts of each online lesson.

(6). Unlike the traditional classroom, the online classroom with the assistance of online platforms have made the lesson much more appealing.

(7) Assignments have become an effective tool in online learning.

Limitations

The study focused on certain critical factors contributing to the success of online learners as examined. Other factors including demographic characteristics, e-learning contents, culture perspectives… have not been considered.

Recommendation for Further Research

A further research which combine more multiple factors are likely taken into consideration in the future. Besides, a correlation between the variables contributing to the success of e-learners and their actual outcomes measured in grades suggests a new way of future research.

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Self-Organized Learning in School Practice

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Abstract
Self-organized learning as a didactic teaching and learning concept is based on the theoretical models of self-control and self-organization within the framework of systemic and constructivist learning theories. In the present concept, this means the participation or transfer of responsibility to learners who, from an organizational point of view, co-determine the subject matter, learning time, methods, place of learning and social form within certain time or content specifications and external structures. The objectives of self-organized learning are to increase the learners' self-competence and knowledge of their own learning and to enable learners to act responsibly and competently. They take responsibility for their learning process and their learning success, whereas teachers in self-organized learning processes take on a supporting, individually advisory or accompanying role. The results of an empirical study (complete survey of teachers by group discussion method according to Bohnsack, 2003) at a New Middle School show that the teaching-learning concept SoL is oriented towards the two action-guiding principles of competence orientation and the teaching and learning setting: self-organization in learning. It takes into account different quality characteristics (e.g. reflection of the learning process, learning success control, ...) and, with regard to the question of the encounter of heterogeneity in the classrooms, it enables different aspects of self-control and, out of itself, ways to a teaching and learning culture in which the learners take responsibility for their learning. In this setting, learners can to a certain extent plan and decide what, when, how, where and with whom they learn.

Keywords: Self-Organized Learning, Pedagogy, Learning Environment

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Introduction

Promoting self-efficacy, self-determined and self-organized learning, and independent action (Federal Ministry of Education [German acronym: BMB], 2016, p. 2) and thus enabling students to actively acquire knowledge on their own in terms of lifelong learning are formulated in curricula as essential task areas of schools. So there is a central mission related to education and upbringing that is fed by competence-oriented opinions on the one hand and by a strong focus on developing basic democratic values on the other. To do justice to the educational mission, the focus is moving to teaching-learning concepts that promote the acquisition of *specialist* and *interdisciplinary competencies*, think of the development of *personality* and *social behavior* from the learner's point of view, and also stimulate *independence*. Such concepts for promoting independence are considered to be highly conducive (BMB, 2016, p. 6; Pätzold & Lang, 2005, pp. 3-6) to learning.

Methodical Approach

The present teaching-learning concept of SoL[1] (Self-organized Learning) is based on assessments from teachers that were conducted in the course of a full survey using a group discussion process (9 group discussions/4-5 persons) according to Bohnsack (2003). Through the documentary method of interpretation, similarities, and differences within groups are made explicit. The inductive approach involves the explicit structures of meaning for finding or differentiating consistent considerations of the SoL concept (Bohnsack, 2000, 2007). They are the starting point for the theoretical location of the teaching-learning concept used in practice and support a minimum of uniformity in conceptual orientation.

Interest in knowledge

(1) Creating a category-based concept based on empirical data.
(2) Working out didactic-methodical principles.
(3) Specifying pedagogical principles for a common understanding of SoL (Self-organized Learning)

Managing and Organizing Learning on Your Own – Theoretical Basis

The theoretical basis for the teaching-learning concept of SoL is the *concept of self-control* within the framework of systemic and constructivist learning theories (Friedrich & Mandl, 1995; Siebert, 2005). This self-directed form of learning is characterized by (1) learning objectives/standards, (2) operations and strategies of information processing, (3) goal-oriented control processes, and (4) the degree of openness of the learning environment, which learners can determine themselves (Neber, 1978, p. 40). Various *aspects of the self-control process* may be considered. The focus is always on the self-competence of learners with the goal of guiding the learners away from content reception to the construction of knowledge and offering them opportunities to actively shape their learning. This is learning that can be seen as an active, constructive process in which knowledge is constructed, restructured, and expanded (Seifried & Sembill, 2007) and that is managed by learners themselves. Self-control is understood as a dimension of learning (self-control as opposed to

external control) (Sembill & Seifried, 2006). This refers to those phases of the learning process that are related to learning, such as learning organization (e.g., time, location, and speed of learning), setting of learning objectives (e.g., learning content), learning coordination (e.g., adjustment of the learning process to other, individual factors), or monitoring of learning success (Kraft, 2002).

In the present teaching-learning concept of SoL, several aspects of self-control, which are determined by students within certain temporal, content-related, and external structures, are center stage for learners. These include the formulation of self-selected work objectives at the beginning of the week as well as the selection and coordination of learning content and requirements of the subject and decisions on learning organization, such as learning time, learning material, learning speed, learning location, or learning partner.

In this approach, *self-organization* represents the framework concept and refers to planning or the sequence of the self-directed learning processes mentioned here. It is regarded as a central *principle of action orientation* that also underpins the learning process with a clear objective, namely, to enable learners to make their own judgements in practical contexts of action (Schüßler, 2004) and problems and to act competently but responsibly.

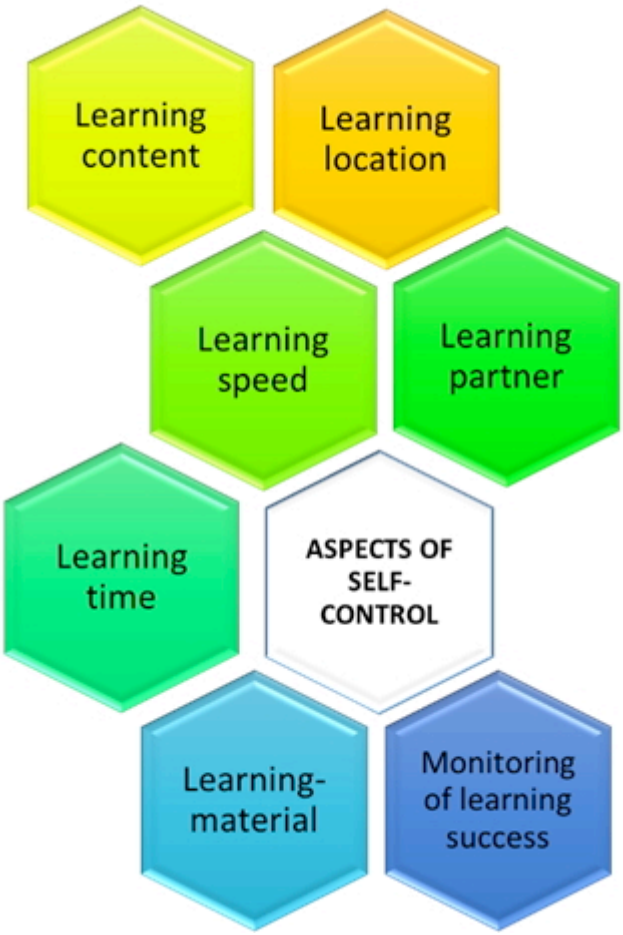

Figure 1: Aspects of self-control in the SoL concept.

Didactic Teaching and Learning Concepts

Supported by an understanding of education based on application and self-activity, the concept of competence is becoming the basis for reorienting school education in the course of introducing educational standards (Drieschner, 2010). According to Weinert (2001), competencies are cognitive abilities and skills on the one hand that can be learned to solve certain problems and the associated motivational, volitional[2], and social willingness and abilities on the other hand to make use of situations successfully (Weinert, 2001, p. 27) and responsibly.

The prerequisite for the acquisition of professional competence is self- and social competence (BMB, 2016, p. 3), for which many opportunities are opened up in self-organized learning processes. Thus, the acquisition of subject-specific and interdisciplinary competencies is also formulated as a central concern in the SoL teaching-learning concept.

The motivational basis for competence-oriented teaching can be seen in the self-determination theory (Deci & Ryan, 1985, 1993), according to which self-determination and self-competence (ego-strength) are basic needs. Accordingly, learners define themselves through their own competencies. It is essential that they are able to correct negative self-images with regard to their learning competencies. A look at competencies can especially help those with learning disabilities break down their own attribution of deficiencies (Reutter, Ambos & Klein, 2007), highlight individual strengths, and see themselves as self-effective and valuable.

The particular strength of the teaching-learning concept of SoL lies in the procedural *application and practical knowledge* as well as in the acquisition of *social* and *personal skills*. Examples of this are perseverance, personal responsibility, self-activity, or the ability to work in a team. In particular, they are seen as an added value.

Objectives and Roles in Self-Organized Learning Processes

Self-organization in learning is a learning process and requires time, the social context of a learning group, but also advisory support (Drieschner, 2010; Reutter et al., 2007). This appears to be central in that the teaching profession is guided by uncertainty and paradoxes that often also manifest themselves in the implementation of self-organized learning. Not all learners can cope with the learning process in the same way. Learners who have great difficulty in organizing themselves and have to learn how to deal with themselves first (Bönsch, 2006) often experience a lack of space for testing themselves and therefore need more support than others. Pedagogical action in such situations is determined by irreversible paradoxes when learners are asked to act on their own. Here, it is important to recognize that "the person to be educated cannot be self-active yet without a corresponding request, that he/she will not get that way based on such a request but can only get that way through his/her own participation" (Benner, 1991, p. 71). Contradictions that are experienced upon the external request for self-activity and independence as a result can consequently not be resolved. They can be overcome in the long run if children are successively enabled to become independent and allowed to be independent. This is done by conveying competencies and values (Drieschner, 2010) and when *clear rules* and *structures* (e.g., schedules) give this self-organization a certain framework (Seifried & Sembill, 2007). Thus, self-

organized learning with advisory and supportive guidance in the learning process is not a contradiction but should be considered as a whole (Reutter et al., 2007). In this support process, in which learners take responsibility for their learning, the following applies to assistance: "as much help as necessary and as little help as possible" (Möller, 2012, p. 44).

Developing Knowledge on One's Own Learning

In self-organized learning processes, your own learning is consciously given more attention to further develop your own *self-concept*. Opportunities to perceive the learning process on your own and to reflect on your own learning development are triggered in the SoL concept, e.g., by keeping a logbook. The *development of reflective and self-regulatory competence* (Gläser-Zikuda & Hascher, 2007) is facilitated by students defining personal work goals and continuously reflecting on and recording their learning process. The above aspects of self-control (e.g., learning organization, determination of learning objectives, learning coordination, monitoring of learning success) are thus supplemented by a continuous reflection on the learning process in the course of a self- and external assessment in the learning logbook. These assessments are then presented to the teacher together with the elaborations related to the learning opportunities at a time defined by the learner him or herself and form the basis for *monitoring learning objectives or learning success* (Kraft, 2002), which is agreed upon individually with the teacher. In the course of feedback, it is possible to discuss solutions individually and to perceive mistakes as a natural part of learning processes (BMB, 2016; Seifried & Sembill, 2007).

Learning Culture – Assuming Responsibility for Your Own Learning Process

Establishing a relationship between learning and yourself makes it possible to identify with the learning process. From the recipient of instructions to the designer of their own learning processes, learners assume more responsibility (Reutter et al., 2007). Large differences in learning conditions and learning strategies require learners to manage their own learning. Decision-related situations such as "*When* do I learn *what*, *where* and *how* or with *whom*?" *significantly support this* process of assuming responsibility.

Self-organized learning entails competence-oriented, methodic-didactic access to learning content in the teaching-learning concept of SoL. It is embedded in an *overall pedagogical concept* that is supported by various process-accompanying measures (e.g., learning offices, learning logbook, individual performance assessments, ...). It requires a *professional pedagogical approach* that enables learners to assume shared responsibility for their learning process and success (Reutter et al., 2007) but does not make teachers shirk responsibility.

The Role of Teachers

In a constructivist understanding of self-organized learning, it is assumed that teachers have an *advisory* and *support-related function* in the learning process (Möller, 2012).

The role of the teacher is differentiated to the extent that he or she can take on various tasks through a possible interplay of linked teaching and self-organized learning units. From guiding, instructing, and leading learning processes to supporting, advising, and helping in self-control processes, learners are individually advised and supported to achieve self-competence and through shared responsibility for the learning process.

Self-organized learning processes require not only the willingness of teachers to delegate responsibility but also the corresponding *learning opportunities*. In the teaching and learning concept of SoL, teachers therefore provide competence-oriented task sets that account for different learning conditions. The curriculum describes these as differentiated, goal-oriented learning opportunities that account for different prior experiences, interests, and learning preferences, enable individual learning approaches, and offer new introductions and incentives time and again (BMB, 2016, p. 10). With regard to the *suitability* of tasks and *learning-related taxonomic principles* (Bloom, Englehart, Furst, Hill & Krathwohl, 1956; Astleitner, 2006; Webb, 2002), it seems equally important to provide diverse and differently complex learning opportunities that not only enable different learning approaches but also include challenging and meaningful but not overwhelming tasks. Tasks that provide emotional and motivational stimulation (Seifried & Sembill, 2007) so that learners can construct knowledge themselves.

The Role of Learners

From a constructivist point of view (Friedrich & Mandl, 1995; Siebert, 2005), the role of learners in the teaching-learning concept of SoL is an extremely *active one* since self-organized teaching-learning concepts focus *on the learner rather than on the material* (Reutter et al., 2007). They organise their learning processes independently insofar as within *stipulated, external structures* and *content and time-related specifications*, they manage their learning, for example, in terms of time and content, formulate work objectives, organize and carry out their own learning actions, and conduct monitoring and reflection. They also decide to what extent they need assistance in this respect or when they want to obtain feedback on their learning success (monitoring of learning success). Reflection on learning processes occurs in a designated *learning logbook* that also provides insight into self- and external assessments for organizing learning processes.

By providing diverse and differentiated learning opportunities, teachers make it possible for learners to recognize their own individual strengths and to develop them further in a targeted manner. Assistance is particularly successful in *learning offices*, where learners receive individual support in small groups or through *peer learning* (learning buddies) by first questioning fellow students before receiving support from the teacher. Learners take part in the learning process of others. *Participation* is therefore an important key word to evolve from the consumer role into the responsibility role and to learn together or from each other (Reutter et al., 2007; Geier, Schober & Niederreiter, 2018).

Organization in Academic Practice

For the organizational realization and successful implementation of the teaching-learning concept of SoL in everyday teaching, time lines are used that are fed by a division of lesson quotas of individual subjects and are reflected in student schedules in interaction (e.g., 50:50 model - i.e., 50% linked lessons, 50% self-organized learning time, organized in double units) with traditional lessons. Direct instruction and self-organized learning are thus implemented as complementary, mutually supplementary forms of teaching and learning (Mattes, 2011) in subjects.

Conclusions

The acquisition of coping skills (social and personal skills) requires *social learning environments* in which learners can "mirror" each other (Reutter et al., 2007, p. 43). This supports resilience when learners take a stand, formulate opinions, or reflect on their learning more often (Reutter et al., 2007). In this understanding, the focus of self-organized learning is more on the *professional pedagogical approach*, how teachers approach learners, advise learners, and support the learning process than on designing or structuring the learning form itself. Successful self-organized learning requires not only shared responsibility between teachers and learners but also allowing, letting go, and trusting learners without constant monitoring. Thus, it is not primarily a question of the degree of self-control or of defined degrees of freedom in learning but of the added value that learners actively shape their learning process and learning success themselves. So, this added value does not result from the learning setting as an organizational form but from the underlying pedagogical understanding (Reutter et al., 2007). It means giving learners that *confidence* to acquire professional, personal, and social skills in a self-organized way. Confidence that is also fundamental to the willingness to engage in lifelong learning.

To successfully anchor self-organized learning in academic practice as a teaching-learning concept in the long run, it is essential for it to be integrated into an overall strategy in collaboration with a school's *quality assurance*. Important for organizational development processes here in particular are openness to results and very fundamental phases of pausing and balancing (Reutter et al., 2007) so as not to lose sight of the goal of "self-organized learners." After all, even if impact analyses and evaluations are not always clearly verifiable (Schüßler, 2004), they can be used for continuous development and to safeguard action.

Foodnotes

[1] The teaching-learning concept of SoL (Self-organized Learning) is described here in its pure form, knowing fully well that self-organized teaching-learning concepts are not or cannot be found in their perfection in practice since forms of organization generally cannot dispense with every specification for structuring learning and can occur independently of external conditions (Reutter, Ambos & Klein, 2007, p. 25).
[2] determined by the will

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Active Learning to Enhance Students' Learning Experiences in a Large Enrolled Computer Science Technical Module

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Abstract
Teaching technical modules such as those that involve programming to first-year, passive-learner students can be challenging. This challenge becomes more prominent when it is involving a large enrolment course. This research experiment aims to explain how a combination of active learning strategies such as a flipped classroom, problem-based learning, individual activities, and group activities can be employed to cultivate an interactive environment in which students can express their ideas freely and be involved in their learning. The experiment was conducted on undergraduate students who were enrolled in a compulsory programming module for a computer science degree programme. Strategies to keep students engaged are also discussed in this paper, which are vital for students' retention and progression. The findings from students' grades, their self-reported outcomes, and their feedback from a survey, indicated that exploiting various active-learning strategies improved their understanding of the technical computer science module in question, led to a greater interest of the module, and enhanced their social interactions with peers.

Keywords: Student-Centred Approach, Active Learning

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Introduction

For decades, academicians and educational researchers have been studying the effectiveness of teacher-centred approaches and student-centred approaches to teaching. A teacher-centred approach consists of most learning activities being carried out by a teacher, which produces a passive learning experience for students. In contrast, a student-centred approach puts students at the forefront, with a teacher acting as a facilitator rather than a director. Students influence the content, activities, materials, and pace of learning. Simply put: the teacher steps back and lets students take control.

Ritchhart et al. (2011) expressed that for students to understand a topic, they need to be involved in activities that include problem-solving, decision-making, and practices that are likely in future workplaces. So, to prompt students towards a deeper understanding of any subject, the teaching approach should shift from the widely utilised teacher-centred approach to a student-centred one. Various studies have shown that a proper implementation of such an approach can lead to students displaying an increased motivation to learn (Chung et al., 2004; Burrowes, 2003), an improvement in test marks (Anderson et al., 2005; Burrowes, 2003), a deeper understanding of the subject being taught (Anderson et al., 2005; Burrowes, 2003), and increased positivity towards the subject being taught (Anderson et al., 2005). For this teaching approach to have an optimum effect, activities and student engagement would be necessary prerequisites. Research into pedagogies that fulfil these two requirements has commonly defined this type of learning as active learning (Freeman et al., 2014; Prince, 2004). Active learning can be generalised to when students solve problems, answer, and formulate questions of their own, and discuss, debate and brainstorm ideas during class. Research into the benefits of active learning techniques have revealed positive impacts on students' learning experiences (Anderson et al., 2005; Thaman et al., 2013; Kember & Leung, 2005; Deltor et al., 2012; Roehl et al., 2013; Mathrani et al., 2016).

One thing that differentiates active learning from teacher-centred approaches is the variety of methods and activities that can be implemented. The work of Thaman et al. (2013) utilised multiple active learning techniques on first-year undergraduate medical students studying respiratory physiology: Pause Procedure, Minute Paper, Think-Pair-Share, Models, Multiple Choice Questions, Seminars, Short Assignments and Role Plays.

The applications of active learning have proven to elicit many benefits for students. One such benefit is the improvement of their performance in assessments. A met analysis of 158 studies across STEM fields in Freeman et al. (2014) presented that on average, students' examination results improved by approximately 6% with active learning, as opposed to teacher-centred lectures. Further analyses of the results concluded the increase in performance was irrespective of the STEM subject, course type and level, providing a much more reliable perspective on the positive outcomes of active learning.

Another benefit demonstrated from active learning has been offering students more opportunities to achieve a better understanding of course material. In the work of Thaman et al. (2013) which utilised a range of active learning techniques, over 90%

of students agreed that the active learning techniques used, helped to better understand the subject being taught. Regarding the individual activities implemented by the authors, students held significantly positive views towards many of them, believing they helped understand concepts better. In Kember & Leung (2005), responses from students yielded that those who identified their classes as having more active learning also identified the presence of greater teaching for understanding. Interestingly, further analysis of students' feedback by authors concluded that the presence of teaching for developing understanding in students, affected the growth of useful skills and knowledge for students.

Students of active learning have also been seen to experience a development in their academic skills. Over 75% of students that experienced a multitude of active learning exercises (Thaman et al., 2013) believed that the activities elicited an improvement in their ability to think critically. This skill, amongst others such as creative thinking, problem-solving and interpersonal skills were understood to have improved through active learning, based on student perceptions in Kember & Leung (2005). Further analysis of students' feedback by authors supported the positive effects that active learning provided on students' skills.

The interactions between students and teachers in active learning has also shown to help develop better relationships between both parties. Comments from students who experienced various active learning exercises in Thaman et al. (2013) mentioned seeing teachers as friends. A survey by Kember & Leung (2005) found that students which perceived their classes had more active learning also perceived better student-teacher interactions. Further analysis underlined the link between active learning and student-teacher interactions, whilst also showing that the amount of interactions between teachers and students was associated with the growth of skills such as critical thinking and problem-solving.

This paper presents a typical active learning session aimed at first-year undergraduate computer science students who are enrolled in a programming module. This module is a compulsory component of a computer science degree programme at the institute and aims to equip students with problem-solving skills to tackle computational problems using logical and numerical approaches. The paper also presents a list of varying assessments to encourage class participation and assess students' learning. An active-learning approach to this module would be particularly useful because of the difficult concepts that cannot always be easily understood from pure lecturing and given how programming is something which is understood better when students get hands-on experience and practice with it.

Methodology – Active Learning Session

Figure 1 shows the typical flow of events/activities that took place in the proposed active learning sessions of this paper, along with the respective timings of the activities. This teaching model was used for the first semester of a programming module with 140 first-year undergraduate students and was adapted for use in lecture theatres. In these sessions, different active learning strategies were employed one at a time; though subsequently, multiple strategies were used depending on the topic of the lecture. The typical active learning strategies used were Minute Papers, Think-Pair-Share, group-based activities, and pop-up quizzes. All activities were frequently

followed by an instructor-led discussion, intended to assist students with grasping a deep understanding of the topic. Every two to three weeks, unofficial written feedback from students was gathered to understand their abilities and improve upon the teaching style.

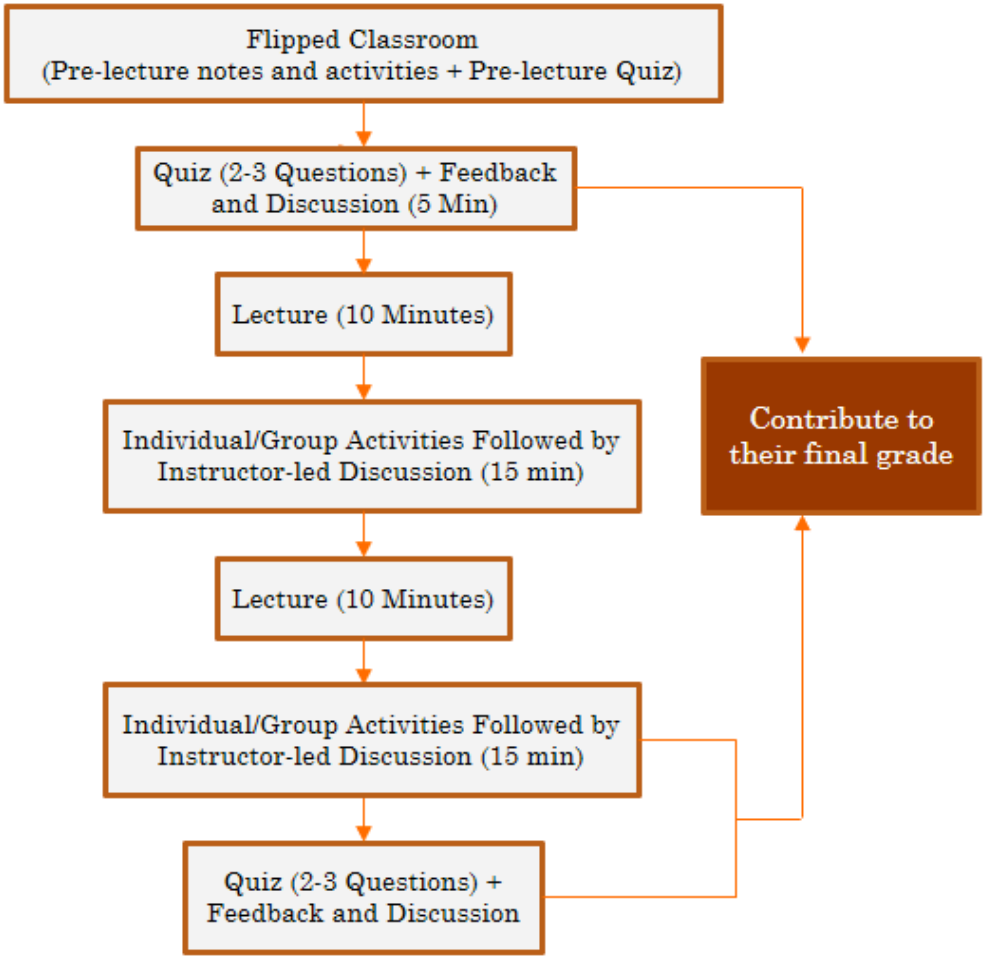

Figure 1: The block diagram of the proposed active learning session

Breakdown of Proposed Teaching Model

First and foremost, it can be vital for instructors to build rapport with students to encourage engagement in classes; this was a perception also mentioned by Chickering & Gamson (1987). Moreover, it can incline students to feel more comfortable asking for assistance from instructors, given the acknowledgement of a predetermined relationship. There exist numerous strategies for instructors to achieve rapport with their students: expressing enthusiasm in classes, increasing their availability, and trying to memorise their students' names. One that was used in the sessions of this paper was to share hobbies, research interests and experience. By doing this, students could relate and get comfortable with the instructor.

The use of a Flipped Classroom is a common active learning strategy, that revolves around assigning lecture materials as homework, so students can learn general concepts of a given topic before attending the lecture. By using this in the active

learning sessions of this paper, lecture time was able to be utilised for problem-solving, group activities and teaching advanced topics. Another advantage of Flipped Classrooms lies in their flexibility, in that the pre-lecture material for students can be provided as a lecture recording or a short recorded/written version of lecture materials (Roehl et al., 2013). By decomposing the lecture recording into several shorter clips to explain specific concepts, a more in-depth and "bitesize" version of pre-lecture material can be produced.

The appropriate practice to commence the sessions was to have a quick recap of the previous session and a condensed summary of the pre-lecture materials provided before the lecture. Think-Pair-Share was an active learning strategy that was regularly adopted during this time. Students were asked to recollect and/or answer questions about what they had understood in the previous lecture and pre-lecture material. They were then asked to pair-up with a student beside them to share answers and reach an agreement. This aimed to help students communicate and engage better with their peers, as well as reflect on their own understanding. Apart from Think-Pair-Share, a formative assessment such as an online in-class quiz was also used on occasion to assess students' understanding. By following this with an instructor-led discussion, misconceptions between students were able to be addressed efficiently.

The next 10 minutes of the sessions were used to explain an advanced topic that was not covered in the pre-lecture materials, or a complex problem-solving exercise(s) through instruction. Given the nature of the programming module, it was very common to demonstrate how to engage and tackle exercises which required problem-solving so students could visualise and understand the approach necessary, before attempting it themselves.

Students were subsequently introduced to a problem-solving exercise. This aimed to bridge the gap between the theoretical knowledge they had just acquired, and the practical understanding needed to apply their knowledge to real problems. It was also hoped that the transition from lecturing (the previous portion of the session) to something more active, would prompt students' engagement. Students attempted these exercises either individually or in a group. Grouping students favoured the supplement of more complex problems, as students would be able to work together on questions that required extra thought and could have proved more challenging if attempted individually. Chickering & Gamson (1987) also commented on the advantages of group work; one such advantage being that students' understanding of a topic could be improved by communicating with peers and learning from each other.

A similar of pattern of 10 minutes of lectures followed by an individual/group exercise was practiced until the end of the sessions. Sessions then concluded with a quick summative online quiz to assess students' overall understanding. These quizzes carried 1-2% of students' overall grade for the module, which in turn encouraged attendance and engagement in the sessions.

Results and Discussion

The end of the module's semester saw the administering of the University's official teaching evaluation, and a straightforward survey of five questions for student feedback. The responses of the latter are represented in Figure 2.

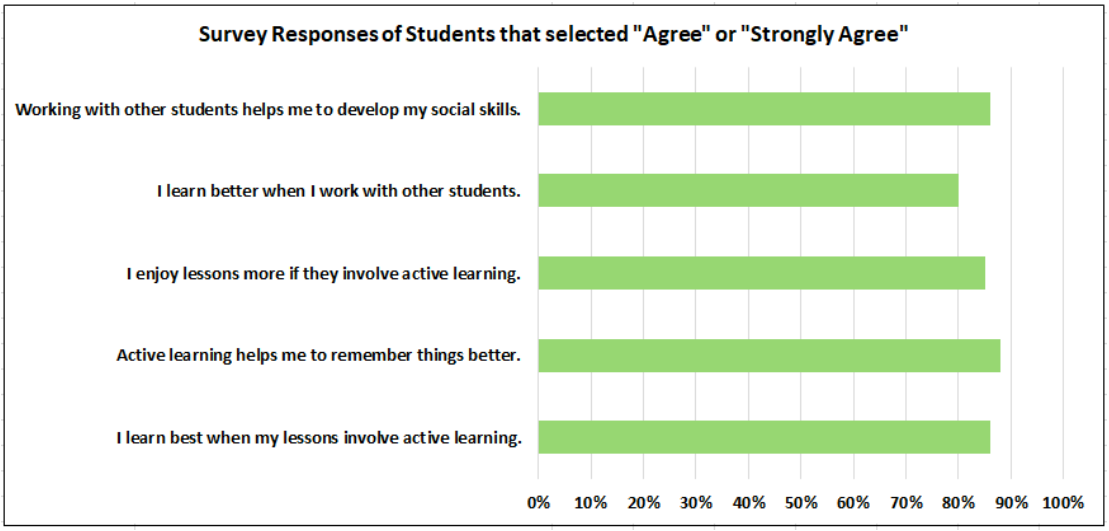

Figure 2: Illustration of students' responses to survey questions on active learning.

Analysis of the responses show that a significant number of students were of the consensus that they learnt better (86%) and enjoyed lessons more (85%) when they involved some form of active learning. This coincides with previous research by Anderson et al. (2005) and Thaman et al. (2013), where active learning provided better learning and enjoyment in classes than teacher-centred approaches. Students' reasoning behind their positivity clarified that they experienced opportunities to apply newly learnt concepts to distinctive problem-solving exercises either individually or within a group, and that they received immediate feedback from their peers and instructor (both of which were hoped for when designing the structure of the active learning sessions).

A large 88% of students believed active learning helped to remember things better. Given the teacher-centred approaches that students are accustomed to, which result in short-term memorisation, the responses of this question indicated that taught concepts connected better with students, inferring something stronger than just memorising. This provides implications that students were more than likely learning through understanding, as opposed to just memorising, which has been a common outcome of previous research of active learning (Anderson et al., 2005; Kember & Leung, 2005; Thaman et al., 2013).

A further 86% also felt active learning aided with the development of social skills, which proved useful in creating relationships with new friends and having healthier communications with existing ones. This meets feedback from active learning techniques used in Thaman et al. (2013), which also concluded that a significant number of students experienced better relations with peers. The instructors for the programming module shared their experience with witnessing the effects of active learning, as their initial observations at the beginning of the semester revealed that most students found it challenging to engage with peers. However, as the weeks progressed and different active learning strategies were exploited, students were perceived to gain more confidence to interact with fellow students and were more willing to contribute their opinions during classes.

When asked about learning better through teamwork, agreement between students was at 80%; a benefit which was also mentioned in the work of Chickering and

Gamson (1987). Interestingly, the instructors of the module noticed that the number of students that were willing to transfer their skills with/to their peers gradually increased over the course of the module, providing further support for teamwork as a viable teaching method, since students were observed to be learning from each other.

Conclusion

The active learning sessions in this paper proved useful in improving students' learning experiences. Student feedback demonstrated that a substantial number of students experienced benefits like better learning and remembering things better, when compared to without active learning. Given students are known to find concepts in computer science programming module difficult, this was a significant milestone in helping students overcome difficulties; something which was not done as efficiently when active learning was not at the forefront of session design. Other student benefits included greater enjoyment in classes with active learning, rather than those without, and improved social skills. This paper also shows the flexibility of active learning strategies, in their ability to produce results in large course settings. It therein provides support for the use of active learning, by showing a model that works in displaying greater student achievement and positivity than a teacher-centred approach to learning. It is important to note that the structure for the active learning sessions used in this paper was purposefully designed to align with course content, aims for the module (one of which was to equip students with advanced problem-solving experience), and necessary skills for future careers in the subject. Application for different subjects will most likely therefore need tailored structures. However, this paper is confirmation that a well-structured combination of active learning strategies can provide positive student learning outcomes.

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The Perceived Effects of Home Environment on University Students' Study Motivation

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Abstract
Despite the large contribution of the family to the academic performance of students, studies that have examined the influence of home environment on students' motivation to study have been limited. Thus, this qualitative research aimed to describe the perceived contribution of physical and social home environment to university students' motivation to study. The respondents comprised 30 purposively selected college students, aged 18 to 24 years old, from a state university in the Philippines. One-on-one interviews were utilized to gather qualitative data from the respondents. Thematic analysis was applied to analyze the data. Results showed that the most influential aspect of physical home environment that motivated students to study was good interior ambiance which included comfortable room temperature, privacy, quiet study area, adequate study space, and good spatial organization. On the contrary, the characteristics of physical home environment that demotivated students from studying included uncomfortable and disorganized study space, noise, distracting facilities such as television and Internet, and the lack of personal study space. In terms of social home environment, care and assistance; affective communication; freedom; and respect from parents and siblings were among the factors that motivated students to study. In contrast, academic pressure from parents; social comparison; parents' lack of sensitivity; and family conflicts were aspects that lead to the lack of motivation to study. Finally, household tasks and rules were found to have both positive and negative perceived effects on study motivation.

Keywords: College Students, Motivation, Social Home Environment, Physical Home Environment

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Introduction

In a highly competitive society, academic performance is considered as one defining aspect of employability and plays a central role in a college student's success. Several factors influence academic performance, with motivation as one crucial aspect (Muola, 2010; Ndirika & Njoku, 2012; Orhan-Özen, 2017). Student motivation has been linked to several variables such classroom management, teaching methods, parental communication, and certain student characteristics (Yilmaz, Şahin, & Turgut, 2017). The environment where a student functions, including school and home environments, also influences study motivation (Rao & Reddy, 2016). Obeidat & Al-Share (2012) emphasized the importance of effectively designing classroom environments, since the classroom is a space where students perform various learning activities. However, equally important is the home environment that should provide a space that is conducive to studying. Students spend much of their study time at home and to be functional, the home should be a place that promotes motivation and engages learning.

Muola (2010) defined the home environment as "all the objects, forces and conditions in the home which influence the child physically, intellectually and emotionally" (p. 214). The home provides a strong impact on children's development and academic performance (Obeta, 2014). For instance, a study by Gottfried, Fleming, and Gottfried (1998) revealed that children who were provided with a home environment that is conducive to learning opportunities were more academically and intrinsically motivated. The influence of home environment to motivation encompasses both physical and social home environments. The physical conditions and design of learning environments have an impact on student performance (Gifford, Steg & Reser, 2011); and influence motivation, focus, and performance (Scott-Webber, Abraham & Marini, 2000). On the other hand, social aspects of students' home environment such as family support also contribute to academic motivation (Urdan, Solek & Schoenfelder, 2007). Since the family is an important source of strength and affection (Joshi & Acharya, 2013), motivational actions such as parental encouragement (Lawrence & Barathi, 2016) and support (Shahzad, Abdullah, Fatima, Riaz & Mehmood, 2010); as well as sibling support (Alfaro and Umaña-Taylor, 2010) have positive influences on students' academic performance and motivation. Conversely, family conflicts and poor family relationships such as lack of guidance from parents can lead to poor motivation (Wanjiku, 2010).

Despite the importance of the home environment to study motivation, there is a paucity of studies that examine the influence of home and family situations to college students' motivation to study. Most studies that examine the effect of environment to motivation or academic performance focus on grade school or high school students as units of analysis (Akomolaf & Adesua, 2016; Gottfried, Fleming, & Gottfried, 1998; Rao & Reddy, 2016). In addition, many studies on work environment focus on corporate settings (El-Zeiny, 2012; Kamarulzaman, Saleh, Hashim, Hashim, & Abdul-Ghani, 2011), while only a few studies explore how characteristics in the home environment contribute to accomplishing school-related tasks. Hence, this qualitative study aimed to investigate the perceived contribution of physical and social home environment to university students' motivation to study. Specifically, the study described the aspects of physical and social home environment that either enhance or inhibit study motivation. For this study, physical home environment referred to

facilities and interior environment available for studying at home. On the other hand, social home environment pertained to the support that students receive from their parents and siblings, accomplishment of household chores, and household rules.

Theoretical Framework

The study utilized Abraham Maslow's Hierarchy of Needs and the Family Systems Theory as bases for examining the perceived influence of home environment to university students' academic motivation. Maslow's theory depicts that individuals are motivated by several levels or hierarchy of needs (Gordon & Browne, 2010). These needs are interconnected with one another and forms a hierarchy in which the most basic needs such as physiological and safety needs should be met first before higher level needs (i.e. intellectual achievement and self-actualization) can be achieved (Woolfolk, 2009). At the bottom part of the hierarchy are basic physiological needs such as air, food, shelter, sleep, and clothing that are necessary for survival. Right above physiological needs are safety and security needs (e.g. the need to be protected from harm and danger) that can only be satisfied once the physiological needs are achieved. Next in the hierarchy are love and belongingness needs which come from family members, friends, and other people around an individual. The fourth level in the hierarchy is the need for self-esteem and respect, which pertains to an individual's need for confidence, recognition, self-worth, achievement, independence, as well as respect from other people. The highest level in the hierarchy is self-actualization or self-fulfillment, which can be achieved once all lower level needs are acquired (Aruma & Hanachor, 2017; Gordon & Browne, 2010; Woolfolk, 2009). Maslow's hierarchy can be used to examine how a student's varying needs in his or her physical and social home environment can influence study motivation. Specifically, when physiological, security, and love or belonging needs are met; this could facilitate the motivation to acquire higher levels of needs such as knowledge and learning.

While Maslow's theory was used to examine study motivation in relation to other human needs, the family systems theory was utilized to explain academic motivation in the context of family interactions and interrelationships. "A system is an integrated set of parts that function together for some end purpose or result (Goldsmith, 1996, p. 27)." The family systems theory gives importance to the interactions of individuals within the family (Watson, 2012) and views the family "as the primary relationship context in which individual character traits and ensuing patterns of behavior are learned and reinforced (Johnson & Ray, 2016, p. 782)." Several principles of the family systems theory were used as foundation of the current study including wholeness, family rules, and family boundaries. Wholeness refers to the family being understood as one whole entity. All families are interdependent and are tied together by their relationships and functions within the system (Roberts, 1994). On the other hand, family rules control the interactions between family members, define the bond and distance between them, and determine how families utilize resources and regulate authority and power among its members (Burr, Day, & Bahr as cited in Roberts, 1994). Lastly, family boundaries refer to limits and barriers between family members (whether physical or emotional) that control the amount of connection or interaction that occurs. Under this principle are three family subsystems – spousal, parental, and sibling (Roberts, 1994). Boundaries may also be visible (i.e. walls and gates) or invisible such as house rules (Goldsmith, 1996). In the current study, students were

viewed and understood as individuals who are part of a family system. The family systems theory was utilized in understanding how certain aspects the students' social home environment (i.e. parent and sibling support, household tasks, and household rules) affect their motivation to study. It was assumed that the type of interactions and interrelationships, as well as the boundaries and barriers that are present in the family would all contribute to the quality of the students' home environment, which would consequently influence their study motivation.

Methodology

This study has a qualitative research design, which utilized one-on-one interviews to gather data about the perceived contribution of physical and social home environment to university students' motivation to study. The respondents of the study comprised 30 college students from a state university in the Philippines. To ensure maximum variation of data, respondents were not limited to any age group and year level; and were selected from various degree programs. The respondents' ages ranged from 18 to 24 years old. Purposive sampling was utilized in order to gather rich and substantial data, using the following criteria: first, the students must be living in a permanent or fixed residence (i.e. not a dormer) and second, the respondents must be living with their parents and siblings. The interviews were conducted individually with an estimated time of thirty minutes and were documented using a phone recorder. Before the start of each interview, a consent form was handed and explained to the respondents. This document contained important information about the research, including the researcher's name, contact information, the title of the study and its objectives, procedure and length of time needed for the interview, a statement on the extent of confidentiality and voluntary participation, and consent to record the interview. Students who agreed to participate were requested to sign the informed consent form and were subsequently interviewed. At the end of each interview, a simple token of appreciation was given to the students. The qualitative data that emerged from the interviews were analyzed using thematic analysis.

Results

1. Emergent Themes on the Contribution of Physical Home Environment to Study Motivation

Three emergent themes were identified with respect to the contribution of physical home environment to study motivation; including good interior ambiance, availability of study facilities and equipment, and availability of food and drinks. Among these themes, good interior ambiance was the most common motivating factor that was identified. Good interior ambiance is related to the following subthemes: comfortable room temperature, quiet study space, privacy and personal space, adequate study space, comfortable study space, and good spatial organization. According to the students, they were motivated to study when the room temperature is just right – neither too hot nor too cold. A warm room temperature makes them uneasy, while a room temperature that is too cold makes them sleepy. The quietness of the study area also plays an essential role in the students' motivation to study, as described by one student –*"The silence in my study area makes me feel that I should be studying* (Student 22)*."* Aside from room temperature and silence, the availability of privacy and personal space is also an important motivating factor. The respondents stated that

they are motivated to study when they are alone in the room and if they have their own personal space and privacy. One student shared – *"The fact that I have my own table and I have my own space motivates me* (Student 23)*."* Aside from having a personal study space, a comfortable and spacious study space adds to students' study motivation.

Next to interior ambiance, the availability of study facilities and equipment is another physical home environment factor that motivates students to study. Study facilities and equipment include their own study table, strong Internet connection, comfortable chair, good lighting fixtures, shelves for study materials, and own laptop. These facilities provide comfort when studying hence, can stimulate the desire to study. On the other hand, the absence of these facilities and equipment lead to discomfort which could decrease the drive to study. This was evident in the words of one student, as shown below.

When there is bright lighting in my room, I am motivated to study. One time when my mother asked me to try using a lamp instead of the lights in my room to save resources, I got really sleepy. I like it more when the whole room is lighted (Student 8).

Another motivating aspect in the students' physical home environment is the availability of study needs, especially food and drinks. According to one student – *"When I am at home, I am motivated (to study) when there is food* (Student 12)*."* However, study facilities and equipment do not always enhance study motivation, especially when their use is not regulated. For example, having internet connection at home is a double-edged sword. It enhances motivation because it is necessary in finishing schoolwork, but at the same time can also be distracting, if its use is unregulated. The effect of the students' physical home environment to study motivation can be examined using Maslow's hierarchy of needs. Since physical space, food, and beverage are physiological needs, students must first meet these basic needs before they strive to attain higher levels of need such as intellectual achievement. Without a comfortable study space, adequate study facilities, as well as proper nourishment; students would find it difficult to acquire higher levels of needs such as focus and motivation in studying.

2. Emergent Themes on the Influence of Social Home Environment to Study Motivation

Analysis of qualitative data on the contribution of parental support to study motivation resulted to seven emergent themes – care and assistance, affective communication, freedom, rewards and affirmation, desire to pay back, parental pressure, and social comparison. The care and assistance that children receive from their parents emerged to be the most motivating factor for them. Care and assistance include parental presence, consideration, and the provision food and other needs while studying. On the other hand, affective communication is felt by children when parents communicate with them in a warm and encouraging manner, provide them with sound advice and constant reminders, ask them how they were feeling, remind them to rest, and listen to their stories and point-of-view. The importance of affective communication in enhancing study motivation is shown in the words of one student –

"They give me sound advice especially when I am having a hard time. They tell me, 'You can do it (Student 27)*!"*

Another aspect of parental support that encourages study motivation is the freedom that students receive from their parents. Freedom is felt by the students when parents do not exert much academic pressure on them, and when they are given the chance to decide for themselves. Freedom as a motivating factor can be linked to one of the psychological needs stated in Deci and Ryan's (as cited in Passer and Smith, 2008) self-determination theory which is autonomy. Autonomy pertains to the need to attain self-regulation, freedom, control and independence, which when acquired can lead to fulfillment and self-determination. In the case of the university students in this study, the freedom given by parents could lead to the sense of being in control, which then contributes to academic motivation. Next to freedom, rewards and affirmation also influence study motivation in a positive way. Rewards and affirmation come in the form of verbal praises and material rewards, as well as the students' desire for their parents to be proud of them. The influence of these external rewards to academic motivation may be explained by Skinner's Operant Conditioning Theory (as cited in Seifert & Sutton, 2009) wherein he looked at reinforcements such as rewards, as stimuli that increases the likelihood of behavior. Rewards and verbal praises given by parents when their children perform well in school serve as stimuli that increases the likelihood of studying.

The desire to pay back to parents also emerged as an external reinforcer that influences the students' motivation to study. The students appreciate the care and hardships that their parents went through to send them to school. The desire to give back to their parents to show their gratitude, and to help their families financially, serve as motivators for them to study hard. The desire to give back to one's family is a common Filipino value that Filipino children hold. This is exemplified is the words of one student below.

There's this sense of responsibility that, since they brought you up in this world you have to someday pay them back, so all of the things that I'm doing right now are not really for myself but for my parents, so that I can help them since I'm already graduating (Student 26).

As described, good parental support and parent-child relationship reinforces students' motivation to study. On the contrary, emergent themes also showed that certain aspects of parental support could lead to demotivation. One of which is parental pressure that includes the fear of not meeting parents' expectations, pressure to receive high grades, and pressure to graduate right away. In a similar way, social comparison also influences study motivation in a negative manner. The students shared that they feel demotivated when their parents compare them with their siblings and other people. Maslow's hierarchy of needs may be used to explain why parental pressure and social comparison lead to study demotivation. It is possible that parental pressure and social comparison could lead to feelings of insecurity on the part of the students; and without security, the second level of need in Maslow's hierarchy, the drive to move on to higher levels of needs (i.e. intellectual curiosity) could be hampered. Other aspects of parental support that influence study motivation in a negative manner include parental insensitivity and conflicts with parents.

In the same way that positive aspects of parental support enhance study motivation, the support that students receive from their siblings also influence academic motivation. Emergent themes of sibling support that motivate the students to study include affective communication, care and assistance, respect, siblings as source of inspiration, and desire to support siblings in the future. Affective communication with siblings was found to be the most influential aspect that motivates students to study. This includes receiving encouraging words and sound advice from siblings, willingness to listen to each other, as well as positive sibling bonding. The care and assistance that students receive from their siblings also encourage them to study. This includes assistance in school requirements & household chores, companionship, provision of food, and financial help. One student shared how the assistance from a sibling enhanced his/her study motivation – *"Sometimes, when I am the one tasked to wash the dishes, my sibling volunteers to do it so that I can do my assignments* (Student 6)*."*

Another aspect of sibling relationship that motivates students to study is respect from siblings. Sibling respect pertains to respecting each other's personal space, study time, and responsibilities at home. In addition to sibling respect, the accomplishments of siblings also emerged as a source of inspiration that leads to study motivation. Several students shared that they feel motivated to study because they want to emulate their siblings who have finished their education and were already working. Finally, the desire to support their siblings in the future also reinforces the students' motivation to study. This result is related to the students' desire to give back to their parents, which reflects the Filipino value called "debt of gratitude." According to one student – *"Since my brother is only in Grade 9, he has many years to go until college and one way of pushing myself to be successful is the fact that eventually, I need to be able to fund his studies* (Student 26)*."*

There are also aspects of sibling relationship that demotivate students from studying such as time-intensive distractions, lack of sensitivity, and sibling conflicts. Distractions usually occur whenever siblings create noise, give out commands, or when siblings simply want to spend time with each other instead of studying. On the other hand, lack of sensitivity occurs whenever siblings are not considerate of each other's study needs; while sibling conflicts usually comprise bickering and petty fights.

The family systems theory is useful in explaining the emergent themes of parental and sibling support that affect students' academic motivation. Applying the theory – the students, their siblings, and their parents can be considered as subsystems within the whole family system. Whatever transpires within one subsystem, and between subsystems could influence the behavior of family members. As evident in the emergent themes, the interaction of the students with family members, particularly their parents and siblings, can lead to either academic motivation or demotivation depending on the quality of the said interaction and relationship. When parents and siblings communicate in affective and loving ways, and when they show care and respect to the students; the students benefit from these positive forms of interactions that leads to increased study motivation. In addition, the feeling of unity with the family as shown in the students' desire to give back to their parents and support their siblings in the future serves as a driving force to finish their studies. On the other hand, interactions that are characterized by parental or sibling insensitivity,

interpersonal conflicts, and lack of trust and freedom have an undesirable effect on that students' study motivation. These negative interactions and relationships can form emotional and social barriers that prevent students from functioning effectively.

3. Emergent Themes on the Influence of Household Tasks to Study Motivation

Emergent themes on the perceived effect of household tasks to study motivation depicted both positive and negative influences. Primarily, students perceive household tasks as a cause of distraction and exhaustion, which hampers their study motivation. The students shared that they lose their momentum and focus in studying whenever they do household tasks. The students added that household tasks tire them, leaving them will little energy for studying, as shown in the words of the student below.

It affects when you have a lot of chores to do, sometimes you can't say no to your family, and once you can't say no you have to do all those chores and you'll get tired and when you have to study already, you'll get demotivated because you want to sleep (Student 4).

While accomplishing household tasks have negative effects on students' academic motivation, it can also have positive effects for some of them. Some respondents mentioned that household tasks help them set the mood before studying and could serve as a study break. Household chores allow them to clean and organize their things, bedroom, and study area which contributes to enhanced motivation when studying. Some students shared that their chores at home refresh their mind before they start to work again. According to one student - "*I do the household tasks to refresh my brain so I am motivated when I go back to study* (Student 22)*."*

4. Emergent Themes on the Influence of Household Rules to Study Motivation

Similar with household tasks, household rules have both positive and negative perceived effects on students' study motivation. Some student perceive that household rules lead to better study motivation because these rules teach them proper time management and focus. According to these students, household rules along with the constant reminders by their parents, help them to minimize the use of gadgets and social media, and enable them to manage their time properly. Consequently, proper time management and regulated social media use contribute to study motivation. On the other hand, the influence of household rules on study motivation is adverse for some students. A few students shared that household rules make them feel uneasy, and accordingly leads to demotivation. According to one respondent, rules at home such as games and social media regulation cause him to be anxious of his actions, which results to decreased motivation in studying. The thoughts of one student on how household rules can be limiting is shown below.

It feels limiting though I understand that we need rules to help us manage our time. However, knowing that they always try to limit or regulate our activities, knowing that they do that 100% of the time to the point that I need to be attentive with what I do, feels limiting (Student 9).

Majority of students perform their household chores before studying thus, causing them to be physically tired. However, if household tasks are scheduled in a more

strategic manner, say during study breaks of after studying, these could lead to less negative influences on study motivation. Considering the responses of the students, household rules can lead to an increase or decrease in study motivation depending on how these are implemented at home. When household rules are reasonable, students see these rules as helpful and enabling. On the contrary, when rules are overbearing, the students lose their sense of freedom, which gets in the way of studying. The undesirable influence of stringent rules on study motivation may be explained by one of the basic phycological needs, in Deci and Ryan's self-determination theory which is autonomy. The self-determination theory proposes that people who attain self-regulation, freedom, and control over their own actions, alongside competence and relatedness can reach fulfillment and self-determination (Legault, 2017; Passer & Smith, 2008). The self-determination theory also "describes the critical impact of the social and cultural context in either facilitating or thwarting people's basic psychological needs, perceived sense of self-direction, performance, and well-being (Legault, 2017, p. 1)." Therefore, household rules can either increase or impede study motivation, depending on how these are carried out at home.

Conclusion

The physical and social home environment of the university students have varied influences on their study motivation. A physical home space that provides a comfortable, quiet, and private study area; coupled with proper study facilities and needs create a motivating study environment for students. Similarly, a social home environment where positive interaction and affection are present, rewards and verbal affirmation are appropriately given, and household tasks and rules are reasonably implemented, also provide a stimulating study atmosphere. The provision of an adequate physical home environment enables the student to achieve their basic needs for comfort and sustenance, thereby allowing them to move on attaining higher level needs such as intellectual stimulation. On the other hand, a desirable social home environment facilitates positive interrelationships and interactions among family members that leads to an effective family system that stimulates study motivation. When combined, a stimulating physical home environment and a positive social home environment brings about a family system wherein the necessary components and subsystems work together to create a motivating study environment.

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Barriers to Girls' Education at the Elementary Level in India

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Abstract
Gender inequality in India has remained a subject of considerable interest among the researchers. With about one-third population comprising of the youth, India has tried to improve access and quality of education to reap benefits of this demographic dividend. Despite its sustained efforts, studies have found that girls in India still face disadvantage in access to basic education as compared to their male counterparts. Both domestic and international studies point out many lacunae which ail girl education in India. This paper analyses the obstacles faced by girls in completing their education at elementary level. These factors arise out of social, economic, cultural and gender-based discrimination in society. This paper points out various aspects related to financial challenges, lack of gender-sensitive environment, security and safety issues, patriarchal mindset of society and low level of expenditure on girl education by the government. While there is no dearth of literature available on each of these issues individually, this paper presents a holistic picture of the challenges and issues faced by girls at school level, which is captured using qualitative data analysis. India has come a long way in achieving the goal of gender equality, yet its future course demands a re-look of the traditional methods being followed. Therefore, universalizing elementary education with gender equity requires addressing existing gender norms so that girls get equal access to the benefits of education.

Keywords: India, Girl Education, Women Empowerment, Gender Inequality, Elementary Education

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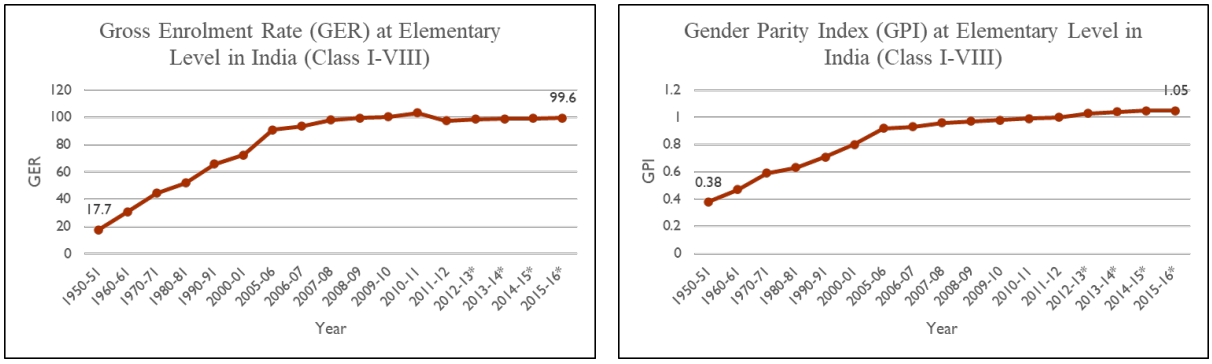
1. Introduction

Access to education is considered to be a vital issue for increasing women empowerment. Over the past decades, many adjectives like quality, inclusive, equitable, etc. have been added to the term education to make it easier for the policy makers for drafting policies, which properly encapsulate the ambition of making a gender-equal society. India has come a long way in improving the education status of both men and women. The remarkable economic growth of India post-1990 reforms has helped it to improve the quality of life of the people also. When it comes to girl education, sustained efforts have been made to prioritize it since gender inequality has remained a widespread feature of Indian society. Not only in the jobs sector, girls face discrimination right from the initial stages of their life and education is one of the main areas, which has to bear the brunt. This paper discusses the important barriers that girls face at the elementary level of education i.e. classes I to VIII. Using a variety of secondary sources, a holistic picture is drawn about various social, cultural, economic, and infrastructural challenges faced by girls in completing their education at elementary level. An analysis of issues pertaining to this age group is necessary as it lays the foundation for the future of girls and any weakness at this level can significantly alter their life-choices.

From implementing The Right of Children to Free and Compulsory Education Act, 2009 (hereafter RTE) (which made free education a fundamental right) to designing national policies like *Sarva Shikhsha Abhiyan* (SSA) (or Campaign for Universal Education), Kasturba Gandhi Balika Vidyalaya (KGBV) and National Programme for Education of Girls at Elementary level (NPEGEL) (now subsumed into *Samagra Shiksha Abhiyan*), India has taken many substantial steps in the direction of improving girl education. At the elementary level, these efforts have resulted in reducing the drop-out rate of girls, increasing the enrolment rates, pass percentages, improvement in basic infrastructure and other related parameters (Draboo, 2020). This can also be seen from the Figure 1 below, which shows the trend in Gross Enrolment Rate (GER) and Gender Parity Index (GPI) for females at the elementary level.

Figure 1: GER and GPI of females at Elementary Level (Class I-VIII)



Source: Ministry of Human Resource Development, Government of India; National Institute of Educational, Planning & Administration, New Delhi [as cited in (Educational Statistics at a glance, 2018)]
* Figures are provisional

The figure above shows that both GER and GPI have seen a gradual increase since the past decades. GPI figure of 1.05 in FY 2015-16 is even more impressive, which means that for every one boy enrolled in school at the elementary level, there are 1.05

girls enrolled at the same level. Although, this points to the overall increasing parity between girls and boys, things change when a deeper analysis is conducted. For instance, a comparison of GPI of government schools and private schools show that while it is higher for the former, it doesn't hold true for girls. This means that parents show a preference to send boys to private schools (more expensive but better education), which indicates a deeper bias against girls in the society (Government of India [GOI], 2018). There are more such barriers which a girl faces in the area of education as analyzed in detail in the next section.

2. Barriers to Girl Education

As mentioned above, the barriers to girls' education at elementary level exists in various forms such as social, cultural, financial, and infrastructural challenges. These issues are discussed as under:

2.1 Gender Inequality in India

One of the major barriers to girls' education in India at the elementary level is the widespread gender inequality. "Women and girls experience inequalities in access to healthcare, education, nutrition, employment, and asset ownership" (NITI Aayog, 2018, p. 65). Despite the fact that government and civil society has been trying very hard to send the message of equality of boys and girls, India still ranked 129th out of 189 countries in Gender Inequality Index (GII) (UNDP, 2019). Historically, this is not a problem in India alone, rather most of the Asian countries seem to be affected by gender-stereotypes, which limit girl's access to education (Jayaweera, 1987). However, considering that India has a significantly huge population of youth, out of which females have an equal share, the magnitude of problem for India increases. One of the primary reasons for gender inequality in India is the general preference of parents of having a male child as opposed to a girl child (Bose, 2012). While there are many sociological reasons for this preference, what it means for a girl child is that she gets disadvantaged when it comes to education, nutrition, health, or other resources. It also means that girls are more likely to be withdrawn from school earlier so that they can take care of household chores or because of the poor financial status of families, which cannot afford to educate both son and daughter. There is enough evidence to show that in case of affirmative policies where both men and women can equally apply, it is mostly the males who get most of the benefits (Cassan, 2018; Draboo & Naaz, 2020).

A survey conducted by the NITI Aayog (which is the national think tank of the government) in 2018 showed that most States in India had a poor Sustainable Development Goal (SDG) Index Score (less than 50) for the gender equality parameter. This gets corroborated with other reports also, which present a similar picture, such as India's current rank of 115 in the global SDG Index (Sachs, Schmidt-Traub, Kroll, Lafortune, & Fuller, 2019, p. 21). At the elementary level, efforts have been made to provide targeted facilities like residential schools, girl's hostels, vocational trainings, free uniforms, mid-day meals, and scholarships to incentivize the parents to send their daughters to schools. The vision of the government is to educate each and every girl student and provide her with quality education (Panmei & Kumar, 2018). However, the challenge of changing the mindset of the people still exist. The skewed sex ratio, which actually declined to 896 in 2015-17 from 900 in 2013-15,

shows that the bias against girl child are not so easy to remove in India (Tripathi, 2019).

2.2 Financial Barriers

Inadequate financial resources allocated by the Government to education sector create another barrier for girls' education. As percentage of Gross Domestic Product (GDP), India has one of the lowest expenditures on education around the world, which is less than 4 percent. This is even lower than many other similar economies like Malaysia, Brazil and South Africa, which spend more on primary education (World Bank, 2017). Although, the data shows that the share of spending on primary education is about 42 percent of the total education budget, it still falls short as the size of the pie is small. While India has committed itself to achieve SDGs by 2030, a study has found that there is a shortfall of at least USD 740 billion in the allocated budget with respect to SDG Goal 4 of providing quality education (Bhamra, Shanker, & Niazi, 2015). Thus, even though the government claims to accord highest priority to girl education, it does not get reflected in the numbers.

The lack of adequate financial budget affects all aspects of girl education. Low budget means that targeted programmes like KGBV and NPEGEL are not able to increase the unit cost per girl child, which remain quite low as of now. Similarly, salaries of teachers and vocational skill trainers are not as per the market rates. This results in teacher absenteeism and also prevents talented staff from joining the education sector. Various government committees like the Kothari Commission (1966) have recommended that government's expenditure on education should be at least 6 percent of the GDP. However, this has not happened even after half a century. "At the global level, India's spending on education is quite less than the OECD countries, which shows in its rank of 62 (total public expenditure on education per student) and a consequent negative impact on its world talent ranking where it ranks 59th among 63 countries (IMD, 2019)" (Draboo, 2020). Education figures in the concurrent list i.e. both Central and State government have the obligation to take steps for its improvement. However, just like the Central Government, even the State Governments have not shown any inclination to increase the spending on girl's education. Mate, et al. (2018) found out that the expenditure on health and education increased only in 9 out of 28 States in India since 1990s.

2.3 Safety and Infrastructure Challenges

Besides the above two barriers, girls at elementary level also face issues related to safety and infrastructure. Many studies have found that the scheme provisions related to girl education often fall short in critical infrastructure at many places (see for example, Evaluation Study on KGBV, 2015; Report of National Evaluation of KGBV and NPEGEL, 2008). For instance, many residential schools and day-schools set-up in educationally backwards blocks under KGBV and NPEGEL respectively did not have adequate boundary walls. Similarly, night guards were not available in many residential schools. These are safety concerns for the girl students and their parents, which prevents them from getting enrolled in such schools. The quality of infrastructure is also a problem, as proper toilets and provisions of safe drinking water is not available everywhere, and even if it exists, their maintenance is poor rendering them unusable. These are compounded by cross-linked issues like poor early-

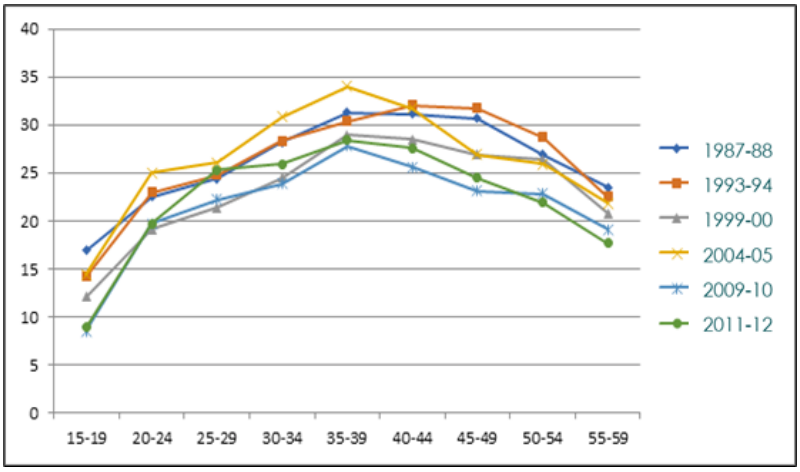
childhood care and malnutrition in children. India ranked 102 out of 117 countries in the Global Hunger Index (GHI, 2019), which means that the lack of proper nutrition will adversely impact girls' education also.

Bose, Sardana, & Ghosh (2017) conducted a study of 12 States to analyze the quality of infrastructure available in schools. They found that all the sample schools required more classrooms ranging from 15 percent to 75 percent. Further, they also found that most sample schools lacked adequate number of trained teachers, hence, increasing the Pupil-to-Teacher (PTR) ratio. The country statistics show that PTR ratio at primary and upper primary level was 23 and 17 respectively in 2015-16 (GOI, 2018). A bigger matter of concern is the lesser number of female teachers at the upper primary level, which is just 83 per hundred male teachers as per the same report. In a patriarchal society like India, non-availability of female teachers is one of the reasons for drop-out of girls at elementary level.

3. Other Barriers and their manifestation

Apart from the barriers discussed above, there are other barriers which girls face at elementary level in India. An analysis of the major reasons for drop-out among female students show that 29.7 percent mentioned 'engaged in domestic work', 15 percent of the girls mentioned 'Not interested in studies', 15 percent mentioned 'financial constraints and 13.9 percent mentioned 'marriage' (NSSO, as cited in GOI, 2018). The other reasons included engaged in economic activities (4.9 percent), school is far off (3.4 percent), unable to cope-up with studies (4.6 percent), completed desired level/ class (6.5 percent) and other reasons (6.20 percent) (such as institution not suitable, language/medium of instruction used unfamiliar, inadequate number of teachers, quality of teachers not satisfactory, unfriendly atmosphere at school, preparation for competitive examination, etc.) These reasons show that improving the financial status and availability of infrastructure are not necessarily enough to attract girls to attain education. Rather there are host of other factors which need to be taken care of. The most important one being gender-specific roles of girls where they are expected to take care of households. This social norm gets reflected in the later life of women also. For instance, when it comes to employment of women, the female Labor Force Participation Rates (LFPR) has been declining since 1987-88. The Labor Bureau Employment and Unemployment Survey records that female labor force participation has fallen to about 27.4 per hundred in 2015–16, which is one of the lowest in the world (GOI, 2019). Further a study by McKinsey Global Institute (2018) found that India did not score well in three areas – work, legal and politics and physical security. Figure 2 shows the historical trend of female LFRP rates in India.

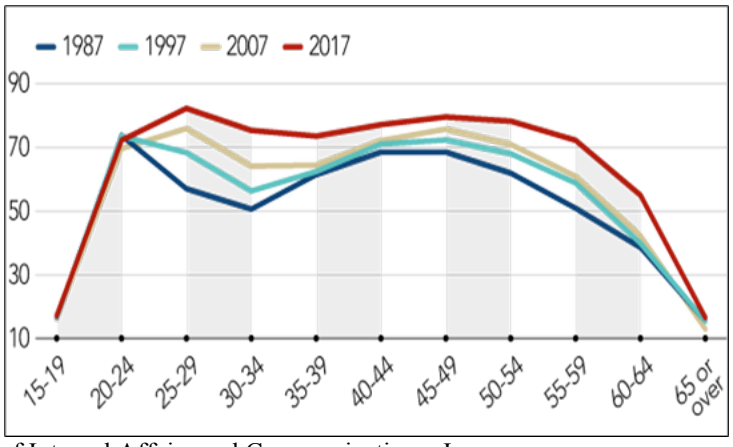
Fig 2: LFPRs for Urban Women in India (in %age)



Source: Various NSSO reports, GOI [as cited in Menon, 2019]

The figure above shows that the female workforce in India has been declining, which is quite worrisome as far as women empowerment is concerned. Infact between 2012 and 2018, the size of the female labor force (actual workers, not potential workers) fell by an estimated 21.8 million. Things are better put in perspective if a comparison is drawn with another country like Japan, which has also witnessed gender inequality in their society. Figure 3 shows the trend of female labor participation in Japan.

Figure 3: Female labor participation in Japan (in %age)



Source: Ministry of Internal Affairs and Communications, Japan.

From the above figure, it can be seen that in the case of Japan, even though the curve is 'M' shaped, however, there has been an overall increase the female labor participation since 1987. This is in contrast to India, where the LFPR has decreased since 1987. Thus, there is scope for India to learn from Japan. In 2013, Japan adopted "Womenomics" as a core pillar of the nation's growth strategy. It comprised of many comprehensive measures to increase the educational attainment levels of girls, employment opportunities for women, provide post-natal care facilities, increase gender equality, etc. Although Japan still faces many issues related to women in workforce and the progress has been slow, however, things are slowly changing for the better. India has also taken many steps in this direction but it needs to expand the coverage and penetration.

4. Conclusion and Suggestions

This paper analyses the most important barriers faced by girl students at elementary level in India. Despite improvements in education, health, and overall economic growth, gender inequality exits in the society and gets manifested in the educational attainment of girls. These early life challenges impact the life-choices of women at a later stage also as seen from the analysis of female labor force participation rates in India discussed above. Considering these dimensions, it is necessary that Government takes concerted efforts to make education for girls more accessible and affordable. The financial and infrastructural challenges should be addressed by increasing the financial allocation on education. Gender-sensitive infrastructure needs to be created which will enable girls to easily the resources. This includes creating schools for girls, toilet and drinking water facilities at workplace, safe transportation, etc. Further, livelihood opportunities for women need to be increased so that parents see the utility of getting their daughters educated. As long as the opportunity cost of getting a girl educated in higher than involving her in household chores, the situation is not going to change drastically. In addition to this, health and hygiene are an important part of women empowerment. Government must focus on these cross-linked issues also and increase information awareness among families about key issues that concern girls. With almost half of the total population being women, India cannot afford to ignore these barriers in the 21st century if it really wants to become a developed nation with high growth rates.

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Trends in Practical Undergraduate Training of Future Primary School Teachers

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Abstract
The aim of the paper is to outline the development and current trends in practical aspects of undergraduate training of future primary school teachers. The research is based on the requirements of schools which need thoroughly trained students prepared for practical educational work. For a long time, university education has primarily focused on teaching theoretical knowledge without practical applications. Currently, the authors of the present paper aim to implement the "Lesson Study" method in practical teacher training courses in universities. According to this method, the system of practical training involves several actors—supervisor (expert from university), teacher trainer (expert from elementary school), and a group of students. The paper presents an analysis of practical educational requirements for the implementation of this method. The paper is a partial outcome of the project *Development of the concept of undergraduate training of primary school teachers with an emphasis on communication competences*.

Keywords: Pregradual Preparation, Practice, Lesson Study, Teaching for Primary School, Development of the Study Field

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Introduction

In the past 30 years, the concept of undergraduate training of future primary school teachers in the Czech Republic has gone through considerable development. On the one hand, the teacher training course for primary school teachers is a new independent field of study; on the other hand, this is the result of democratization, liberalization, humanization, and political and social effects. The system of education is affected by individual (parents') interests, social interests (education of good citizens), and the interests of various groups engaged (including teachers). The basic concept the school reflects J. A. Comenius' "workshops of humanity" (Provázková Stolinská, 2015). This has a significant effect on the transformation of the goals, content, structure, and organization of the study. The basic concept is the humanist paradigm of grounded theory of reflective thinking, educational constructivism, and professional teacher competences as a system of contextual knowledge (Lukášová-Kantorková, 2004; Kasáčová, 2005; Švec, 2005). The requirement is to develop a school of communication, partnership, cooperation, and personality based approach (Problémy vzdelávania učiteľov 1. stupňa ZŠ, 1994).

Emphasis is on developing and supporting the professionalization of the teaching profession and transforming the teaching profession to include occupational roles and competences, and the development of the teacher personality.

Below is a reference to a scientific study aimed at the development and the current concept of undergraduate training of future primary school teachers in the Czech Republic.

1 Development of undergraduate preparation of future primary school teachers

In the post-revolutionary period, professionals searched for effective elements of modern and responsive concepts of undergraduate education the purpose of which was to replace the existing system from the 1960s. As stated by A. Nelešovská (1995, p. 3), the previous concept had been completely unsuitable and even questioned the ability of educational professionals to be aware of and resolve problems. The beginning of this period was marked by a lack of educational policy on teacher education. Most documents did not address the issue of the teaching profession directly, some included general references (relating for example to teacher prestige and importance in school transformations, basic models of teacher education, need for further growth, etc.) There were also some documents on selected or partial problems (e.g. the issue of educational faculties, length of study for different categories of teachers, etc.) In the past, there had been significant efforts to make the teaching process professional, but until 1995, the Ministry of Education had not presented any idea concerning the system of undergraduate teacher training. This provided space for a new "bottom-up" paradigm created directly at faculties of education (Príprava učiteľov v procese školských reforiem, 2009; Spilková, Hejlová, 2010).

The discussions also included the very concept of the teacher as a facilitator in the process of learning. This is a change in the profession of the teacher who becomes the co-creator of the curriculum (Kosová, 2005; Spilková, Vašutová, 2008). Within this concept, the teacher is supposed to create the right conditions and control the process of learning including educational diagnostics in order to reveal individual students'

peculiarities and their individual maximum performance. The teacher should be a guide on the journey to knowledge and help the student comprehend the world, encourage, inspire, help achieve the competences, and oversee the fulfilment of the rules of school life. Taking this concept into consideration, the subject-specific competence of the teacher loses its original exclusive status. The main focus was now the skill of didactic transformation of the learning content with respect to the students' age and individual specifics, the skill to motivate to discover, activate thinking, create favourable social, emotional, and working climate, etc. A very significant aspect related to communication skills which are the basis of the whole transformation of the educational processes (Spilková, 2002; Lukášová-Kantorková, 2004, Provázková Stolinská, 2015). Education requires close interaction and stimulating communication between all key actors. It is not possible to develop these skills by stereotyped training and imitation of best practices and attitudes, because it is important to anticipate and respond to various changes and emerging educational situations (Maňák, 2011). A significant element that helped improve the quality of undergraduate training was the innovation of teaching practices. In this innovative approach, from the very beginning of their study, the students were in specific real contact with the learners in terms of relevant educational and psychological disciplines and course-specific didactics (in Spilková, Hejlová, 2010).

The transformational and restructuring efforts, concepts, approaches, and visions in undergraduate training from 1990s implemented at Czech faculties of education resulted in concrete changes. At the Czech-Slovak scientific symposium held in 2010, the following innovations in undergraduate training of primary school teachers in Olomouc were proposed:

1. Changes in the concept of study: specification of the terminology of the field of study, changes in the content (inclusion of new disciplines and themes); intensification: in the previous paradigm, the main courses were of a general nature (for example general education and didactics, etc.); study courses that focus on the specialization of future teachers and their employability;
2. Changes in the concept of teaching practices (formerly from the 3rd year) and deepening of cooperation between the university and schools;
3. Innovation of course-specific didactics in the context of teaching practices;
4. Deepening of knowledge and specialization in the training of practical and arts subjects;
5. Changes in the concept of the State Final Examination: integration of the courses, using the portfolio, integration of the didactics of the Czech language and mathematics into the system of the State Final Examination;
6. Changes in the methods and forms of work: strengthening of the methods that support greater students' activity and creativity, development of the conditions necessary for teaching smaller groups;
7. Inclusion of students in international research activities (students' scientific club since 1993);
8. Supporting talented students;
9. Evaluation activities aimed at evaluating the concept of the study;
10. Emphasis on promoting lifelong learning.

These measures were systematically implemented. In the following years, the field of study Teacher training for primary schools was accredited with the following structure of teaching practice:

Table 1: Arrangement of teaching practices in the 2018/2019 academic year at the Faculty of Education, Palacký University Olomouc (CR)

Year	Term	Subjects		Teaching practice	
1.	W	Introduction in the study	Teacher's communicative skills	Observation practice in primary school	Student micro-teaching session in primary school (approximately 5 minutes)
1.	S	Didactics of primary education		Observation practice to identify didactic categories	
2.	W	Methodology of educational work		Observation practice in schools with few classes	
3.	W	Didactics of initial reading and writing		Observation practice in the first grade of primary school	
3.	S	Didactics of music education		Observation practice according to the student's choice: music education, technical education	
4.	W	Didactics of arts education	Music-didactic practicum	Teaching practice: practical and arts subjects	
4.	S	Didactics of mathematics		Teaching practice: mathematics, Czech language, basics of humanities and natural science	
4.	S	Didactics of basics of humanities and natural science		Practice with a focus on the didactics of basics of humanities and natural science	
5.	W	Didactics of natural history	Didactics of national history	Teaching practice: mathematics, Czech language, national history, natural history	Practice with a focus on natural history and national history

5.	S	Continuous teaching practice: 5 weeks fully organized school + 3 weeks school with few classes

During the study, the theoretical (especially didactic) disciplines were linked with the teaching practice.

The practical activities were carried out in selected university elementary schools in and near Olomouc and consisted of two main parts. The first were observation practices. The students were in an elementary school in a specific class, but did not participate in the teaching process.

In their 4th or 5th grade they conducted the teaching practice, which was based on the theory of subject-specific didactics. During the teaching practice the students were involved in the teaching process and after the initial observations and thorough preparation approved by the leading teacher taught a specific lesson in a specific grade. The lessons and preparations were analysed by the teacher trainer.

Eventually, the students participated in the continuous teaching practice in the winter semester in the fifth grade. After this, the students should be theoretically prepared for teaching all subjects in primary school according to the applicable curricular document Framework educational programme for elementary education (MEYS, 2013). The final practice should help them acquire experience with teaching but at the same time assume all responsibilities of a primary school teacher under the leadership of the teacher trainer.

2 Current structure of undergraduate preparation of primary school teachers

According to the profile, the graduates should be provided with the following competences: developmental-reflective, diagnostic, communicative, cooperative, self-reflective, subject-specific diagnostic, educational-research, educational-organizations, managerial, and projective-creative. The graduates should have multidisciplinary knowledge and skills in the areas related to linguistics, mathematics and natural science, national history, music, somatic issues, visual arts, and occupational issues. The graduates should have a broad cultural awareness (including literature, music, visual arts, and drama). The graduates have the skills and knowledge that contribute to health promotion and optimal prevention of undesirable effects of technology, understand and are able to teach their pupils in the area of social changes, resolve educational problems, and assess their educational activity. They have the capabilities necessary for creative, self-reflective, and self-regulatory development (Akreditační spis, 2018).

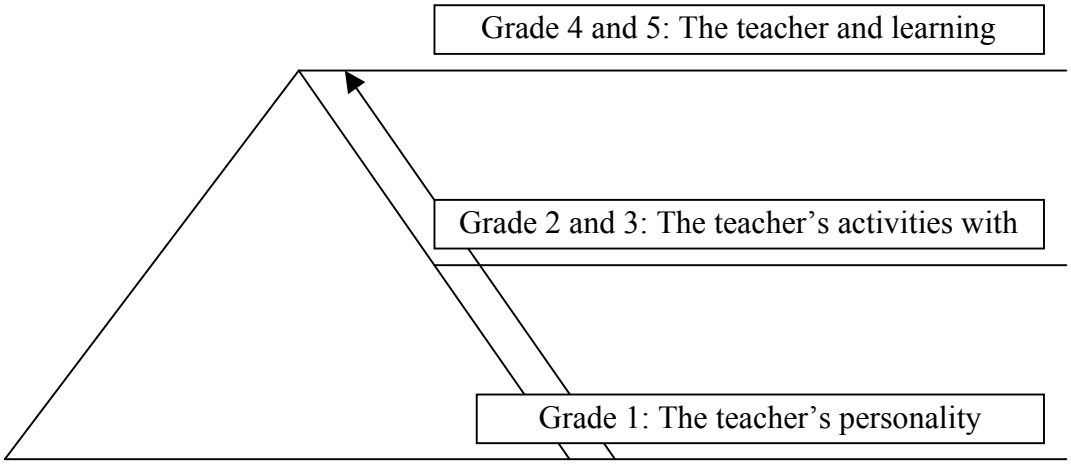
To achieve the highest possible level of graduate competences, the course of study must be of an intensifying nature and theoretical and didactic courses need to be systematically related to practice.

The structure of the study is set in line with the modern principles reflecting the transformation of higher education (Spilková, Hejlová, 2010). They include the following:

- Integration of education: within educational disciplines, between education and psychology, between a course and its didactics, general didactics and course-specific didactics, theoretical study and practice;
- Personality development, cultural awareness, and general level of education;
- Intensifying system of teaching practice throughout the whole period of study with an emphasis on the teaching activity and its reflection;
- Activity methods;
- Individualization of study and personal specialization.

In order to achieve the graduate profile, the study includes a logical content line. The underlying philosophy is the current concept of primary school, and the core of the study is in educational and psychological disciplines, course-specific didactics, and practice. The whole study is designed as a flexible system that allows the students their own professional development and provides space for their specialization.

Diagram 1: Content of the course for future primary school teachers



Source: *Akreditační spis*, 2018

In the first year the students are encouraged to develop their own idea about their own teacher identity. In the second and third years, emphasis is on the deepening of self-awareness in the role of the teacher. In the fourth and fifth years, the core of undergraduate preparation is the reflection of the partial and final level of the adopted professional competences in a dynamic context. The final product of the system of undergraduate preparation is the individual teacher identity.

In the context of the reflective attitude to education (according to Lukášová-Kantorková, 2003), i.e. focusing on the connection of theory and practice, teaching practices copy the content structure of the study. In the course of the five years, from the first week of study, teaching practices are offered in three categories:

- Classroom observation practice;
- Micro-teaching sessions;
- Own teaching practice.

The practices are part of the following system.

Table 2: Arrangement of teaching practices from the 2019/2020 academic year at the Faculty of Education, Palacký University Olomouc (CR)

Grade	Term	Subjects	Teaching practice
1.	W	-	Observation practice in primary school in a fully organized urban school, rural school, or school with few classes
1.	W	Communicative competence of the teacher	Student micro-teaching session in primary school (approximately 5 minutes)
1.	S	Seminar on the didactics of primary education	Observation practice to identify didactic categories
2.	W	-	Observation practice in schools with few classes
2.	S	Development of the primary education curriculum	Observation practice and micro-teaching sessions in primary school
3.	W	Didactics of elementary reading and writing	Observation practice and micro-teaching sessions in the first grade of primary school
3.	S	Didactic seminar: work with primary school pupils with special educational needs	Observation practice in primary school with a focus on the elements of integration and inclusion
4.	W	-	Continuous teaching practice including teaching sessions and reflection (1st to 3rd grade of elementary school)
4.	S	-	Continuous teaching practice including teaching sessions and reflection (4th to 5th grade of elementary school)
5.	W	-	Continuous teaching practice including teaching sessions and reflection
5.	S	-	Continuous teaching practice: 5 weeks fully organized school + 3 weeks school with few classes
5.	S	-	Teaching practice including a research theme for the purposes of the master's diploma thesis

3 Lesson Study: foreign inspiration for modern undergraduate preparation of future primary school teachers in the Czech Republic

The development of the new structure of teaching practices was associated with the modernization of the content.

There are several foreign models that could inspire Czech education. The first is Learning Study—method of professional teacher development in two aspects—structuring of the self (self-image, self-evaluation, cognition, task perception, future perspective) and grounding of the subjective educational theory (Lundgren, Schantz Lundgren, Kihlstrand, 2015). The second possibility is the Design Experiment method, which is based on scientific work (Brown, 1992). However, both methods require longer practical experience. The third method tested in the system of Czech education was described in 2008 by M. Chvál, D. Dvořák, K. Starý and K. Marková: Design-Based Research. Its effectiveness was tested on an experiment as part of continuing teacher education. In 2010, a team from the Institute for Research in School Education Brno tested the application of the 3A methodology (annotation–analysis–alteration of classroom situations). This methodology is based on the premise that practice is the basis of theory, and theory should be practically oriented. Emphasis is placed on the cooperation between educational theory (or research) and practice and on the quality professional teacher's conduct. Special attention is on the content of education and its didactic transformation in classes (Slavík, Janík, Jarníková, Tupý, 2014). However, this methodology focuses on the reflection and study of educational reality as such from the perspective of the researcher, not the student! This is a method of basic research. The results of the research interpretations are implemented in the educational offer for students. All three methods are very interesting and certainly useful, but for our purposes in undergraduate preparation of primary school teachers we used the Lesson Study method.

Description of the Lesson Study method

Lesson Study is a relatively new element in the system of Czech education. However, this method was developed in Japan already in 1870 and represents a specific form of the teacher's action research. It focuses on the teacher's targeted professional development on the basis of peer support (Šrámková, 2017). This method is actively analysed by foreign research studies. In the past 10 years, there have been over 300 studies globally. However, most of them are qualitative—often case studies in a limited regional environment without generalization. In most cases, focus is on the training of mathematics and natural science teachers, but the principle of the method is not subject-specific. In educational practice, this method is mostly applied in the USA, UK, South America, Southeast Asia, and Australia (Vondrová, Cachová, Coufalová, Krátká, 2016). In the context of the current concept of Czech education emphasising the inclusive approach, this method allows targeted monitoring of weak learners and together with other teachers searching for the best educational procedures to increase the effectiveness of education (Šrámková, 2017).

In the application of this method the teachers collaborate—they choose the objectives together and define the issue that they want to study. Together they select the strategies to achieve the set objectives and together they evaluate the results of education (Fernandez, Chokshi, 2002; Fernandez, Yoshida, 2004; Stewart, Brendefur,

2005; Cerbin, Kopp, 2006; Stefanek, Appel, Leong, Mangan, Mitchell, 2007; Šrámková, 2017).

This method of professional development has not been used extensively in the Czech Republic. However, there are sporadic projects that focus on the application of this method. For example, the following projects were implemented: "Competence III" aimed at Lesson Study activities in 2014 and 2015 (Vondrová, Cachová, Coufalová, Krátká, 2016) or "Helping schools succeed" in which an experiment was performed in 2016 (Šrámková, 2017).

According to C. C. Lewis and J. Hurd (2011), Lesson Study is not specifically defined because it differs by the objectives it pursues. However, the common features are team planning, observation, and analysis of learning and its management. The procedure is as follows (Fernandez, Chokshi, 2002; Fernandez, Yoshida, 2004; Stewart, Brendefur, 2005; Cerbin, Kopp, 2006; Stefanek, Appel, Leong, Mangan, Mitchell, 2007; Lewis, Hurd, 2011):

- Team development of a detailed lesson plan;
- One of the team members is responsible for the teaching process according to a predefined plan;
- Other team members observe the lesson;
- Then the team share their knowledge gained during the observation and a discussion takes place;
- This may be followed by a revision of the lesson plan and implementation in a different class, where the team again observes and evaluates the results;
- The outcome is a written report containing information on the students' learning.

This is an action research that addresses an educational problem in the real practical environment and is built on a plan of changes, collection of information, reflection, and practical activity. In addition, this method includes elements of the participant, cyclic, qualitative, and reflective approaches to action research (Hendl, 2016).

This method helps develop the teacher's educational knowledge—relating especially to the content, curriculum, and the learning process (Hart, Alston, Murata, 2011). However, the method does not only focus on the skills of a single teacher but monitors the effectiveness of the strategies in the achievement of the set objectives of education. The responsibility for the whole lesson project is on the entire team involved in its development (Šrámková, 2017).

A significant element in the success of Lesson Study is classroom observation. In this context, an important fact is that the team of teachers who collaborated on the preparation of the lesson focus on the predefined aspects during classroom observation. As a result, the teacher who actually teaches the lesson is in a safer environment compared with traditional observations where the preparation and delivery is the responsibility of the teacher (Vondrová, Cachová, Coufalová, Krátká, 2016). Another essential element is reflection. We are committed to a qualified educational reflection including the objectives and content of education, methods of work, and pupils' comprehension. There are two types of reflections: individual reflection (by each member of the team) and group reflection, in which individual reflections are discussed.

Lesson Study should develop the teachers' reflective skills ranging from description to assessment and interpretation.

The positive effects of the method are as follows (Stewart, Brendefur, 2005; Fernandez, 2009; Lewis, Hurd, 2011; Lundgren, Schantz Lundgren, Kihlstrand, 2015):

- General development of the teacher's professional competences;
- Significant effect on the didactic and psychodidactic competence;
- Improvement of the learning process ;
- Support of peer learning.

The concept of three-dimensional professionalization of the teaching profession (Minaříková, Janík, 2012) includes the development of the whole structure:

- Professional perception on the basis of which the teacher solves educational situations;
- Professional knowledge, which is a synthesis of theoretical knowledge and experience and leads to the acquisition of further knowledge;
- Professional conduct, which is a set of practices carried out by the teacher.

At the Faculty of Education, Palacký University, this method has been analysed since 2017 in an effort to modernize the content of undergraduate preparation of future primary school teachers in the area of teaching practices.

The main starting points were as follows:

1. Why is Lesson Study important in our educational environment?

Lesson Study represents a special tool for a comprehensive preparation of undergraduate students for their further profession. In the Czech Republic the method is a complete novelty and provides an opportunity to fulfil the visions of the education policy as set out in the Strategy for Education Policy of the Czech Republic until 2020, the purpose of which is to increase competitiveness and employability. Using this method, future primary school teachers are actively focused on practice and its conditions in the real environment.

2. What is the benefit of the link between theory and practice?

The application of this method supports a closer connection between theory and practice thereby improving the quality of undergraduate preparation (not only in the area of practice but also understanding the theoretical background, which is a precondition for university education). Over the past 30 years, a number of changes have been carried out in the area of education. There have been three waves of change—transformation of the Czech school into a democratic system (after 1989), integration (a big wave of integration took place in 2008), introduction of the inclusive approach by means of an amendment to the Education Act (1 September 2016). This suggests that Czech education is vibrant and dynamic. In order to achieve high-quality student preparation, suitable and modern tools must be used in the context of the teaching practice. The Lesson Study approach is an instrument that flexibly responds to the changing conditions of the teaching practice.

We believe that the application of the Lesson Study method has a great potential. Since 2017, we have been actively involved in analysing the method and thinking about possible ways of its implementation in undergraduate preparation in Teacher

training for primary schools. So far, we have focused on experience gained by our foreign partner universities and on formal application possibilities in the Czech Republic. Now the period of implementation comes.

Conclusion

The objective of the present study was to outline the concept of undergraduate preparation of future primary school teachers at the Faculty of Education, Palacký University Olomouc. The paper is based on thirty years of development, during which various approaches to the modernization of the entire study were discussed. One of the key elements is the system of teaching practices—both in terms of structure and content. The paper also outlines the potential of the Lesson Study method, which has so far not been used extensively in the Czech Republic and which we believe is a very interesting and inspiring method in undergraduate practice.

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Learning International Literacy and News English through Cross-disciplinary Instructional Modules

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Abstract
Voicing one's opinions on international affairs demands multidisciplinary knowledge and communication strategies. The demand is elevated for nonnative English speakers when critical ideas are exchanged for controversial topics in English among discussants. This research explores the value of an innovative ESP training featuring blended learning and cross-disciplinary team-teaching, to introduce international literacy to 26 college-level Taiwanese English learners and guide them to develop analytical perspectives on global news and discussion strategies. The training includes three learning modules with three themes tackling major global issues at the present time. Each module is composed of six stages: starting from an orientation, followed by guided and intensive English news reading and topical research techniques, journalistic communication unfolded by a field practitioner, blended roleplay, task production, and finally group briefing. Data collection includes entry and exit assessments, focus group interviews, and work products. Descriptive statistical analysis and qualitative analysis unfold the induced effects of the training. The learning outcomes after comparing the entry and exit assessments show positive progress. The results from interviews also reveal participants' satisfaction toward the training. The blended role-play creates the affordance to facilitate students to contextualize global news from the media and develop relevance and insights. The results show that the training can re-educate news readers/viewers by equipping them with journalistic knowledge and clear logic.

Keywords: News English, Role-Play, International Literacy

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Introduction

The on-going pandemic has given everyone in the world a wake-up call to realize how closely connected we are in a global village. International literacy is unprecedentedly vital for readers to process daily news from all over the world and stay relevant in this battle excluding no one. Under this premise, this section will build from the current status quo of English education in Taiwan as the basis to necessitate the innovative course design of **News English for International Literacy**. Attempts to promote English education began in 2001 *The White Paper on Higher Education Policy* to *Blueprint for Developing Taiwan into a Bilingual Nation by 2030*[1]. Unfortunately, years of governmental endeavors from top to bottom haven't yielded fruitful outcomes because of the lack of immersive input of international literacy, in addition to insufficient exposure of diverse world cultures. It leads to youngsters' indifference for the global development and insensibility to international affairs. Ceaseless criticism targets millennials' attitude toward social and global issues. It should be noted that this study reveals the curricular vacuum in Taiwan, yet similar problems actually transcend national boundaries.

The induction of insensibility to international affairs—results from scarce English reading in or listening to global news media—form a vicious cycle. To be more specific, news watching seems to rapidly vanish from modern youth's daily routine. Amid the Covid-19 pandemic, Taiwan being excluded from the World Health Organization has been relying on international media to voice herself and partake in the global battlefield against the fast spread disease. However, watching/reading news requires "background knowledge", "theoretical framework", and "logic" (p.5-6), according to Dr. Liu, B. R., a local expert in International Relations (2008). It helps the audience develop a system to process and categorize news logically and build up personal perception gradually when rummaging through a large quantity of multimodal sources and ever-changing developments. All these echo the definition of *literacy* based on UNESCO (2006): "…from viewing literacy as a simple process of acquiring basic cognitive skills, to using these skills in ways that contribute to socio-economic development, to developing the capacity for social awareness and critical reflection as a basis for personal and social change" (pp.147). On the top of English competence, they also need to have the analytical skills, the type of literacy that UESCO (2006) has coined as "applied, practised, and situated" (p.151), supported with background knowledge to identify if news is lost in translation.

There is no quick fix for the perpetual problem at hand, but a laissez-faire approach is certainly not an option. This research adopts a cross-disciplinary method to reintroduce international literacy to college students and guide them to develop analytical perspectives through direct access to international journalistic media, in order to substantiate their knowledge in English for specific purposes (ESP) studies and global issues. It's an action research to tackle the real problems emerging in many classrooms in my school and likely around Taiwan and many countries. The innovative course titled **News English for International Literacy** aims to address the above problem through systemic awareness-raising and rigorous training. The

[1] Retrieved from https://www.ey.gov.tw/Page/448DE008087A1971/b7a931c4-c902-4992-a00c-7d1b87f46cea

curriculum is pedagogically pioneering for its use of role play and collaborative teaching with experts to enrich a genre-based ESP instruction.

Research Questions

Two questions will guide the research direction:

1. What is the instructional design for the training of ESP for international literacy?
2. What progress do students make in their international literacy with the training?

Genre-based Instruction and Role-Play in ESP Teaching

In the case of the current study, multimodal journalistic materials are the primary communication contents. Hence, genre features in news articles, news podcasts, and news reports on TV are the foci of the instruction. For contemporary ESP instruction, genre-based pedagogy is predominant in ESP teaching. After decades of evolution, genre-based instruction still calls for dynamic approaches and subsequent empirical evidence. Play or playful task is reckoned as a means to cultivate L2 learners' sensitivity and flexibility to adapt to new social actions. For example, Tardy (2016) describes a successful multimodal project experience in which her graduate students not only applied but also synthesized knowledge from various genres to combine mixed-media resources in response to function (to communicate) in an emerging academic genre. *Play* creates affordances for students to innovate with genres by transforming learned knowledge. Therefore, in this research, *role-play* which is known for its playful nature is devised to serve this purpose to improve the likelihood of learners' uptake and subsequent use in communicative contexts.

Over decades, role-play came to prominence in Communicative Language Learning and continues to be used as an instructional method to focus on learners' needs. Role-play creates an irreplaceable affordance *context simulation* which helps address learner's future purposes (communication needs) (Carver, 1983). Under the influence of systemic functional linguistics, ESP classroom practitioners embrace the principles to place the function of language as central in order for the learners/speakers to perform in various social contexts (Matthiessen & Halliday, 1997). Simulation through role-play allows ESP learners to engage in *quasi-professional communication* without risking real-life consequences. Lee (2008) and her classroom research validated the values of role-play and the functional accounts of language teaching. She designed missions (tasks) commonly seen in business settings to stimulate students' use of negotiation, cooperation, and socialization strategies and speech acts in L2. The outcomes showed that the role-play activities can successfully elevate learners' communicative competence and learning motivation. In addition, she underlined how role-play activated participants' passive knowledge of lexicogrammar, so they could effectively express themselves. This is vital for English as a foreign language (EFL) students, such as Taiwan English learners, because they spend years to learn English by memorizing but not using a large amount of vocabulary and grammar rules.

Similar affordances of role-play in ESP courses can also be found outside of Taiwan. Burns and Moore (2008) reported an ESP task to practice accounting discourse in simulated accountant-client consultations. The discursive practice emerging from the actual data served as evidence that the participants successfully acquired power

relations in turn-taking, the co-construction of clarifications, and advice-giving initiation and termination. The extensive use of role-play retains pedagogical substance yet further combines technology and social communication medium. Role-play can unfold abstract concepts of human interaction through situated and collaborative learning. From the concise discussion on role-play's affordances in genre-based ESP, this pedagogical approach has shown its multidimensional capacities and high compatibility to a wide array of educational contexts and objectives. Therefore, the marriage of the two should also serve as an effective tool in the cross-disciplinary training that this research demonstrates.

Participants

An elective course titled **News English for International Literacy** enrolled language majors as well as students from related majors on campus, e.g., Mass Communication, Political Science, and Psychology. The composition of student sources reflected the nature of the course complexity and called for collaborative teaching with field experts. A class of 26 students along with the instructor-researcher have given consents to be included in the study. All the participants shared Chinese Mandarin as their first language and were all born and raised in Taiwan. This study lasted for three months, and accidently shared the timeline with Covid-19 global outbreaks. This study intends to explore the effects and the viability of the cross-disciplinary ESP training, incorporating journalistic media and international literacy.

Data Collection and Analysis

The data collection instruments included 1) entry assessment, 2) exit assessment, 3) focus group interviews, 4) task products, and 5) lesson plans. In addition, to boost up the research value and curricular quality, a pilot study in the previous semester also served as the prototype for the official instructional design. A short summary of the pilot study is presented in the next section.

The entry and exit assessments were respectively implemented in the beginning and the end of the course, for the researcher to diagnose students' international literacy and comprehension of English news. The discrepancy between the two tests indicated participants' progress; the scores were compared. Students work products after each learning module were collected to validate the learning outcomes of the instruction. The results offered a macro-view of the learning quality. The main constructs shared by the two assessments were 1) knowledge of major international affairs, and 2) news comprehension. It's also noteworthy that the design of the two assessments were parallel and comparable; both were reviewed and validated by an outside expert in the field.

Based on the preliminary findings from the entry and exit assessments, the researcher-instructor also conducted focus group interviews to elicit participants' insight for the micro-view of the learning performance and evaluation of course design. The findings from the pilot study informed the researcher-instructor during the lesson plan development. Because of the cross-disciplinary nature of the curriculum, field practitioners were invited to offer their expertise in the form of workshops—to provide field knowledge, to jointly assess students' performance, and to assist with the course/material design. The collaboration with field practitioners elevated the

professionalism required for this cross-disciplinary course. Readers should be reminded that the course timeline also synchronized with the occurrence and evolvement of the Covid-19 pandemic. The velocity of the pandemic heavily affected the instructional design because of the journalistic elements in the course objectives.

Instructional Design

To answer the first research question, this ESP training for international literacy was to prepare students to interact with multimodal journalistic sources and understand ever-changing international relations. Building on the foundation from the instruction prototype in the pilot study (conducted in the previous semester), the training of ESP for International Literacy modified and expanded by adding more substance, leveraging technology-assisted role-play, and enlisting field experts as co-teachers.

Pilot Study

To verify student needs and to confirm the viability of the instructional design, a two-week pilot study was conducted in a previous semester. Using the ongoing tariff dispute between China and the United States as a prelude, the researcher instructor asked the students to follow the APEC Summit and the tension among certain member countries. The prototype instruction was designed in a step-wise fashion:

1. Activating background knowledge
2. Setting up the objectives and core queries: Students researched the news on the APEC Summit 2018 and raised queries to each other.
3. Materials and tools: A simplified online role-play scenario was set up. Each group played the role of a national representative of their choice.
4. Role-play and briefing: The role-play simulated the APEC summit. Each country came with its own agenda and diplomatic objective to achieve. During the role-play, mini-groups were formed for students to have discussions with and support each other to process constant incoming and outgoing messages during the intense multilateral negotiations with other characters. After the role-play, each group held a briefing.

Findings from the pilot study indicated that the theme-based module had presented an unanticipated level of challenge to the students. First, because of their long-term negligence of global development and English news, they struggled in every task. They could not make predictions or interact with the news materials. Second, the vocabulary and genres in international news were overwhelming, which led to the next setback. Third, instead of quality sources, students sought oral commentaries in short videos and opted for unprofessional and humorous discourse. This type of commentary is usually filled with prejudice and often lacks credentials or a solid basis. Finally, when students were researching for background knowledge, they did not know what to look for or how to sort out a system or logic. Hence, the queries were scattered and invalid.

Fortunately, they still gathered enough materials to partake in the role-play of the APEC meeting. From the multilateral negotiation, they also realized why certain nations would form alliances with each other, despite the consequences or injustice. They also understood that fighting for a nation's best interest should be well thought out and vocalized. Meanwhile, these representatives also were human beings with emotions and prejudices. Regardless of hurdles in the process, the prototype of

instruction still successfully induced their curiosity and teamwork. Lastly, they learned more about the genre-based discourse when approaching international journalistic media. Most important, it verified the absolute necessity and significance of this training.

Formal Study

The instructional design of the innovative ESP training for the course News English for International Literacy is shown in Figure 1 and described below.

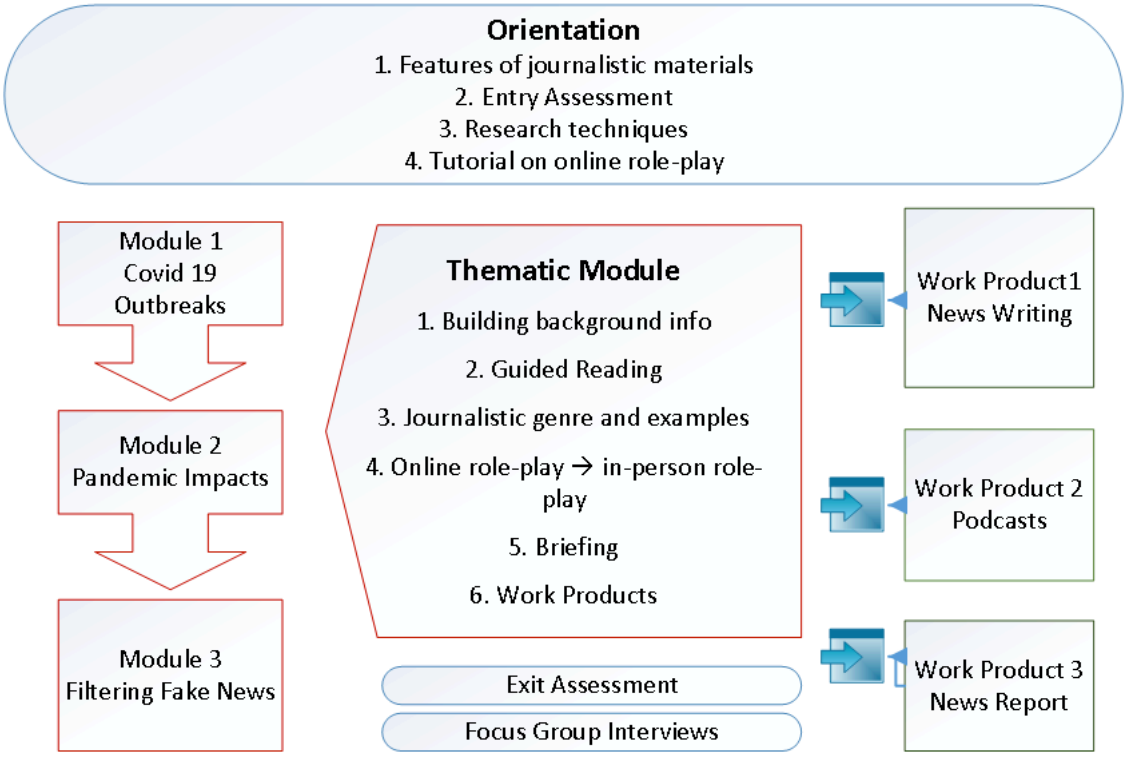

Figure 1: Instructional design.

Orientation

The course began with genre-based instruction to introduce the basic organization of news articles and news reports (in online videos forms and on TV). Simplified news will serve as a transitional medium to familiarize students with the specific discourse and organization frequently used in journalistic media. This part of the instruction will consult Hyon's framework (2018), constituting lexicogrammatical features and pedagogical applications. In her genre-based ESP instructional demonstration, an inductive approach guides the students in accordance with Swale's principles to tackle a category of texts sharing a set of communicative purposes and various patterns of similarity in structure, style, content, and intended audience (purpose). Guidance is offered for students to compare samples and to analyze genre moves, lexicogrammatical features, and news contexts. The course design raises student awareness on two journalistic genres in the aspects of content, structure, language style/rhetoric strategies, and purpose in hard news and feature articles (commentaries). At the end of the orientation, they were able to identify the basic structure, rhetorical strategies, content, and purpose (agenda or bias) of journalistic materials. It prepared

learners for the upcoming learning modules. During this time, an entry assessment was conducted to help refine or adjust the instructional design.

Thematic Modules and Work Products

After the orientation, the researcher-instructor consulted the field practitioners to decide on one major piece of international news that occurred during that period—set as the theme for a module interlaced with three tasks. As shown in Figure 1, there were three thematic modules: 1) Covid-19 outbreaks, 2) Impacts from the pandemic, and 3) Filtering fake news (media literacy). Readers should be informed that during that semester, regular schooling were interrupted from time to time because of the rapid spread of coronavirus. The instruction was more or less reformulated in response to the need for distance learning while the pandemic worsened. For instance, the briefing sessions became prerecorded videocasts, and online role-play sessions were completed at home. Under the premise, each module proceeds in six steps:

1. Building background information
2. Guided reading.
3. Journalistic genre and examples (by field practitioners)
4. Online role-play and in-person role-play.
5. Briefing on the success and failures during the learning process.
6. Showcasing group work products: news article writing in Module 1 (Figure 2), podcast production in Module 2, and news reporting (videocasts) in Module 3.

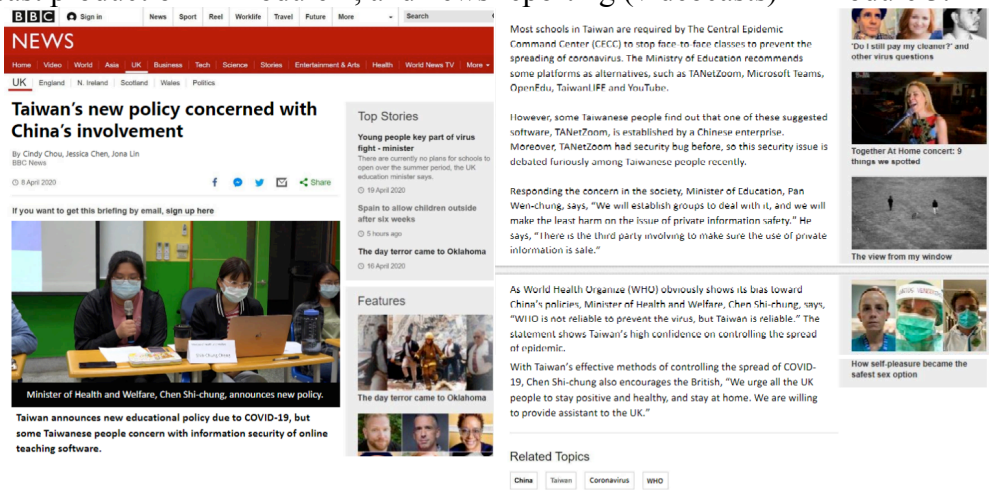

Figure 2: An example of student group news writing based on the module theme and role-play.

Role-Play and Work Products

Take Module 1 for example, the theme was Covid-19 Outbreaks. After guided reading and background information were completed, one of the enlisted field practitioners, an expert in journalism communication, joined the class. She introduced the structures and components of press conferences which everyone paid extreme attention to on TV. She demonstrated how journalists usually report the media kit and engage in the role of response/reaction elicitation before they can publish stories. Afterwards, students joined a press conference simulation by two stages: 1) online role-play for warm-up and question-formation, and 2) in-person role-play to engage in a Q-and-A session between the government officials and journalists. At the first stage on-line role-play, students taking the roles as journalists from diverse news agencies

researched the hidden agenda behind the scene, as well as the position they respectively represented. Based on which, they posed the inquiries and specific questions to elicit responses from the responsible directors of governmental divisions. During this stage, participants received feedback from fellow reporters and governmental representatives to request clarifications or to point out erroneous or misleading information. This stage created an affordance which students used knowledge and language intake to visually compose or evaluate questions to comply with a specific genre structure and context. After the revisions and clarifications, students entered the physical press conference set up in the classroom (see the image in Figure 2), and proceeded in real action. Based on the multilayered knowledge and experience gained from the module, students formed small groups to write up news articles. The researcher-instructor and the field expert offered feedback for revisions. The work product in Figure 2 appeared to be an almost authentic news piece commonly seen in real newspapers. To wrap up a module, students reflected on their successes and frustrations, as well as individual problem-solving approaches. Briefing sessions were to ensure the occurrence of deep learning and learners' application of metacognition.

Based on the interviews, students realized when news articles (their writing pieces) based on a simulated experience could be easily produced, which appeared almost genuine, they would need to be extra cautious when reading daily news to filter out fake or false information from all over the world. Furthermore, in the role-play sessions, they learned to inspect grave risks behind every policy-making moment from the government's side. Most importantly, their awareness of social responsibility arose simultaneously when playing journalists on the scene. They not only practiced the target language at the surface level, but they were obliged to harness the newly adopted discourse, the nuances between synonyms, the implications behind delicate tone-changing, and the extreme accuracy crafted in news reports. However, these challenges also became students' favorite instructional components. From the instructional design viewpoint, various levels of task complexity embedded across six stages in a module served as the formative and summative assessments that motivated participants to overcome with positive attitude and ambition.

Learning Outcome

To answer the second research question, participants' scores in entry and exit assessments were recorded for comparison. In Table 1, clearly the mean score in the exit assessment ($\bar{x}$=77.08) is higher that that in the entry assessment ($\bar{x}$=53.31) by 45%. The improvement also shows in the decrease of standard deviation from s=11.92 in the entry to s=7.90 in the exit assessment. The score distribution was more centered at the end of ESP training; the international literacy level showed more homogeneity. The individual progress is plotted in Figure 3. The line graph and the upward trendlines indicate individual learner's progress from entry to exit assessments. This is clear evidence which endorses the effectiveness of the innovative instructional design.

	N	Minimum	Maximum	Mean	*SD*
Score_Entry	26	10.00	76.00	53.3077	11.91896
Score_Exit	26	60.00	88.00	77.0769	7.90404

Table 1. Descriptive Statistics of Entry and Exit Assessments

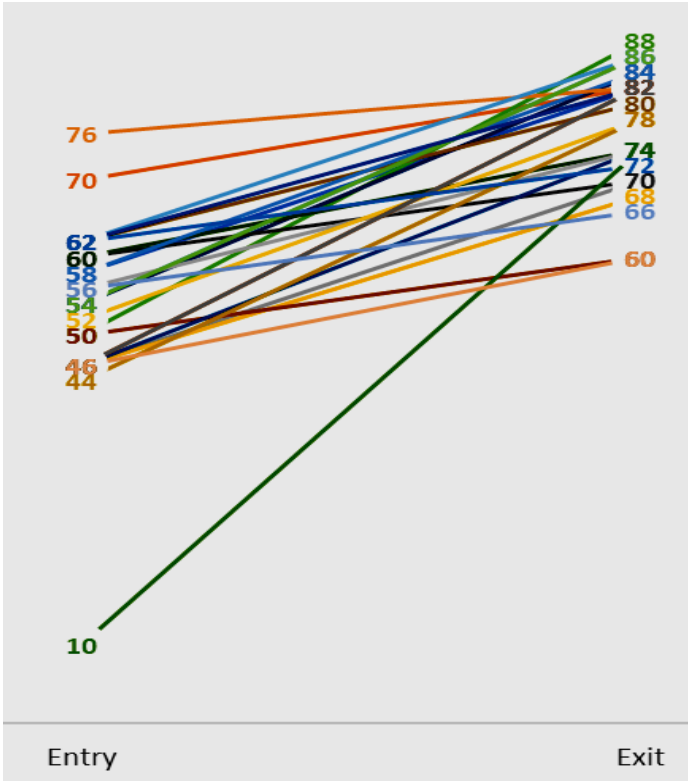

Figure 3. Line graph plotting individual learner's trendlines of progress between entry and exit assessments.

Conclusion

Schetzer and Warschauer (2000) pointed out that "literacy is a shifting target, and we have to prepare our students for their future rather than our past" (p. 172). Taiwan recently announced *The Blueprint for Developing Taiwan Into a Bilingual Nation by 2030*, which involves the promotion of English media channels, programs, school curricula, governmental services, and so forth. The 360-degree bilingualization in the public and private sectors is creating an unprecedented high demand for those with skills in ESP. In response to the educational, social, and economic changes and the emerging needs in domestic and international platforms, new curricular elements demonstrated in this study should be introduced to prepare future professionals to leverage global opportunities. The manifestation of constructive and creative components in blended learning environment, including guided reading, instructor-field expert collaboration, role-play, news researching techniques, briefing, and news report production, offer flexibility and feasibility during the time when pandemic interrupts conventional schooling. This study hereby presents an innovative training in ESP for international literacy with solid evidence of successful learning outcomes and viable instructional design to facilitate those who share similar needs or interests.

Acknowledgements

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Action Research at Educare: Shifting Focus to the Learner for the 21st Century

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Abstract
A new small school, Educare or Edu2 (pronounced edu-car-ai) opened its doors in Montreal, Canada, in September 2019. Edu2 has launched an innovative educational environment to address the challenges of preparing students to live meaningful and fulfilling lives in the 21st century. In order to achieve that, Edu2 has engaged in the challenging work of enacting the belief that students need to take center stage as the empowered owners of their learning. We are investigating, in partnership with the founder/educators of Edu2, the extent to which the school's vision has been successful to date. Our research team committed to chronicling Edu2's first year of operation through the experiences and voices of Edu2 students and teachers. This paper, addressing preliminary findings, explores the experiences of students as they engage with the challenges of student led empowerment and, ultimately, student ownership of learning. Following a rigorous process of thematic analysis, one strand emerged among several with respect to student-reported experience, namely agency. In this paper, we situate our data on student agency within the framework of the Student Ownership of Learning Model (Conley & French, 2013).

Keywords: Student Agency, Empowerment, Ownership, Small School(s), Student-Centered Curriculum, Student Engagement, Student Voice, Youth

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Need for educational change

As we move deeper into the rapidly changing world of the 21st Century, it is clear that many schools are failing students. Classrooms based on lectures, textbooks, and tests are not working for many (Willms, Friesen, and Milton, 2009; Friesen, 2010). School today often stigmatizes students in a structure based on classification, supported by the mechanisms of worksheets, textbooks, desks in rows, teachers lecturing from the front of the classroom, and other outdated approaches. Furthermore, students are sorted into categories for better 'processing in the system', thereby perpetuating the factory model: strong students versus weak, and students who succeed versus those hindered by learning disabilities or social or behavioral challenges.

In Quebec, Canada, only 64 percent of public-school students graduate on time, with Quebec private school results only slightly higher. With an overall provincial graduation rate of 69 percent, Quebec is the lowest of any province in Canada (Homsy et Savard, 2018). As elsewhere, the expectations of teacher, school, and society serve as key drivers of student work, leading to the student disempowerment, disengagement, and overall lack of ownership of learning reflected in the drop-out rates noted above. With the Covid 19 pandemic, and the widespread move to remote instruction, this challenge has only deepened.

Educational goals for 21st Century education: Situating the study and the Edu2 model

The factory model of education has been under scrutiny from teachers, students, researchers, and academics for nearly a century. Progressive teachers have rejected the traditional 'banking' model of knowledge transmission, which sees learners as passive student-receptors (Freire, 1972), and called for the creation of a dynamic learning environment required for success in the 21st Century. Correspondingly, over the past decade in Canada, provincial jurisdictions have been directed by policies that propose the fostering of specific competencies, including: creativity; innovation and entrepreneurship; critical thinking; collaboration; communication; character; culture and ethical citizenship; and computer and digital technologies (C21 Canada, 2012). Today, while governments, school boards, teachers and students are calling for a radical change, many schools have yet to respond.

In September 2019, a new school in Montreal, Quebec, Canada opened its doors: Edu2 or Educare was co-founded by three elementary school teachers, all of whom had become disillusioned with the rigidity and shortcomings of formal traditional school, and wanted to create a learning environment that better reflected their values, beliefs, and vision for education and for society. To do this, the Edu2 founders acted on the belief that personal connections and human relationships are essential to learning, with engagement and wellbeing as key factors in improving academic achievement. Attending to students' intellectual physical, social, and emotional needs, the Edu2 model is designed to honor all aspects of the student experience, supporting and empowering students to gradually take ownership of their learning.

The Edu2 model aligns with the OECD mandate that students should "learn to navigate by themselves through unfamiliar contexts, and find their direction in a meaningful and responsible way, instead of simply receiving fixed instructions or

directions from their teachers" (OECD 2018, p.20). The OECD model includes core foundations: knowledge; skills; attitudes and values; transformative competencies; and a cycle of anticipation, action, and reflection. There, students need to "orient themselves as they exercise their sense of purpose and responsibility while learning to influence the people, events, and circumstances around them for the better" (OECD 2018, p.20).

Edu2 aligns with those who believe that students need the opportunity to flourish and to develop ownership of their learning within an educational model that moves beyond the industrial and even information model to focus on real world contexts and problem solving that is interdisciplinary, creative, and innovative (Friesen & Jardine, 2009) and that remains focussed on the wellbeing of the individual and society (OECD, 2018).

Edu2: The school itself

Edu2's teaching faculty consists of seven staff members: three co-founder teacher/ administrators, one English Second Language teacher, one Science teacher, and an Arts educator. Edu2 was accredited by the Quebec Government as a private, French language middle school, and enrolment in year one was 29 students, aged 10 to 15.

The goals of the school are: 1) To anchor the curriculum in each student's articulation of their academic, personal, and long-term life goals; 2) To create an effective 21st century learning environment where learners are happy, feel cared for, and are engaged in their learning; and 3) To meet the highest global academic standards, as aligned with the provincial curriculum, the Québec Education Program.

Focusing strenuously on student autonomy and agency, in both mandate and practice, Edu2 re-thinks the traditional elements of school: teacher and learner; curriculum; learner responsibility; physical space; relationship to community; life-skills; cooperation; and so on. Students work regularly across multi-aged groups, often on cross-disciplinary inquiry-based projects, and the teacher's role is that of mentor and educational guide for the students, fostering the individual strengths and development of each learner.

In the early days of creating the school, the founders' commitment to the above values and goals also informed all decisions relating to the school's physical space. When determining a site for the school itself, the founders of Edu2 selected the Mile End sector of Montreal, a vibrant and culturally diverse community, replete with art galleries, bookstores, historic architecture, arts studios and maker spaces, restaurants and cafés, music venues, and parks. Rather than investing in standard school resources like gymnasia, or dedicated discipline-based learning spaces such as art rooms, Edu2 saw Mile End as replete with local community resources full of potential 'curriculum' sources, including pottery at collaborative art studios, science discovery in parks and green spaces, and history through community organizations and libraries.

The building is a two-story commercial loft, renovated by Edu2 during the summer of 2019. The space includes (on the first floor) a large and open exercise space, a small seminar room, an inner media room with recording equipment and green screens, and a multi-functional science lab. There are also two windowed and glassed-in

workspaces (one for teaching, and the other a shared office workspace) with flexible furniture.

The top floor, dominated by a large central, open plan collaborative kitchen space, is surrounded on three sides by varied comfortable and informal workspaces with, at one end, adaptable furniture for collaborative work and, at the other, large cushions and plants for individual or group hang-outs, all fostering both student autonomy and collaboration. Edu2 envisions the facility as a warm and welcoming learning space that is flexible and accommodating for the school community.

Focus of this article

This paper draws on data gathered during the one-year research project undertaken at Edu2. We wanted to understand the experiences of both students and teachers in the school's initial year, and to assess whether it has been successful to date in meeting its stated goals.

To achieve this, the research team adopted a phenomenological methodological perspective. This lens sharpened the research focus by looking at the structures of experience and consciousness, uniquely from the student perspective. Corbett and Wilson (1995) observe: "Despite . . . repeated calls for reform aimed at students, young people themselves occupy, at best, a minuscule part of the literature on the process of changing and reforming education". 'Seeing' the success or failure of Edu2's first year through the eyes of its students revealed a nuanced, dynamic, and rich story, told by young people.

Methodology & Methods

Ethnographic data was collected over the year, including weekly in-school observations, and a quantitative survey given to students and teachers in September, February, and June, providing a longitudinal perspective. Interviews in March were carried out with all 26 students and 5 teachers. This paper is limited to a thematic analysis of the transcripts of individual interviews with students.

The interview, consisting of six open-ended questions, allowed for students to recount their experiences to date at Edu2. Students' observations also included insights and comparisons between Edu2 and schools they had attended previously. The student body is comprised of both French-speaking and English-speaking students. Congruent with their highest level of fluency, and based on recommendations from the language teachers, students completed either the English or the French interview.

Interviews took place during the school day and took an average of 12 minutes and 16 seconds to complete. A McGill authorized transcriber was hired to transcribe all vocal recordings, and the French transcripts (n=16) were translated into English using Google Translate, with supervision from a bilingual researcher.

The research team was committed to giving voice to students. Braun and Clark (2006) point out this commitment is futile because our analysis is inevitably contaminated by research bias, including but not limited to our experience of the school over the one-

year study. Acknowledgement of the role and impact of the researchers' decisions, together with a carefully selected methodology, is therefore essential.

This research is grounded in social-constructionism where "meaning and experience are socially produced and reproduced, rather than inhering within individuals" (Braun & Clark, 2006, p.85). We selected thematic analysis to explore the social and cultural context of the school as it arises through the individual recollections of students' experiences (Braun & Clark, 2006). Since the nature of language itself is up to interpretation, and recognizing potential loss of meaning in the translations from French to English, the analysis was based on semantics, seeking explicit and surface meaning of the data (Patton, 1990). The process through which themes were identified and selected is dependent on us, the researchers, and therefore cannot be separated or taken as 'stand-alone' (Ely et al., 1997, p. 205-6). For this reason, the analysis was undertaken from an inductive approach, where reliance on the connection between the data and themes had to be strong to be considered (Patton, 1990). In addition, we refrained from engaging with the literature surrounding each theme until the early stages of the analysis had been completed.

One overarching research questions directed the study:
Is Edu2 effectively implementing its organizational mission and vision?

This question became more specific for the purpose of student interview transcript analysis:
How are students experiencing the Edu2 model in the first year?
What are the strengths and weaknesses of Edu2 from a users' perspective?

For the thematic analysis itself, we followed the six steps outlined by Braun and Clarke (2006), namely: 1) familiarize yourself with your data; 2) generate initial codes; 3) search for themes; 4) review themes; 5) define and name themes; and 6) produce the report. It is important to note that - from 554 data points – our initial thematic analysis yielded four main themes, nine subthemes, and twenty-five detailed subthemes. From the four themes to emerge, we selected agency as the focus of this paper.

Model of Student Ownership of Learning

From our review of the school's stated mission, field observations, and interviews with students, it is apparent that the philosophy adopted and enacted by Edu2 holds student ownership of learning as central. Recognizing this, the analysis of the student interview transcripts provided further insight into the various components of ownership integrated within the school culture. For a grounding of these components in the literature, we turn to the work of Conley & French (2013) whose conceptual model for student ownership of learning comprises five components: motivation and engagement, goal orientation and self-direction, self-efficacy and self-confidence, metacognition and self-monitoring, and persistence (Conley & French, 2013). The design is a circular model, highlighting the potential for positive or negative feedback loops as the model iterates. It is important to note that their categories are not mutually exclusive, exerting positive or negative influences on one another.

Data Analysis & Discussion: Situating results within a conceptual model

Motivation and Engagement

The first component of the five-part model for student ownership of learning is motivation and engagement. Conley & French (2013) describe motivation as the intrinsic individual state, while engagement takes form when motivation is actioned in the real world. In addition, this component helps students to "see the value in coursework, motivate to excel, see the value of learning, and enjoy a challenge" (Conley & French, 2013). Higher levels of motivation and engagement in learning have been shown through correlation to be linked to higher achievements in K-12, and are a good predictor of college GPAs (Richardson et al., 2012).

Student Empowerment refers to the process of becoming a stronger and more confident student. Empowerment is dependent on the environment, but occurs within oneself, resulting in an increased feeling of control over one's life. At Edu2 student empowerment is part of the school's founding mission, and empowerment was vocalized as present, recognised as important, and appreciated in the majority of the student interviews.

In many school contexts, empowerment for students is elusive: "If one believes knowledge is power, it seems reasonable to assume that, at its heart, formal education should be empowering. While few would deny this assertion, "student empowerment" may be one of the great oxymorons of our time" (McQuillan, 2005 p. 639). This observation by McQuillan levies a heavy charge: even schools that pay attention to the difficulty in avoiding this oxymoron may fail at achieving student empowerment. That said, our data analysis at Edu2 points solidly to positive experiences of students regarding empowerment, for example students questioning and learning from their peers, students being able to select from a menu of choices as to what to study, and students choosing the place, academic level, and pace of their learning.

Our findings are buoyed by the research which holds that "[h]aving students exercise a voice in school matters may enhance academic performance, enrich students' understanding of democratic citizenship, and make schools more responsive institutions. The connections can be systemic, intertwining and building momentum in mutually reinforcing ways" (McQuillan, 2005 p.645).

Many concrete structural strategies exist for fostering student empowerment at Edu2. As a commitment to bilingualism, for example, Edu2 has adopted 'English Thursdays', during which communication from the beginning to the end of the day takes place in English for all members of the community. This supports holistic 2nd language learning for the primarily French-speaking students and teachers at Edu2. English Thursdays have motivated many of the students to improve their speaking skills, pushing them outside of their comfort zone. Students reported feeling more empowered to speak in English than in previous school settings. Additionally, students described achieving the highest improvement in their spoken English outside language class situations, for example in content areas like science, while playing board games during free time, or while eating lunch.

Both within English Thursdays and beyond, students identify multiple sources of their learning, including relationships with classmates, family members, and teachers. One student affirmed: **"I learn from everybody who makes mistakes".** Students are motivated to explore, to try and learn new things, and to leave their comfort zone for areas of discomfort. One student observed: "**I am very interested in what it was like before me, like before I was born".** Another student said: **"I could look at a tree and then see a cycle of life, or if I was at home, I could look at my cat and how it walks".** All of these examples show students making connections between personal experience, their newly acquired knowledge, and the broader world around them.

Students who demonstrate ownership of learning can be successful in a wide range of learning environments such as large classes and online courses where they have less interaction with the instructor. Strong ownership of learning by students can even compensate to a degree for less effective teachers. Students who own their learning can go beyond simply following teacher directions. They are more likely to complete complex assignments, solve problems that require persistence, and create original or novel work of high quality (Conley & French, 2013).

Goal Orientation & Self-Direction

The second component of the model proposed by Conley and French (2013) is Goal Orientation & Self Direction. Goal orientation and goal setting enhance students' potential to control the various outcomes in their lives (Bandura, 1997). Conley and French (2013) report that higher goal orientation can lead to a positive growth mindset, the belief that intelligence is not fixed and can change over time (Ramsden et al., 2011). This combination becomes self-direction, where individuals seek things and ways they can learn. It can be improved through "novel and complex work" which students perceive as a challenge they can work through (Bronfenbrenner, 1979; Csikszentmihalyi, 1990).

Goal setting is a powerful process for all students; they are encouraged to imagine an ideal future and are motivated to turn their vision into reality. By setting goals, students choose where they want to go and identify the steps they need to take today to get there. According to Oxford and Shearin (1994), "goal setting can have exceptional importance in stimulating learning motivation, and it is therefore shocking that so little time and energy are spent in the classroom on goal setting" (p. 12).

At Edu2, students set their own learning goals based on personal as well as academic objectives. They revisit these bi-monthly with their mentor, and they also appreciate setting long-term goals. According to students at Edu2, goal setting is an inherent part of the learning process: **"You have challenges, interests and an academic challenge. It's actually you who creates your own journey, you give yourself challenges for two months and then make them harder. You try to make or improve them".** As another student observed: **"It's good to set goals in a year because it allows you to improve where you want to improve".**

It is important here to emphasize the connected nature of the model's components (Conley and French, 2013). No singular component stands above the others; all are

dependent on one other. While the aforementioned motivation and engagement are critical, their impact is limited without goal orientation and self-direction.

As noted previously, for dynamic curriculum resources, Edu2 relies on local professionals and partner organizations, for example the YMCA, local maker spaces, and NGOs. Research shows that school partnerships allow for knowledge sharing and opinion exchange to take place between constituents based on respect and interdependence (Kong, 2019). The work of developing partnerships is challenging but, once established, the benefits run deep: Partners with schools share common goals, objectives and expectations in learning, and collaborate for mutual benefit on technical, resource, and pedagogical support for learning implementation (Kong, 2019).

Edu2 students commit to partner-supported activities for an eight-week period, then rotate to their next. One student described the structure of these activities with outside partners: **“We have many partners, and we have different options for each, but we will do this every week for 2 months".** It is clear that Edu2 students recognise and appreciate the unique situation at their school. As one interviewee stated, “**There are no options like us, as we can make pottery, we can go somewhere else. Other schools are just like school, uh ... physical education stuff like that".**

Students also benefit from partnerships with more formal Montreal institutions, for example university mentoring in robotics, or Montreal Insectarium workshops. Students observed: “**We have our insects upstairs and we have the life cycle, and I can learn from them too because some of them die but we don't know why, so I sometimes check – I look at them how they died or the transformation that they have"** and **"Almost all the options we do we have never done”.**

Edu2 also provides flexibility for individualized student schedules. Students in higher grades can leave school early or work from home as their particular learning goals and needs dictate. Additionally, students are required to manage their after-school responsibilities, for example sports, a creative passion, or employment. Younger students also manage school-based responsibilities such as equipment patrol or lunch clean up.

Student empowerment occurs when young adults make decisions about their own learning, from subject level placement (beginner through advanced), choice of workspace, or activity options.

Self-Efficacy and Self-Confidence

The third component of the model is Self-Efficacy & Self-Confidence. Self-efficacy is defined as an individual’s assessment of the control they are capable of exerting over their daily lives (Bandura, 1997a). When combined with self-confidence, a larger sense of self-worth that is not context dependant, this component of the model by Conley & French looks at “students’ confidence in their ability to complete increasingly challenging and complex academic and career tasks and be able to build on past experiences and success to maximize future successes” (Conley & French, 2013).

Ownership of learning at Edu2 is evident in the reflections of its students. "**Yeah, I have part of the decision, and then I'm the one in charge because I'm the one learning"** and **"Each time I speak with someone it makes me see life from another side, makes me see certain points there that I could not have imagined."**

While students accepted teachers' role in their learning, they clearly saw themselves as responsible for it. One student said **"I do it for me actually. Whereas before I did it for like the teacher, here I do it for myself, I do it for fun, in fact it's even like a hobby, it's not even like work".** A second source of motivation operates through the intervening influences of goal setting and self-evaluative reactions (Bandura, 1977a, 1977b). It is clear that, at Edu2, students have, or are acquiring, ownership of their learning. When facing challenging learning situations, rather than asking the teacher for support, one student affirmed "**Ok, I can do this, I can do this, I can do this"**.

Metacognition and Self-Monitoring

The fourth component of the Conley & French model is Metacognition & Self-Monitoring (2013). The awareness and understanding of one's own thought processes (metacognition) is central to an individual's ability to take ownership of the learning process. Self-Monitoring requires the ongoing practice of engaging with self-reflection about one's cognition, as well as developing and assessing strategies aimed at rendering the learning process more efficient (Vrugt & Oort, 2008). The ability to use appropriate strategies and to adjust accordingly allows individuals to strive towards a deep approach to learning, which is also correlated to higher academic success (Richardson et al., 2012).

The Edu2 experience differs from the way students have previously engaged with learning: **"You have to be open to something new; there are several people that are not capable of that".** Students have reported positive feelings with respect to learning, and also uncovering new fields of interests. For example, after discovering Reggae Pop dance as an option at Edu2, a student voiced the desire, in her words, to **"… teach choreographies to people who love dancing, and to give them links to have lessons and everything".**

One student reported being passionate about art, and described her connection to art class: **"For me it's like a hobby. It's like I'm not in school and playing sports outside of school"**. Edu2 believes that this will benefit students by allowing them to discover and identify the value of personal relevance. With teacher support, students map out a plan to capitalize on their interests, while improving in areas that require it, including adopting new collaborative skills, undeveloped in many student's prior school experience with its focus on individual work. Student ownership requires constructing a personal future vision, while remaining grounded in present work. Goal setting and the autonomous learner are connected. The slow but ongoing paradigm shift in education, from teacher-centred to student-centered learning, further emphasizes the importance of self-regulated and autonomous learning. Thus, it is important that learners develop responsible attitudes and autonomy (Scharle & Szabo, 2007). The support available to students at Edu2 - access to the facilities and to teachers before and after school, or flexible hours to accommodate high level sports - creates contexts for individualized support as required, freeing students up to shape the direction of their learning.

Persistence

The fifth component of the model is Persistence. Conley & French (2013) define persistence as the combination of 'grit' (Duckworth et al., 2007) and academic tenacity (Dweck et al., 2011). In this sense, persistence is the ability to continue applying one's work ethic when facing a difficult task or challenge without becoming discouraged. More importantly, persistence is the outward display of an intrinsic desire to chase "long-term goal obtainment" (Duckworth et al., 2007; Dweck et al., 2011). Interestingly, unlike other theorists addressing persistence, Conley & French (2013) emphasize that persistence can be achieved without having to face adversity,

At Edu2, students not only learn about subject areas, they learn how to become more responsible, autonomous, and persistent individuals. In one student's words: **"You have to manage yourself without the teachers telling you what to do, you must know what to do and not depend on the teacher"**. This is particularly significant since, historically, students have had little experience with power, and the most likely avenue for gaining any would seem to be having schools offer them greater power (McQuillan, 2005). As Cummins (1995) argued, "power is not a fixed, predetermined quantity but rather can be generated in part through interpersonal and intergroup relations" (p. 145).

One way that these group relations can occur and evolve is when students of different ages work together. At Edu2, self and peer reliance proved particularly powerful when younger students were placed with older peers, for example in mathematics. As one 4th grade student explained: **"...before we learned that stuff from fourth, (in) third, and that makes us learn stuff from fifth while we are still in fourth to adapt even better. When we are going to be in fifth, it will be three times easier".**

While multi-age setting can lead to positive social and academic outcomes for students, studies by Chace (1961), Davis (1992), and Hallion (1994) have identified a lack of administrative and parental support, a lack of planning time, problematic teacher attitudes, and a lack of staff training on multi-age instruction as major obstacles to successful implementation of the multi-age classroom. At Edu2, some older students felt disempowered in multi-age group contexts, and preferred not to be perceived at the younger students' level. Inevitably, providing activity options that meet all students' interests, at their level, is a challenging feat.

As students' relationship with learning evolves, so does their ability to see the larger picture and to understand that any opportunity has potential for individual growth. An increased accountability mindset leads to ownership and lifelong learning. One student observed: **"It's through everything, experiences that you have in general life, activities that you take part in, school, just walking down the street, seeing things, new things".** It is clear from our research that the Edu2 commitment towards student ownership of learning is bridging the emergent learning to proficient stage.

Conclusion

Drawing on an established conceptual model (Conley & French, 2013) our analysis of student ownership of learning at Edu2 revealed important findings. Clearly, the evidence showed students at Edu2 to be engaged with each of the various components

of the model, while of course independent from it. The positive feedback loop of the model, revisited on a continuous basis, effectively permits both students and teachers to experience continual growth. In addition, we found that:

1. The model validates the value and effort that Edu2 faculty assigns to personalizing the support that teachers provide to students based on individual levels of proficiency in each of the five components of the model;
2. The model provides a framework with clear potential to inform and enrich Edu2 as it continues to seek to improve its approach and support.

There are always challenges, of course. At Edu2 students appreciated options, and use these to take ownership of their own learning. In some instances, however, feasibility is a challenge. Providing curriculum options for thirty students, each with individual points of departure, personal learning goals, and unique life ambitions may require additional resources and partnerships if these are to be adequate and sustainable.

In conclusion, Edu2 teachers are seen as mentors in the school and, in that role, they fuel student self-growth. In this paper we have documented many instances where Edu2 is successfully placing students at the centre of their learning, while creating space for an acceptance of students' voice, and serving as a catalyst for the positive empowerment of students. One grade nine student captures the potential at Edu2 for life-long, deep-rooted impact:

"This is how you learn how you are as a person. Then they will try to play on your personality so that you become better and that you learn yourself and improve certain points that you have difficulty, negative or positive, so that you are a better person when you graduate".

Future Research: Expanding the Community Partner Ecosystem

Creating and sustaining strong community partnerships is proposed as an important way to ensure the positive conditions that best support learning (Malone, 2020). The next phase of our research at Edu2, 2020-2023, will track the introduction of four new community partners, essential in providing a range of new professional development opportunities for faculty, and increased curricular choices for students. This means that we will enlarge the lens through which we have viewed students' ownership of learning to date, paying much closer attention to the role that school–family–community partnerships play in the holistic development of students. Our focus will be to map and assess the impact of the partners' contributions in support of the school's mission, responding to the needs of faculty, staff, parents and – most importantly students - as they navigate the path towards true ownership of their learning. The student ownership objectives of our upcoming three-year research initiative will be, specifically: to increase student ownership by providing partnerships and learning experiences with outside school institutions; to connect students' passions with real world opportunities; and to empower students to own their role as contributing and vital members of society.

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Whose Culture? Exploring Ministry-Assigned Prose Fiction in the Republic of Croatia

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Abstract
This research aims to explore how the mandatory children's literature, prescribed by the Ministry of Science and Education and covered within the school subject "Croatian Language," depicts Croatian cultural heterogeneity and global cultural diversity and whether it offers examples of vocabulary that would assist elementary school students in engaging in critical analyses about human-rights topics as part of the national agenda to implement the intercultural dimension of formal education. For the purpose of this research, an analysis of the representation of cultural diversity was carried out on two levels: with regards to the choice of authors and the content of 21 works of fiction included in the latest *Croatian Language Curriculum* (2019). The obtained findings reveal a profound discrepancy between the objectives of intercultural education, as outlined in three relevant educational documents (*National Curriculum Framework* (2010), *Curriculum for Elementary Schools* (2006), and *Croatian Language Curriculum* (2019)), and the cultural values and messages being promoted in the selected literary content. The conducted analyses reveal that the Ministry-assigned authors (white, European, and predominately Croatian) create white, Christian, and European (usually Croatian) characters, whereby the focus lies on characters representing the majority Croatian population and culture, while the national ethnic minorities remain virtually completely omitted. Furthermore, global cultural diversity remains reduced to trivial geographical information and stereotypical descriptions. The findings of this research provide the first wholesome insight into multicultural content and implicit messages found in children's literature that has been selected as mandatory for all Croatian elementary school students.

Keywords: Curriculum, Diversity, Intercultural Education, Literature, Elementary School

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Introduction[1]

In its core, intercultural education is oriented towards building a solid foundation for a democratic society with active and responsible citizens in a multicultural world and, as such, it relies on the development of intercultural competence that transcends mere factual knowledge but is rather rooted in deeper insights and greater awareness of our own culture and those around us.

While there is no one definition of what constitutes intercultural competence, there is a general consensus that it comprises cognitive, affective, and behavioral skills and characteristics that form the starting point for achieving successful interactions in a variety of cultural contexts (Byram, 1997; Bennett, 2001; Stier, 2006; Huber 2012). It includes the knowledge, skills, and attitudes we harbor towards the unfamiliar "other" with the aim of achieving the kind of cultural democracy that promotes cultural similarities and understands difference not "as a natural fact, a statistical data" but as "a dynamic, interactional process" (Hercigonja, 2017, p. 108). The educational process should thereby be oriented towards critically analyzing oppressive social relationships and standing up to discrimination and prejudices (Nieto, 1996; UNICEF, 2007; Bartulović and Kušević, 2016) and should rely on culturally relevant pedagogy (Landson-Billings, 1992) that "must provide a way for students to maintain their cultural integrity while succeeding academically" (Landson-Billings, 1995, p. 476).

In the Republic of Croatia, the emphasis on the intercultural dimension of education has become more prominent in the last two decades. As Blažević Simić (2011) highlights, the Croatian educational system has undergone numerous changes in that period. These include, among others, the implementation of the Bologna Process, State Matura, the Strategy of Developing Vocational Education, the National Curriculum Framework, the Croatian National Education Standard, all of which recognize the intercultural education as one of their key educational priorities. The importance of nourishing intercultural competence has also made its way into documents that determine the essential elements of the Croatian education system: the *Curriculum for Elementary Schools* (2006) (CES), which defines the goals and tasks of the mandatory elementary level of education, and the *National Curriculum Framework for Pre-School Education and General Compulsory and Secondary Education* (2010) (NCF), which defines all aspects of formal education ranging from the pre-school level to the completion of secondary education. The NCF lays out the "values, goals, principles, content and general goals of educational areas" (NCF, 2010, p. 11) and the direction which Croatian education is expected to move in. This includes the promotion of "human dignity, freedom, justice, patriotism, social equality, solidarity, tolerance, industriousness, integrity, peace, health, conservation of the natural and human environment, and other democratic values" (NCF, 2010, p. 14). The document also mentions the importance of, on the one hand, developing in Croatian citizens the respect for "languages and cultures of all peoples living in the Republic of Croatia and Europe" (NCF, 2010, p. 31) given that "the acquisition of multi-linguistic and intercultural competence helps to develop the awareness of the need to master foreign languages and, on the other, familiarizing oneself with their cultures and promoting respect and tolerance" (NCF, 2010, p. 31).

[1] All quotes from the referenced Croatian research papers and Croatian educational documents have been translated into the English language by the author of this paper.

One of the ways of promoting the values and objectives of intercultural education in the language arts domain is through literature since it is through reading works of literary fiction, as authentic learning and teaching sources, that language learners are immersed "in authentic communication and in genuine experiences which have value, importance, or significance for them" (Stern, 1992, p. 302) and "construct experiences of 'content' in a non-trivial way which gives voice to complexities and subtleties not always present in other types of texts" (Carter and McRae, 1996, p. xxiv). Multicultural literature in an invaluable ally in the promotion of intercultural values given that "through meaningful interactions with multicultural literature, students can discover the universality of the human experience that unites people of all backgrounds" (Stallworth et al., 2006, p. 478). It has transformation potential in that it can help students decrease negative stereotyping and develop understanding of other people and cultures (Evans, 2010; Gómez Rodriguez, 2012; Expanding the Canon, 2018) as well as foster their awareness of diversity (Tunnell et al., 2012).

Through literature, children "learn about who they are and how they fit into society" (White, 2015, p. 5), provided their lived experiences are mirrored in the narratives. Engagement with literature also contributes to children's "moral development, serving to cultivate either compassion for others or racial biases and stereotypes; either can have lasting effects for both the child and those around the child" (Welch, 2016, p. 373). However, Tschida et al. (2014) observe that the majority of the characters that are portrayed in the stories that children read are white and middle class. This means that white and middle-class children see their world represented in literature; however, this is not the case for children belonging to ethnic minority groups who hardly ever see themselves represented in literature (White, 2015, p. 15). Furthermore, Vižintin underscores that, in the formal education context, "when constructing a curriculum for the language arts classroom in education, authors of curricula often limit their choice to text by writers and scholars of the country's majority culture and language" (2016, p. 2).

Given the importance attributed to literature in fostering intercultural competence, this paper analyzes the rapport between the theoretical conceptions of intercultural education as outlined in the three key national educational documents (*Curriculum for Elementary Schools* (2006), *National Curriculum Framework for Pre-School Education and General Compulsory and Secondary Education* (2010), and the *Croatian Language Curriculum* (2019)) and the depictions of national and global cultural diversity in the literary fiction for elementary schools that is prescribed by the Croatian Ministry of Science and Education. The focus is placed on the choice of authors and special attention is paid to uncovering the context in which cultural references occur and whether the selected titles include vocabulary that encourages human-rights discussions and promotes overcoming stereotypes and prejudices.

Fostering intercultural competence through Ministry-assigned literature

The roots of the lists of assigned works of literay fiction and non-fiction (Cro. *lektira*), both compulsory and elective, go back to the 1950s when assigned literary texts became the source of institutional guarantee of quality literature in Croatian elementary schools. In other words, the school curricula and state regulations prescribed the independent reading of literary texts at home (Hameršek and Zima, 2015). The Ministry of Science and Education, based on the recommendation of the

Expert group for Croatian language, prescribes the learning objectives and outcomes for each education cycle[2]. The obligation to read throughout primary and secondary education is a key component of Croatian language arts; hence the choice of assigned compulsory and elective titles is addressed specifically in the *Croatian Language Curriculum* and includes book-length texts, excerpts, and selections of poetry. The 1954 Curriculum introduced the first list of literary texts for elementary schools, and the emphasis on the child-caring role of children's literature emerged in the aftermath of World War II and was then broadened in the 1960s with the beginnings of academic research of children's literature (Hameršek and Zima, 2015, p. 28). The Ministry-assigned reading lists suggest that the school is in the service of transmitting knowledge but also national (ideological) values, whereby the educational models need to satisfy the value-normative function in the shaping of curricula and impact the formation of the students' value orientations (Katunarić, 2004, qtd. in Blažević Simić, 2011, p. 154). Furthermore, the subject curricula should "meet the needs and interests of the students (and parents) and of the majority and minority cultures, preserve the cultural specificity of minorities, but also encourage a dialogue between majority and minority cultures" (Blažević Simić, 2011, pp. 154-155).

In the 21st century Croatian language arts curriculum, literature is understood to serve a myriad of educational objectives. According to Rosandić (2005), these include reaching a certain level of literary education, developing a culture of reading, creativity, literary taste, and a student's view of the world. The author further highlights that the fundamental activity in the field of literature and assigned reading lists is reading. Therefore, the tasks behind assigned reading must be in line with the tasks of reading education, which include "reaching/achieving a certain level of literary education; developing a culture of reading, creative skills of students, literary taste; enabling a richer, more meaningful, and subtle spiritual life; fostering a holistic view of the world" (2005, p. 52). Certainly, the goals of literature are more than just educational ones. According to Blažević (2007), the aim of assigned reading should be to set educational and functional goals, i.e., to teach the student how to read a literary text, to immerse him/her into the literary world, and to develop an aesthetic experience as well as the capacity for logical and critical thinking. In Visinko's view, "the essence of teaching literature in elementary school (...) is the experience of the literary word that enriches the student's life" (2010, p. 17). In other words, the prescribed reading "first and foremost offers art and artistic experience" (Crnković, 1976, p. 19).

The potential which literature, especially multicultural literature, has in promoting the essence of intercultural education is specifically highlighted in the *Croatian Language Curriculum* (2019) (CLC), which specifically mentions literature as a fruitful tool for developing intercultural competence. In this document, it is emphasized that the choice of topics and literary texts should foster and contribute to a greater "understanding and acceptance of intercultural differences as well as noticing and overcoming cultural and linguistic stereotypes and prejudices, while respecting the languages of other peoples" (CLC, 2019, p. 6). The document describes literature as "a source of knowledge, experience, and value of mankind" (CLC, 2019, p. 6) whereby a distinction is made between the objectives of reading national and

[2] First cycle: 1st through 4th grade, second cycle: 5th and 6th grade, third cycle: 7th and 8th grade, fourth cycle: 1st through 4th grade of grammar school/ 1st through 2nd/3rd grade of vocational school.

world literature. "Reading and familiarization with the literature of the Croatian people, culture and civilization, enables the students to acquire literary knowledge, literary culture, and cultural identity, while reading literary texts pertaining to world literature develops cultural competence and intercultural understanding" (CLC, 2019, *Description of the Subject Croatian Language*). Furthermore, the document highlights that reading literary texts "encourages personal development, the development of aesthetic criteria, reflection on the world and oneself, and the exchange of views and opinions on what has been read" and "contributes to students' cultural experience and the success of their socialization by sharing their own experiences and learning about other people's and other cultures' experiences" (CLC, 2019, *Domains of the Subject Curriculum*).

Given the aforementioned, it is assumed that the described potential of reading works of national and world literature would also translate into the choice of compulsory[3] (and elective) literary texts that should be read independently at home throughout the duration of formal education.

Research aims, questions, and hypotheses

This research aims to explore whether the assigned compulsory texts for elementary school acknowledge the existence of Croatian national minorities and global cultural diversity and how this diversity is depicted. More specifically, the major aim of this research is to verify whether the cultural messages conveyed through the literary texts correspond to the educational goals highlighted in all education cycles of the *National Curriculum Framework* (2010): a) becoming familiar with the cultures of national minorities in the Republic of Croatia and other cultures and b) recognizing, respecting, identifying, and accepting the differences between the Croatian culture, their own cultures (if not Croatian), and other cultures on the basis of (non-literary and) literary texts. With regards to the latter goal, the focus of the present research is on exploring whether the compulsory texts depict authentic representations of diverse global realities and what vocabulary is used to assist the young readers in engaging in critical analyses about human-rights topics.

An attempt is made to answer the following questions:
a) Whose culture is promoted in the assigned texts: Croatian majority and/or minority cultures, the European, and/or the global cultural diversity?
b) Are the representations of cultural diversity aligned with the objectives of intercultural education?
c) Do the assigned texts for elementary schools provide a human rights-oriented exploration of cultural diversity?
d) Do the texts provide inclusive vocabulary when discussing ethnic diversity?

[3] According to the Decision on Adopting the Croatian Language Curriculum for Primary Schools and High Schools in the Republic of Croatia (2019), "During primary and secondary education, in each school year, the student independently reads a number of complete literary texts that the teacher chooses to achieve the intended learning outcomes. In the first and second grades of elementary school, the student reads 10 complete literary texts per year, of which 2 are compulsory literary texts. From the third to the eighth grade of elementary school, the student reads 8 complete literary texts, of which 2 are compulsory literary texts." For more see https://narodne-novine.nn.hr/clanci/sluzbeni/2019_01_10_215.html

It is hypothesized that the assigned texts will not sufficiently promote global cultural diversity (in terms of the choice of authors and content) but would instead remain limited to the European and, especially, the national level due to a greater emphasis on the promotion of the Croatian language, culture, and identity, as outlined in the *National Curriculum Framework (2010), the Curriculum for Elementary Schools (2006),* and the *Croatian Language Curriculum (2019)*. On the other hand, it is assumed that the literary texts will authentically reflect the diversity of minority ethnic experience in Croatia since Croatia is a multicultural, multiethnic, multilingual, and multiconfessional country.

Methodology

For the purpose of this research, an analysis of the representation of cultural diversity was carried out on two levels: with regards to the choice of authors and the content of 21 works of fiction included in the latest *Croatian Language Curriculum* (2019). The selected list consists of titles which were either originally written and published in the Croatian language or translated into Croatian if written by a foreign author. The list includes the following:

Jacob and Wilhelm Grimm, *Little Red Riding Hood, Snow White, Sleeping Beauty*
Hans Christian Andersen, *The Emperor's New Clothes, The Ugly Duckling, The Daisy*
Ivana Brlić-Mažuranić, *The Brave Adventures of Hlapitch, Croatian Tales of Long Ago* (*How Quest Sought the Truth*, *Fisherman Plunk and His Wife*, *Reygoch*, *Stribor's Forest*, *Little Brother Primrose and Sister Lavender*, *Toporko the Wanderer and the Nine Princes*, *Bridesman Sun and Bride Bridekins*, and *Yagor*)
Mato Lovrak, *A Train in the Snow, Pero Kvržica's Gang*
Ivan Kušan, *Koko in Paris*
Miro Gavran, *Head over Heels in Love*
Nada Mihelčić, *Green Dog*
Pavao Pavličič, *Three Friends in Trnje*

The categories included in the analysis include cultural references, skin color, and religion. In the present research, race and religion are included as separate categories to gain a more nuanced insight into the depiction of character diversity in the selected texts.

It became apparent during the research that the setting of the vast majority of titles was in Croatia. Therefore, in this paper, an emphasis is placed on examples that include references to Croatian ethnic minorities and global cultural diversity. Also, since the texts abound in references to Christianity, only some are mentioned that reflect the context in which these descriptions appear in the analyzed texts. On the other hand, the analysis will provide all examples of other referenced religions.

Results and discussion

Part I: Choice of authors

In the first part of research, the focus is placed on the selection of authors pertaining to national and world literature.

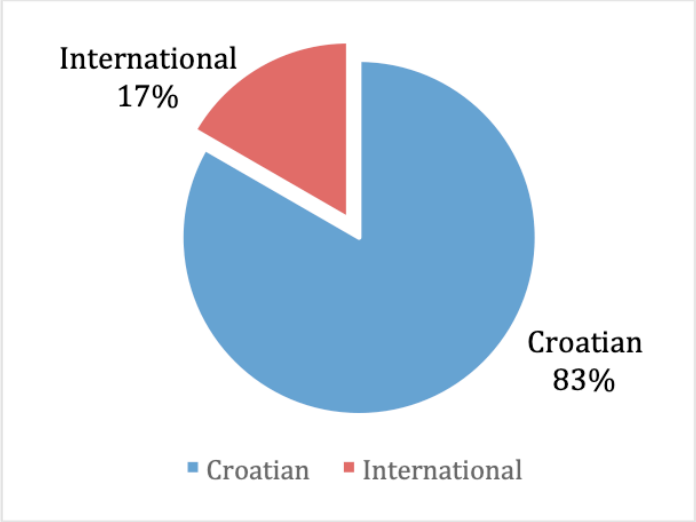

Figure 1: Representation of Croatian and international writers

Insight into the representation of authors reveals that an emphasis is placed on Croatian authors. The list of mandatory texts includes 12 authors of prose and poetry, 10 of whom (83.3%) are Croatian. In other words, only 2 foreign authors (16.66%) are included on the compulsory list. Furthermore, all authors are European (100%), white (100%), and predominantly male (83.33%).

It is worth repeating that the CLC (2019) highlights that reading texts pertaining to world literature contributes to the development of "cultural competences and intercultural understanding" (p. 6). However, in the absence of a greater selection of international authors, the obtained finding confirms the initial hypothesis that the compulsory texts would not adequately represent global diversity with regards to the choice of authors. Furthermore, the focus on European authors is not that suprising given that the NCF limits the scope of intercultural learning objectives to "languages and cultures of all peoples living in the Republic of Croatia and Europe" (NCF, 2010, p. 31). Figure 2 provides an insight into which authors constitute the corpus of Croatian authors who have been selected for the compulsory readling list.

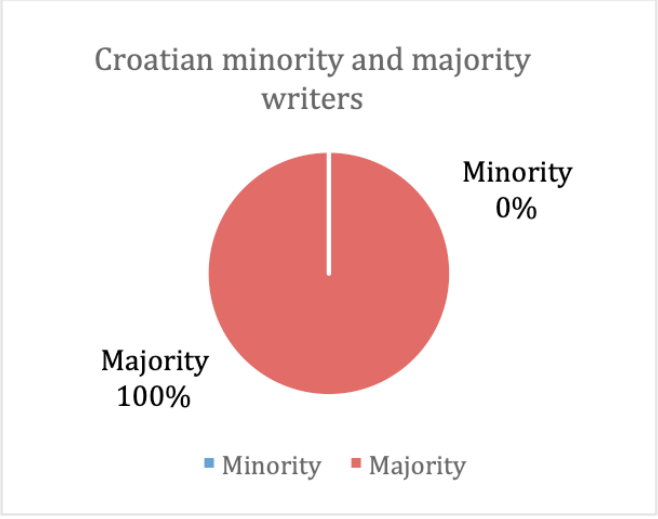

Figure 2: Representation of Croatian minority and majority writers

What this initial part of research clearly shows is that the Ministry of Science and Education has opted for predominantly Croatian authors who represent the Croatian majority population (100%).

While, without a doubt, the selected group of Croatian authors represents an authentic source of insight into the experiences of one ethnic group, it can by no means be considered as accurately reflecting a wide range of (literary) voices that provide invaluable insight into a multitude of national realities. Given the great importance attributed to literature in promoting the respect for Croatian cultural identity, what, then, does the Ministry consider under "Croatian culture" (NCL, 2010), "Croatian national identity" and "literature of the Croatian people" (CLC, 2019) given that "Croatian" is not a homogenous construct. As Burai noted, "the Croatian national and cultural identity is based on diversity, which stems from historical, political, economic, social, and other circumstances that have manifested themselves in different ways in different historical periods in Croatia" (2016, p. 182). The complete omission of literature written by minority authors brings into question the educational goal that focuses on becoming familiar with the culture of Croatian national minorities as well as the initial hypothesis that the literary texts would authentically reflect ethnic diversity in Croatia.

Given that the most contemporary title on the assigned reading list was published in 2009 (*Green Dog*), while the others were published in the 1980s or prior to World War II, it is also questionable whether the selected titles will give voice to (contemporary) human-rights issues that should be addressed as part of intercultural education. Therefore, the degree to which the exclusion of a robust selection of international writers and Croatian minority authors results in the omission of ethnically diverse characters in the prescribed texts will be analyzed in the continuation of the paper.

Part II: Choice of literary texts – representation of cultural diversity

The second part of the research explores how the selected authors depict the national and global multicultural reality and whether the content of their works provides an incentive for explorations of cultural diversity and the challenges faced by certain ethnic groups both in Croatia and around the world. Given the very few instances when a Croatian minority ethnic group was mentioned, the categories considered included skin color, religion, and cultural references as a broad term that encompasses any reference to national ethnic minorities and global cultures.

Table 1. References to cultural references, skin color, and religion

Title	Cultural references	Skin color	Religion
Little Red Riding Hood			
Snow White		+	+
Sleeping Beauty			
The Emperor's New Clothes			
The Ugly Duckling	+		+
The Daisy			+
The Brave Adventures of Hlapitch	+		+
A Train in the Snow	+	+	
Pero Kvržica's Gang			
Koko in Paris	+		+
How Quest Sought the Truth		+	+
Fisherman Plunk and His Wife		+	
Reygoch			+
Stribor's Forest			+
Little Brother Primrose and Sister Lavender		+	+
Toporko the Wanderer and the Nine Princes			
Bridesman Sun and Bride Bridekins			
Yagor			
Head over Heels in Love	+	+	
Green Dog	+		+
Three Friends in Trnje	+		

It is observable from Table 1 that almost all titles contain some form of cultural reference; those that usually do not are fairy tales (Andersen, Grimm brothers, Brlić-Mažuranić).

The recorded examples (listed in Table 2) may be divided into the following categories:
a) *language*: Egyptian, Italian, non-native speaker of Croatian recognized as such by his rather poor Croatian;
b) *physical appearance*: American movie stars get their haircuts in Paris, hairstyle of a Mongolian warrior, Eskimos wear warm clothing;
c) *general information*: population size in Vienna, Parisian monuments
d) *generalizations/stereotypes*: depictions of America (presumably the United States) as the land of earthquakes and where family members emigrate to in hope of a better future, existence of pricesses in Asia, the long life span of Caucasian highlanders, Italians speak Italian, all Roma marry under a willow
e) *discriminatory language*: Gypsy

Table 2. Cultural references

general information	"There are even more people in Vienna than here" (*The Brave Adventures of Hlapitch*, p. 70) Orly airport, the Eiffel Tower, Notre-Dame, Napoleon's tomb, Leonardo da Vinci, Louvre, Mona Lisa, river Seine, New York, Greece, Piraeus (*Koko in Paris*)
language	"The stork wanders around on long red legs and speaks Egyptian, the language she learned from her mother" (The Ugly Duckling, p. 98). "The master does not speak Croatian well. He turns the machine and speaks loudly: Dear audience…! Now I sees an unfortunate countess on the canvas…!" (*A Train in the Snow*, p. 46) "Grandma explained to him that the kid must be Italian, and Italians speak Italian. Now the little one is constantly boring everyone how his best friend is Italian and questioning us what certain Italian words mean. And he has remembered a million of them" (*Green Dog*, p. 54)
physical appearance	"But if only you had seen them all bundled up!" They looked like real little Eskimos!" (*A Train in the Snow*, p. 65) "Zlatko's hairstyle was that of a Mongol warrior with a tuft on top of his bare scalp" (*Koko in Paris*, p. 32).
generalizations/ stereotypes	"They were questioning Pero where his money came from. 'From America, from my uncle!'" (A Train in the Snow, p. 22) "The newspapers report that there was an earthquake in America" (*A Train in the Snow*, p. 103) "And what interesting pictures there are in the newspapers. There you see painted bald statesmen. They travel around Europe. They are accompanied by their ladies in silk dresses, with flowers in their hands in the middle of winter. The depict the best wrestlers and runners. In addition to all this, there is a picture of the most beautiful woman in the world and the Pope sitting on a big chair. They also show the new airplanes and Asian princesses" (*A Train in the Snow*, p. 103). "Ratko Milić, also known as Koko, turned thirteen, which, compared to some Caucasian highlanders who live to be one hundred and fifty years old, is not a particularly long human life" (*Koko in Paris*, p. 48). "It is known that the bell ringers of that church are always hunchbacked monsters who look for victims at night, attack them and… ha-ha…" (*Koko in Paris*, p. 7) "I didn't even know where to run. It doesn't matter where. I will go to sea and board a ship for America. I will make millions of dollars there, and then I will become a real biologist as I intended" (*Green Dog*, p. 32). [Paris] The place of the best barbers in the world. Well, actors from America come here every day to shave and get a haircut" (*Koko in*

	Paris, p. 32) "The wedding was to be done like a Gypsy's. Only not under a willow, but in a small grove" (*A Train in the Snow*, p. 10).
discriminatory language	"The wedding was to be done like a Gypsy's" (*A Train in the Snow*, p. 10).

Given the importance which in the key educational documents is attributed to literature in promoting curiosity about cultural diversity as well as equipping the students with the tools and knowledge that would help combat various forms of discrimination, it is disheartening that the sole examples of ethnic diversity reflect their rather trivialized and even generalized portrayal as well as the use of derogatory language. The example "The wedding was to be done like a Gypsy's" contains a racial slur. In Croatian, the word "Gypsy" (*cigan*) is a derogatory ethnonym. Another example of the use of the word "Gypsy" is recorded in Table 3.

This finding reveals that the educational goal of "becoming familiar with the culture of national minorities in the Republic of Croatia and other cultures" (NCF, 2010) has not been met because, on the one hand, the notion of "culture" has been reduced to the monuments, museums, and clothes or languages associated with a country and, on the other, characters pertaining to Croatian ethnic minorities are excluded from the narrative. Furthermore, if literature serves an educational function, then it remains unclear how the students might develop the ability to "recognize, respect, identify, and accept the differences between the Croatian culture, their own cultures (if not Croatian), and other cultures" (NCF, 2010) if they are presented with a trivialized understanding of culture and even discriminatory language that might remain undiscussed in the classroom unless the teacher is aware of the importance of appropriately addressing it.

Table 3. References to skin color

white skin	"If only I had a child with a face as white as snow" (Snow White, p. 89) "The Mermaids squeaked like silverfish, gathered around the boat, grabbed it by the spokes with their white hands, and danced in circles" (Ribar Palunko, p. 35) "white neck" (*Head over Heals in Love*, p. 27) "as white as wax" (*How Quest Sought the Truth*, p. 22) "In front of the church sits a little girl, like a white rose" (*Brother Primrose and Sister Lavender*, p. 117).
black skin	"Draga was offended and cannot forgive Ljuban for the insult. She won't ever forgive him. Ever! He was black to her. Blacker than the blackest Gypsy" (*A Train in the Snow*, p. 9). "as black as a mole" (*How Quest Sought the Truth*, p. 9)

Table 3 includes all recorded references to skin color, which reveal that there are very few instances when a character's skin color is mentioned; however, the context in which it is mentioned greatly differs. White skin is associated with beauty ("a face as

white as snow," mermaids' "white hands," "white neck" of the protagonist's secret crush, a young girl resembling a "white rose"), i.e., references to white skin are used to highlight the beauty of that which appears to be considered the Croatian norm. On the other hand, black skin is unmistakably used as an insult ("He was black to her. Blacker than the blackest Gypsy"). Also, it is worth noting that when a character's black skin is mentioned, it addresses one particular ethnic group in Croatia: the Roma – the most vulnerable minority in Central and Eastern Europe (Csepeli and Simon, 2004). Furthermore, black skin is clearly visible to the characters (and authors), hence highlighted; yet the Roma as an ethnic group remain socially invisible because no Roma character or any other character of color ever appears in the texts.[4]

It is worth repeating that, in the latest CLC, literature is described in terms of its abiliy to empower young learners with the knowledge and insights that would help combat "discrimination" (2019, p. 6). Given that, and especially because, the derogatory statement "He was blacker to me than the blackest Gypsy" is never properly addressed in the continuation of the book, it desperately requires teacher intervention. As Vižintin notes, "if the texts students read contain examples of stereotypes, prejudice, and discrimination which are not overcome, we should critically analyze such texts in the classroom and this requires teachers to develop intercultural competence" (2016, p. 5). This, however, presumes that the teacher will recognize the discriminatory nature of the statement and raise their concerns about it in the classroom.

Furthermore, beyond the need to educate the students on the dehumanizing nature of discriminatory language, we must consider the message its appearance in the school environment, which should be a safe space for all children, sends to both the majority and minority students. Even if the example above were properly addressed, it is a disheartening reality that the sole example of themselves, which elementary school Roma children will see in compulsory literature, is not even a real Roma character, but a white character being called a derogatory name.

Table 4. References to religion

Chistianity	"Christmas" (Green Dog) "Nowhere in the world at that time were there any dragons, fairies, witches, or evil spirits. They were driven away by the holy cross and human reason" (*Brother Primrose and Sister Lavender*, p. 87). "church" (*Brother Primrose and Sister Lavender*, p. 91)
Other religious references	"If by any chance they had sent their grandmother as a negotiator to the Middle East, both Jews and Arabs would have converted to Buddhism before they even realized what had struck them" (*Green Dog*, p. 26). "And what if someone is a Muslim? What do you mean?

[4] Butković and Vidović (2020) observed the same binary opposition in undergraduate students' creative writing. After studying the content of 164 texts and a total of 651 characters produced when given the assignment to write a short detective story, there was only one reference to race (0.15%) – a homeless black man who ends up becoming the murder suspect. On the other hand, a character's white skin was never mentioned.

	I do not know. For example, Vlatka goes to such a commune and prays to God and Our Lady for hours every day. What if a girl is a Muslim? Does she get some corner where she prays to Allah or is our God in charge of all the drug addicts of this world? I have no idea and I don't care!" (*Green Dog,* p. 139). "He hated him, as the heathen hate a righteous man" (*How Quest Sought the Truth*, p. 8).
Open to interpretation	"Thank the Creator for all the good He has done for you." (The Ugly Duckling, 105) "They did not know how to thank God" (*Reygoch,* p. 73) The sun begs God and his mother to forgive him. God forgave him, and his mother never even held it against him" (*Stribor's Forest* p. 86). "Hlapitch sat on the grass, took his bread and bacon and a small knife out of his bag. Then he crossed himself, took off his hat and began to eat" (*The Brave Adventures of Hlapitch*, p. 19).

Similarly to the manner in which the authors implemented skin color into their narratives, when religions are mentioned, they appear in different contexts. Christianity is portrayed as a family holiday, represented by the holy cross and the church as a place of worship, all of which are intended to evoke feelings of comfort and protection. On the other hand, Islam and Judaism are mentioned only in the context of armed conflict, whereby Muslims and Jews are portrayed as being more likely to convert to another religion (Budhaism) than to find common ground. Another example of Islam appears in the context of drug treatment facilities, whereby the issue is raised whether recovering addicts would be allowed to pray to Allah. Finally, the notion of justice is associated with Christianity and pagans are portrayed as devoid of just behavior. In some cases, the name of the religion is not specifically mentioned (usually in fairy tales). However, references to religion in Brlić-Mažuranić's fairy tales and novel allow room for the students to interpret them differently if read independently from the author's other works.

What these examples suggest is that references to religions (Islam and Judaism) that depart from the Croatian majority's religious affiliation are not given adequate or almost any attention.

Conclusion

What the findings of the selection of Ministry-assigned authors (Figures 1 and 2) and content (Table 2, 3, and 4) reveal is a disparity between the objectives of intercultural education, as outlined, on the one hand, in Croatian key educational documents (*National Curriculum Framework* (2010)*, the Curriculum for Elementary Schools* (2006)*,* and the *Croatian Language Curriculum* (2019)) and the portrayal of national and global cultural realities in the assigned works of fiction for the elementary school level, on the other. With the selected authors being 100% white, 100% European, and predominately Croatian (83%), it comes almost as no surprise that their fictional characters are white, Christian, and European (usually Croatian). Croatian authors almost exclusively focus on the majority Croatian population and culture, omitting to give voice to national ethnic minorities. Furthermore, none of the protagonists are

non-white, non-Christian, and non-European,[5] let alone placed in the role of the protagonist.

The recorded examples of how authors pertaining to the Croatian literary canon depict cultural, racial, and religious diversity reveal an unmistakable emphasis on the Croatian majority cultural identity and trivialized and even stereotypical understandings of global diversity that are reduced to examples of the language spoken in a foreign country (e.g., Italians speak Italian), a character's physical appearance (e.g., hairstyle of a Mongolian warrior, Eskimos wearing warm clothes), general information about a country or city (e.g., population size, monuments), generalizations/stereotypes (e.g., America is the land of earthquakes, Caucasian highlanders have a long life, all Roma marry under a willow), and even include derogatory language ("blacker than the blackest Gypsy") without providing concrete examples how to stand up to to discrimination and stereotypes.

Although diversity is an integral part of life in Croatia, even if not to the same degree in all Croatian schools, this is not reflected in the texts. With the current selection of compulosty titles, Croatian ethnic minority children are not given access to narratives in which they see positive representations of themselves from an early age and the ethnic majority children are deprived of the opportunity to explore the reality of life and contributions of Croatian minority cultures. Hence, both groups are presented with a one-sided worldview that does not correspond to reality and is clearly counterproductive to the objectives of intercultural education outlined in the key educational documents. Therefore, the notions of "social equality," "solidarity," and "tolerance" (NCR, 2010, p. 14), which are said to form the very foundation of Croatian formal education, are underrepresented or virtually completely omitted from the overall message that the analyzed works of literary fiction promote.

The obtained findings and conclusions have confirmed the initial hypothesis that the literary texts would not sufficiently promote global cultural diversity, yet they have disproved the second hypothesis that the literary content would at least adequately address Croatian cultural heterogeneity. Future selections of literary titles should, therefore, be more mindful of the choice of authors and content of compulsory works of fiction because it is vital that the message be sent to both minority and majority students that non-Croatian, non-European, non-Christian, and national ethnic minority perspectives matter, thereby acknolwedging them and making them socially visible.

All chance of adequately implementing the key principles of intercultural education must not necessarily be lost if the teachers understand the existing gap between theory and practice and posess the required intercultural competence that would enable them to introduce supplemental materials and choose culturally sensitive elective literary fiction that would assist them in broadening their students' perspective on diverse national and global realities of life in a form appropriate to the students' age and development.

Inevitably, the findings of this research require taking into consideration whether predominately white (Christian) teachers will instinctively introduce topics that

[5] The terms "non-white," "non-Christian," and "non-European" are used here to highlight the exclusively homogenous range of characters in the assigned texts and not the author's preference for such nomenclature.

address the challenges which the groups excluded from the literary narratives face? Are Croatian teacher education programs equipping future teachers with the appropriate knowledge, skills, and competences to bridge the gap between, on the one hand, the theoretical conceptualizations of intercultural education found in key educational documents and scientific research and, on the other, the worldview promoted through assigned children's literature? These are just some questions that future research needs to address.

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Education and Embracing Cultural Differences

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Abstract
The shared nature of the current concerns about education and embracing cultural differences require that people across the world are more educated to understanding and accepting these for the well being of anyone. Culture plays an important place in all aspects of life, including education. In turn, education influence the material and spiritual structures of any culture. The paper aims to highlight the importance of education and cultural features in the new global society. Multicultural education improves communication in a global society. Modern technology and the Internet have an important role in this regard. Educational systems are very different, so the acceptance of cultural differences is the attribute of progressive, multicultural education. Policies for educational systems are made by people; governments make decisions more emotionally than rationally. Positive emotions define the areas of progress in overcoming cultural barriers. Negative feelings, stereotypes, prejudices delimit the regression in the same process. Environmental forces amplify or diminish the movement for multicultural education. Educational deficiencies favor the establishment of a conservative culture in any structure. Progressive education facilitates the acceptance of differences. Imitation works in any community. Any national group will embrace or reject other cultural features; it depends on cultural, political, and educational dominance. The effects of collective imitation are slow but continuous; people become or not tolerant, regarding other cultures. The culture of the place touches everyone: "with a stick or a caress". Education in a culture of compromises or respect, and tolerance choose between embracing or rejecting the cultural differences.

Keywords: Education, Embracing Cultural Differences

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Introduction

The issue of Education for embracing differences is studied to better understand the multiple cultural behaviors and factors that can reduce identity inertia, prejudice, stereotypes, even inequalities. It is an up-to-date field of research that concerns scientists around the world. Education can provide solutions to improve communication between people from different geographical areas. It is a work of analysis and reflection, the consequence of 17 years of research. Being a professor allowed me to follow the behaviours of young people from different parts of the world. There was no predetermined sample. The people, from whom we received information about the cultural differences and the role of education, were in the age group 18-30 years. Discussions with people in other age groups, including over the age of 80, have clarified certain aspects of my research or created new dilemmas. The role of education was validated following the research. Education is the most important way to reduce identity inertia and to accept cultural differences.

I took notes and followed formal (during congresses and conferences) and informal (during socializing, relaxing, lunch) behaviors for almost two decades in which I participated in international events in 24 countries and over 35 cities. Although the number of those analyzed is not statistically representative for the cultures they come from, the research proved to be fascinating as identity, individual, group manifestations.

The main objective of this study is to find, describe, analyze out valuable links between cultures, education, behaviours. The object of the exercise was to check a few cultural features of people from different countries and geographical areas. Curiosity about other cultures has always fascinated me. People are very different and yet similar. The place and environment in which you are born and raised are vital for each individual. "We aren't who we want to be. We are what society demands. We are what our parents choose. We don't want to disappoint anyone; we have a great need to be loved“(Coelho, 2014, p.10). People are conservative in deep values related to the mother culture. The unprecedented mobility of the times we live in does not change the strong intimate values until after years of life in a new dominant culture. "We will keep our lifestyle in 5-6 centuries…. We are not at all interested in changing someone's perception (Coelho, 2013, Adulter, p.67). For example, in Calgary, Canada, I met people from different parts of the world. Each group kept its distance from the others. People interacted politely, but proudly maintained the mother's cultural traditions. Everywhere in the world, there are minority groups that respect the rules of the host culture, although we will not know to what extent they believe in them. Contamination with other crops, acculturation occurs over a long period. And it is ok. Cultural diversity makes life more exciting. In organizations, including universities, we will find the same pattern. International students adapt more or less easily to the organizational culture. They feel authentic multicultural organizational cultures and enthusiastically take on habits that make their lives easier and allow them to increase their esteems. The context given by the organizational culture collides or folds on the local culture (Hatch, 2013). The example of the last idea taken is from Romania. Some universities are trying to develop organizational structures that embrace cultural differences, but they are confronting with a culture of compromises.

Modern organizational cultures strike with the local cultures where political functions predominate and not value. Education, whatever systems are; conservative, liberal, religious, and tolerant or not, progressive or formal, are very important in the evolution of each personality. Education makes a difference between those who embrace or reject other cultures. Education from school, learning from experience, practical adult teaching is unique for each national culture. The idea of accepting multiple perspectives began was the key to the research. Each year, the study was developed through an interactive and iterative process of presenting thoughts about cultures to young met at different conferences. Many of them explained their ideas about cultures, education, behaviours. I enriched my knowledge and I managed to accept with empathy habits that if I had only read, I would not have understood. In some cultures (India, Thailand, Indonesia, South Korea, Malaysia) using the left hand for some activities is rude and insulting. Young people in these places who study or work in other countries may ignore or maintain the rule. It depends on what made them respect her at home: obedience or conviction. I think embracing cultural differences is proof of respect and social empathy.

Education and social intelligence are very important for accepting cultural differences. The first time I was in Japan, I was unpleasantly surprised by some compatriots, who refused to eat rice and asked, quite offensively, for bread. On the same occasion, the same people rejected the idea of eating with chopsticks and received spoons and forks. Japanese people were so polite! It was happening many years ago, and the story made me more careful regarding my own culture. With this last example, I try to explain a little bit the legacy of the communist collective culture in Romania. Progressive education is still waiting in Romania. Young people desire an educational movement that gives more value to experience than formal, political learning.

Literature Review

Studying people's behaviors' from different cultures brings out several interesting insights. The field is the subject of research for many scientific disciplines. The interest is natural, people have always been curious about the lives and experiences of their peers.

Education and embracing cultural differences is a very complex issue that concerns the present and the future. It requires intentional efforts to educating people to be globally aware and to accept cultural diversity (Reimers, 2020; Verkuyten, Yogeeswaran, Adelman, 2019; Benade, 2017; Klein, 2017; Meyer, 2016; Tchibozo, 2013; Pellegrino & Hilton, 2012); Moran, Harris, Moran, 2011; Białostocka, 2010; Deardorff, 2009; Banks, 2005; Hall, & Hall, 1990). Education and culture both are a way to serve the needs of the global market, and to advance social inclusion and more equity in the world. Group cultures have inspired researchers anytime (Mayo and Barnard, 1930, Mead, 1934; Weber, 1947; Durkheim, 1947; Geertz, 1973, countless after the 1980s and into the 21st century).

Nowadays, education needs global commitments to equality of chances and access to a modern education that includes instruction in IT, math, language skills, science, history, civics, culture, and the arts. Global challenges underscore the urgency for effective education for cultural differences understanding. Researchers and

organizations propose many conceptual approaches to advancing in culture, and education (Reimers, 2020; World Economic Forum, 2020; UNESCO. 2019a; OECD and Asia Society, 2019, 2018; Klein, 2017; Gardner, 2012; Darling-Hammond, 2010; Sachs, 2008; Schein, 2013, Hofstede, Minkov, 2010).

Education and embracing cultural differences require intentional efforts to educating students to be globally aware and to accept cultural diversity. Global challenges underscore the urgency for effective education for cultural differences understanding. Researchers propose many conceptual approaches to advancing in multicultural education. People must be attentive to apply it.

Conclusions

The research project I have been working on since 2004 highlighted the complexity of the relationship between education and culture. We restricted the research to the study of some cultural dimensions specific to some nations (Hofstede) and we followed their connections with the education system in each country included in the study.

Research structure

The research has been orientated towards identifying a few aspects that characterize the existing culture and educational system from different geographic areas. The methodological guidelines represent an adjustment of the Hofstede, GLOBE, and other models. We have also accessed similar researches as well as the representative literature, regarding culture and education.

This study aims to describe and find out valuable links between culture, education, and behaviors. Education for embracing cultural differences has as its research hypothesis the problem of identities and cultural inertia. The research project I have been working on since 2004 has required that I develop an interesting approach that suits the various specific cases I have studied throughout the years. Qualitative and quantitative research methods were used in this study. During the time we have also observed and recorded formal and informal behaviors of people met at international events. In chronological order, data and information were collected in Canada, South Korea (2005), Romania (2005, 2008, 2010, 2014, 2016, 2020), Germany (2006, 2009), South Africa (2007), U.K. (2008, 2013), Belgium (2009), USA (2010, 2012, 2013, and 2014), Australia, Japan (2011), New Zealand (2012), China (2015), UAE (2016), Thailand (2017, 2020), Indonesia, India (2018), Brazil, Moldova (2019).

The structure of research by countries and cities where data were collected is in Table 1. Table 2 contents the chronological structure by participants.

Table 1: Chronological structure of research by countries and cities where data and information were collected

No.	Year	Country /countries	Cities
1.	2004	Italy, Netherlands, France	Ischia, Eindhoven, Paris
2.	2005	Germany, Poland, Canada, Romania	Stuttgart, Warsaw, Calgary, Bucuresti
3.	2006	Austria, South Korea	Innsbruck, Seoul
4.	2007	South Africa, Romania	Pretoria, Johannesburg, Oradea

5.	2008	Belgium, U.K., Romania	Antwerp, Cambridge, Iasi
6.	2009	Malaysia, Germany	Kuala Lumpur, Munich
7.	2010	Romania, USA	Constanta, New York
8.	2011	Australia, Japan	Sydney, Osaka
9.	2012	USA, New Zealand, Romania	New York, Auckland, Craiova
10.	2013	USA, UK	New York, London
11.	2014	USA, Romania	Miami, Iasi
12.	2015	China	Beijing, Dubai
13.	2016	UAE, Romania	Dubai, Drobeta- Turnu-Severin
14.	2017	Thailand, Romania	Bangkok, Iasi
15.	2018	Indonesia, India	Bali, Goa, Mumbai
16.	2019	Moldova, Brazil	Chisinau, Rio de Janeiro
17.	2020 (February)	Thailand, Romania	Phuket, Bangkok, Iasi
	Total	24	35

Table 2: Chronological structure by participants

No.	Year	Scrapbook pages	Participants in research by continent
1.	2004	121	69 Europa, 24 Asia, 14 North America, 11 Africa, 3 Oceania
2.	2005	178	72 North America, 65 Europe, 20 South America, 12 Asia, 5 Africa, 4 Oceania
3.	2006	124	65 Asia, 35 Europe, 12 North America, 12 Oceania
4.	2007	134	82 Africa, 30 Europe, 10 Asia, 9 North America, 3 Oceania
5.	2008	127	37 Europe, 26 North America, 26 Asia, 15 Africa, 13 Oceania, 10 South America
6.	2009	124	64 Asia, 37 Europe, 11 North America, 8 Oceania, 4 Africa
7.	2010	120	37 North America, 33 Europe, 32 Asia, 11 Oceania, 7 Africa
8.	2011	72	47 Asia, 25 Oceania
9.	2012	125	35 North America, 34 Oceania, 27 Asia, 19 Europe , 10 South America
10.	2013	119	32 Europe, 27 Asia, 22 North America, 15 Africa, 14 Australia, 9 South America
11.	2014	113	41 Europe, 40 North America, 26 Asia, 6 Oceania
12.	2015	117	66 Asia, 24 Europe, 22 North America, 5 Oceania
13.	2016	121	55 Asia, 33 North America, 15 Europe, 7 South America, 6, 5 Africa
14.	2017	118	70 Asia, 29 Europe, 10 North America, 9 Oceania
15.	2018	133	77 Asia, 33 Europe, 15 North America, 8 Oceania
16.	2019	44	21 Europe, 16 South America, 7 Asia,
17.	2020	69	55 Asia, 14 Europe
	Total	1959	

The participants in the study by continent and gender are found in Table 3 and Figure 1.

Table 3: The structure' s participants by continent and gender

Continent	Participants	Female	Male
Asia	690	400	290
Europe	534	314	220
North America	358	156	202
Oceania/Australia	161	59	102
Africa	144	120	24
South America	72	17	55
Total	1959	1066	893

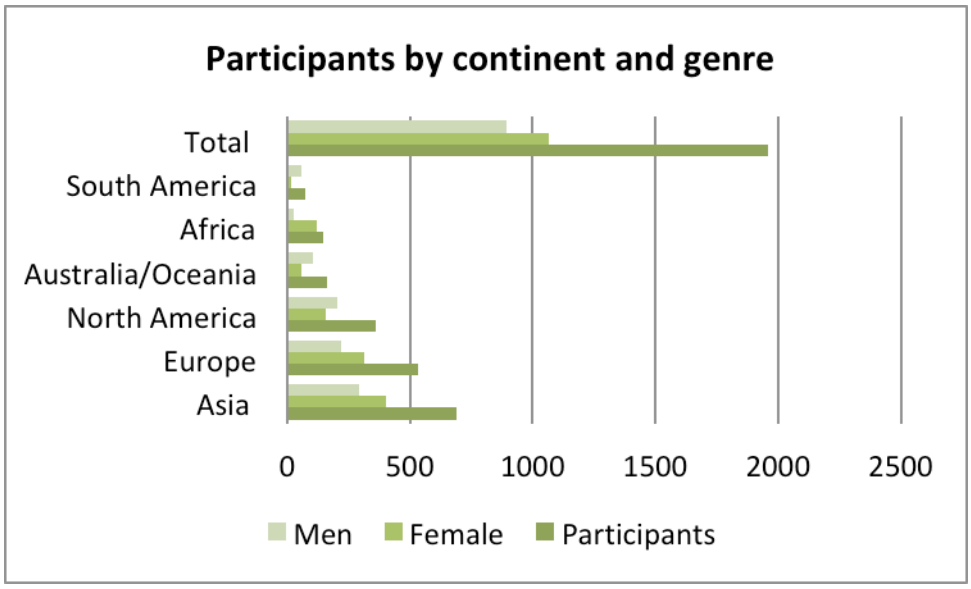

Figure 1: Participants by continent and genre

The 1959 study participants were from 28 European, 16 Asian, 7 African, 6 American, Australian Countries. Participants by country can be found in the tables below. The largest group was Asian (690), followed by Europeans (534), North Americans (358), Australians (161), respondents from Africa (144), and South America (72).

Table 4: Study participants from Asian Countries

No.	Asia	Participants	Female	Male
1.	Bangladesh	17	10	7
2.	China	161	80	81
3.	India	177	124	53
4.	Indonezia	33	15	18
5.	Israel	14	7	7
6.	Japan	84	34	50
7.	Jordan	17	10	7
8.	Lebanon	16	11	6
9.	Malaysia	24	16	9
10.	Pakistan	9	7	2
11.	South Korea	64	45	19
12.	Sri Lanka	5	3	2
13.	Syria	9	4	5

14.	Thailand	32	22	10
15.	Turkey	11	7	4
16.	United Arab Emirates	17	5	12
	Total	690	400	290

Table 5: Study participants from European Countries

No.	Europe	Participants	Female	Male
1.	Austria	19	9	10
2.	Belgium	14	7	7
3.	Bulgaria	11	4	7
4.	Croatia	7	4	3
5.	Czech	10	5	5
6.	Denmark	8	5	3
7.	Estonia	7	5	2
8.	Finland	14	9	6
9.	France	49	27	22
10.	Germany	47	23	24
11.	Greece	9	4	5
12.	Hungary	16	10	6
13.	Ireland	5	4	1
14.	Italy	47	20	27
15.	Portugal	5	-	5
16.	Latvia	4	4	-
17.	Lithuania	21	17	4
18.	Moldova	19	3	16
19.	Netherlands	37	21	16
20.	Norway	7	5	2
21.	Poland	19	13	16
22.	Romania	57	24	33
23.	Russia	11	3	8
24.	Slovakia	10	5	5
25.	Slovenia	10	6	4
26.	Spain	23	12	11
27.	Turkey	11	4	7
28.	United Kingdom	37	19	18
29.	Total	534	314	220

Table 6: Participants from North America

No.	North America	Participants	Female	Male
1.	Canada	124	49	75
2.	Costa Rica	4	2	2
3.	United State of America	230	105	125
4.	Total	358	156	202

Table 7: Participants from Australia and Oceania

No.	Australia/Oceania	Participants	Female	Male
1.	Australia	99	49	50

2.	New Zealand	62	10	52
3.	Total	161	59	102

Table 8: Participants from Africa

No.	Africa	Participants	Female	Male
1.	Algeria	20	3	17
2.	Kenya	4	2	2
3.	Morocco	27	7	20
4.	Nigeria	6	-	6
5.	South Africa	79	11	68
6.	Sudan	4	-	-
7.	Tanzania	4	-	-
8.	Total	144	24	120

Table 9: Participants from South America

No.	South America	Participants	Female	Male
1.	Argentina	3	1	2
2.	Brazil	66	16	50
3.	Paraguay	3	-	3
4.	Total	72	17	55

In this research several questionnaires were applied to 17 groups within 2004-2020 timeframe. The answers were then grouped by country and continent and statistically processed. The data collected from the research groups required the definition of a Statistical Package for the Social Sciences database and the information has been used for the calculation of econometric markers. 5- Point Likert scale has been used: (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree. Moreover, in the research, there has been used through shared experiences, real-time, for example, rituals, ceremonies, etc., as well as another less structured or institutionalized context (including casual meetings or informal gatherings) which, as the case may be, in time has acquired more importance.

Grouping the answers into several cultural and educational dimensions led to the following results:

1. Uncertainty Avoidance and Risk
2. Masculinity – Femininity
3. Individualism/Collectivism
4. Embracing differences
5. Power Distance
6. Cooperative/ Competitive Learning
7. Environmental Education
8. Daily use of the internet
9. Conformity
10. High Self-esteem
11. The importance of social position in life
12. Cultural and Religious Tolerance
13. Empathy

14. Curiosity for different cultures

Table 10: The average score of cultural and educational dimensions analyzed

No.	Cultural/ educational components	Average score by continent $\bar{x}$					
		Asia	Europe	North America	Australia	Africa	South America
1.	Uncertainty Avoidance and Risk	3.97	3.59	2.32	2.52	2.41	4.14
2.	Masculinity – Femininity	3.07	2.54	2.66	3.11	3.19	2.47
3.	Individualism/ Collectivism	1.99	2.92	4.77	4.81	2.81	2.07
4.	Embracing differences	2.27	3.99	3.87	4.03	3.44	2.98
5.	Power Distance	3.27	1.77	1.81	1.68	2.51	3.11
6.	Cooperative/ Competitive Learning	3.33	4.44	4.12	4.07	4.59	4.28
7.	Environmental Education	2.85	3.99	3.11	4.99	4.21	3.99
8.	Daily use of the internet	1.89	4.99	4.77	4.65	1.77	4.01
9.	Conformity	4.85	2.47	2.13	3.17	4.11	2.57
10.	High Self-esteem	2.03	4.67	3.77	4.51	2.42	3.11
11.	The importance of social position in life	4.85	2.51	2.13	4.47	4.87	4.77
12.	Cultural and Religious Tolerance	1.79	2.13	2.41	3.05	2.44	2.77
13.	Empathy	4.21	3.56	2.71	2.66	3.25	4.44
14.	Curiosity for different cultures	4.33	4.77	2.85	3.14	1.88	2.17

The arithmetic mean is just a number that, at first glance, can be interpreted this way:

- Uncertainty and risk are widely accepted in South America
- The average for masculinity-femininity covers very different situations. For example, responses from young people in Japan clearly showed a preference for masculinity, responses from other Asian countries showed evolution for balance
- Individualism appears to be very high in Australia and low in Asia
- Cooperative Learning is a wanted concept around the world
- Environmental Education has a high score in Australia
- Daily use of the the internet has the lowest score in Africa (very closed to Asia)
- Conformity to social norms are very high in Asia
- High Self-esteem has been recorded in Australia

- The importance of the social statute in life has the highest score among participants in Asia and Africa
- Cultural and Religious Tolerance has surprised by a low score almost everywhere
- Empathy works well in Africa and Asia
- Curiosity about other cultures have the highest values in Europe.

The 1959 notes and answers from 17 questionnaires taken over 17 years surprised by their diversity within the same geographical area. The results are extremely different because the culture in each country is strongly influenced by traditions, quality of life, available resources, and governance. Technology and the Internet contribute to increasing education in cultural diversity approach. But the means can also be used contrary.

The results of this analysis partially confirm some scientific findings regarding the uncountable links between culture and education. There are highly valuable models and theories for analyzing cultures and educational systems. There are supported by arguments, but there is no consensus in the research community on which one should be preferred. The interpretation of cultural and educational features is relatively open. The space for the paper is limited, which is why I will express only a few conclusions of the research.

Avoiding Uncertainty and Risk, as a cultural dimension, have acquired, over time, more interpretations. It is generally believed that groups living in countries with a high index of Uncertainty Avoidance are reluctant to unpredictable changes. Those who are resident in countries with a low UA index are more inventive, take risks, and accept uncertainty as part of every day. The statements about cultures on the level of "values" do not describe "reality"; such statements are generalizations and they are relative. The comparisons were made using qualitative analysis. The countries with a high index of Avoiding Uncertainty can be found in Table 11.

Table 11: Countries with a high Uncertainty Avoidance index

Countries	UA index (research)	UA index (Hofstede)
Greece	96	100
Portugal	90	99
Russia, Moldova	97	95
Belgium	98	94
Poland	95	93
Japan	96	92
Romania	94	90
Slovenia	90	88
China	91	87
France, Spain, Costa Rica, Argentina	89	86
Bulgaria, Turkey, South Korea, Paraguay	93	85

The statistical results, followed by discussions about avoiding uncertainty with study participants from Japan and Romania led to the following:
- Young people from both countries expressed a preference for certainty regarding the choice of a job; they want stability in their lives, predictability about the future.

- Young people in Japan have shown respect for the rules of society, organizations, families; that in Romania is not willing to respect the rules because they are violated even by those who impose them.

Avoiding uncertainty in these two groups is different, even if both have a high AU index. Thus, young Japanese people adhere to customary and legal norms. Formalism is high and education preserves it. Paradoxically, they reject uncertainty, although they are accustomed to seismic manifestations. Respecting the rules and collectivism arouse admiration in crises (including now). In young people in Romania, the manifestation of this dimension is different from the statistical results. Thus, young people often break the rules because they do not believe in them and see that they are only apparently respected by the authorities, families, friends, organizations (especially public). In private organizations, there is a decrease in the score, avoiding uncertainty, taking risks, accepting changes, ambiguities. Here, people have initiative and courage. Young people in such organizations are educated, including emotionally, and choose to abide by the rules.

Femininity – Masculinity is an exciting and somewhatmcontroversial domain for many cultures. The philosopher Friedrich Nietzsche has considered that "beyond personal vanity, women have an impersonal disgust towards other women" (Nietzsche, p. 76). Offering a point of view philosophical Nietzsche has talked about an unconscious orientation towards an ideal of masculinity, as a form of protection of self-confidence. The same idea was in the works of the psychoanalyst Adler, who has considered the feminine inferiority as a natural state.

Their protest was virile, as a result of the inferiority feeling experienced more or less consciously by each woman in part (Adler, p.176. In the 21st Century, women gained some rights in predominantly male countries (Japan, Hungary). Maintaining genre discrimination has been partially demonstrated by the following examples. This research has involved 84 Japanese people, 34 female, 50 male. Sharing ideas and information with women was possible only in Japan. At other events outside of Japan, I only interacted with men. They have answered that it is normal that the society and organizations are better run by the men. 22 respondents out of a total of 30 were pretty sure that women's emancipation is not suitable for Japanese culture. The classic, traditional activities are more proper for women than for men. And, unfortunately, it's not only men who maintain cultural beliefs. 25 women from a total of 34 were willing to accept stay home after finish studies.

Three European participants from the conference were invited to dine at one of the organizers. The wife served the meal, then withdrew from the room. The lady's absence was explained as the best choice for Japanese culture. The local culture is not ready for the emancipation of women. These examples confirm the high index for masculinity-femininity in Japan. The following example (without generalizations) will invalidate the Masculinity-Femininity index from the Hofstede comparison. Thus, the women respondents from Turkey presented in a conference, research on gender discrimination, from rural areas in Turkey. In a particular village, many women wrote an official letter to the mayor of the village. They have asked him to take decisions to punish their spouses who physically hit their wives more than twice a week. It seems unbelievable, but there is still a lot of domestic violence in many countries around the world. Domestic violence is at a high level in Romania as well.

The culture of the place determines the abused women not to address the authorities; of shame because they are stigmatized by society. The survey found that 98% of respondents witnessed domestic violence at least once.

Individualism-Colectivism

Respondents with a tendency from individualism (98% of young people in the United States, Australia, The United Kingdom, The Netherlands, New Zealand) are independent, optimistic, and they have high self-reliance. They are more tolerant of cultural differences than those who have raised in strong collectivists are cultures. Embracing cultural differences and rebuilding a healthy world needs a balance of both.

The study of individualism and collectivism demonstrates the decline of individualistic characteristics, even in countries with a very high index. This feature has resulted from the answers received since 2011. 87% of respondents appreciated that teamwork is preferable to the individual, and 94% said they understand to develop a strong commitment to the organization that gives them motivation and development of IT and language competencies.

Youth, education, and technology are changing the world. The Internet facilitates global cooperation and communication, requiring changes in education and the labor market. People can be ambitious by achieving goals on their own, but they can also be full of compassion and understanding for different people. Or, not! Education for acceptance of cultural differences will make the difference.

The fourth theme resulting from the data is the embracing of differences. The study conducted in 53 countries analyzed the most effective policies to build an academic environment that values cultural diversity and equity. From the answers, it was found that universities with international students have a positive social climate and offer adequate programs for all members of the academic community (98% of respondents in developed countries). Participants from developing or underdeveloped countries (77%) said they had difficulties in communication, especially due to their lack of English language skills.

Power Distance

The credibility and trust of the population in their authorities are crucial to implementing education in embracing cultural differences. For example, the answers of young people (99%) from 8 countries regarding Power Distance reflect inherent inequalities in countries with a high Power Distance Index (Romania, Russia, Moldova, Bulgaria from Europe; Malaysia, China, India, Indonesia from Asia). Perpetuating inequality, fear, corruption, and suspicion are major obstacles in the development of credible and tolerant educational systems.

Cooperative/Competitive Learning

The research showed that over 70% of respondents want an educational system that combines the virtues of cooperation and competition. There is a need for a mixed choice and as a result of changes related to individualism and collectivism. The

students realized that the competitive spirit strengthens their self-determination, but in such an interconnected world, there is a need for cooperation and teamwork. The blend of cooperation and competition methods in an open environment could provide opportunities to be successful and to develop social and personal skills(88% from respondents).

Environmental Education

Nearly all respondents in the study expressed concern about the negative changes in ecosystems(99%). But environmental education is included in a few university programs(32%). The global risks, like as extreme weather events, failure of climate-change adaptation, pollution, disasters (oil spills and radioactive contamination, earthquakes, tsunamis, volcanic eruptions, and geomagnetic storms) are well known by young people who participated at the research. The problem reported by young people regarding environmental education was a cultural-economic one. Thus, respondents from Asian countries (India, Thailand, Indonesia), European countries (Romania, Bulgaria) reported the lack of money and the appropriate collective culture to stop environmental degradation. Moreover, students' perceptions show that parents, schools, and governments are the most responsible parties in cultivating student awareness of the environment. Research has shown that few respondents (27%) are worry about the reduction of forest areas, the growth of the global population, but also the resources used by future generations. This ignorance of the dangers due to environmental degradation also demonstrates the insufficiency of educational programs related to these truly alarming phenomena. The problems of ecosystem deterioration is one of the greatest threats to life on earth. The qualitative analysis of the answers received overtime highlighted the fact that in this direction, local culture and education matter the most. Along with the financial resources necessary to implement strategies appropriate to each geographical area, depending on specific environmental emergencies. The respondents were very different in analyzing this issue. Many of them have been considered that poverty is the major problem in their countries; others have argued that corruption and lack of confidence is one of the most important. Others from very developed countries were enabled to disseminate awareness regarding the environment. With some exceptions. The problem of ecosystems degradation is one of the greatest threats to life on earth. The qualitative analysis of the answers received highlighted the fact that in this direction, local culture and education matter the most. Along with the financial resources necessary to implement strategies appropriate to each geographical area, depending on specific environmental emergencies.

Daily use of the internet

If at the beginning of the research, daily Internet users were only 7% of respondents, after 2009, their number has steadily increased to 100% since 2014. This phenomenon has been validated even in countries with modest ITC infrastructures. Using the Internet takes precedence over other needs. For example, in Goa, India, I met a lonely environmentalist who lived in a cave, isolated from the rest of the world, but with a telephone connected to the Internet. The research revealed situations in which internet access is difficult due to lack of money (India, Pakistan, Thailand, Indonesia, even Romania, Turkey, Moldova for mountainous areas, especially rural). The daily use of the Internet is not enough to bring the advantages of technology for everyone.

The respondents from developing(95%) countries have been considered that the wide progress of ITC needs feasible policy intervention at national, regional, and global levels. Contrary, new technologies could widen existing disparities among countries were ae still many marginalized groups. This action requires international support for its national policy in innovation and new technologies. Building forward-looking and inclusive education systems are one of the most efficient ways to make opportunities equally shared.

Conformity

Conformity was analyzed only in connection with the cultural-educational norms of each country. The answers to the questionnaires are not so relevant, as long as we don't know that the young people have been in the stage of compliance, identification, or internalization of the level of compliance. The research has found that people who live in collectivist cultures and have lower self-esteem are more able to conform in comparison with those who live in individualistic or well balanced cultures have higher self-esteem.

Of course, there are differences between people in their compliance with rules, including cultural and educational. The research showed through qualitative analysis carried out during some artistic manifestations that young people were immediately compliant under the situational impact, and they reacted identically to the majority (imitation works anywhere and anytime in the world). At an artistic program in Beijing, they did not have the idea of not applauding or disturbing the show, which, moreover, they did not understand at all, the spoken language being Mandarin.

High Self-esteem

Self-esteem versus the esteem of others seems to be less important for young from poor and developing countries. Poverty and a low-quality of life hurt self-esteem. Most of the respondents are struggle with the confidence in their abilities or chances of success.

As a general finding, research has shown that young respondents have seen a steady decline in self-esteem over time. Those interviewed in 2017 were not as confident in themselves as those in 2007. 99% of teens in 2017 versus 72% in 2007 have felt inferior at some point in their lives. When asked why they have felt inferior, students have chosen:appearance: 89%in 2017 vs. 44 % in 2007; abilities in managing house activities without internet: 99%in 2017vs. 66% in 2007. 34.5% of students have reported having "high" self-esteem vs. 65.5% of teens who said having "low" self-esteem.

The importance of social position in life

It is almost evident that the economic and cultural environments in which people have been growing and live their lives have a deep influence on how they perceive the importance of social position (93% from the respondents). The results have shown that the differences given by social status and money are bigger in 2020 versus 2004. Education is an important issue of social status because individuals from higher social classes are more likely to have the means to attend famous universities, to land the

best jobs, to gain the highest salaries. Education, poverty, and social status are closely interconnected. We are already witnesses to the increasing impact of social differences worldwide. Many times, money makes a difference: to have access to infrastructure, health, education, leisure, ITC, food, water, or not.

It seems that humanity has the power, but not the will to reduce inequalities. In reality, humanity is witnessing the rise of egocentrism, the desire for absolute power over others. Discrimination, the illusion of the invulnerability and superiority of some demonstrate the failure of many optimistic policies. If the intentions remain on paper, many words are superfluous.

I have been chosen for the last features of cultural and educational differences a simple rule, "Treat others so that they feel truly considered, appreciated." I chose the last features of cultural and educational differences the golden rule, "Treat others so that they feel truly considered, appreciated". Cultural and Religious Tolerance, Empathy, Curiosity for different cultures are strong attributes of emotional-rational educated individuals.

I have learned, from this exciting experience, that in life nothing is good or bad, white or black. It all depends on our mind, education, and culture. I am convinced that I know nothing about cultural and educational diversity, but I will try to learn more. People are amazing; resonant context can develop the best traits of the human being. Education and embracing cultural differences is a topic of great relevance and interest. In a general tone, during the research, there has been noticed a greater openness to others to young people who have more emotional skills than rational. Everyone has emotions, but at home, school, in each specific environment, we really could learn to observe and temperate our emotions, to become more empathetic, assertive, and tolerant of others different from us.

The dominant culture in which we are grown-up has major importance in shaping everyone's personality. The culture of the place and the education can give the degree of freedom of each individual.

Acknowledgments

The research is incomplete, and we apologize for the limitations and shortcomings. I wish to thank various people for their contribution to this project, including the conference organizer and publisher (IAFOR) committed to inspiring interdisciplinary discussion, enabling intercultural and educational awareness, and raising international exchange of ideas and knowledge.

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An Interdisciplinary Look Behind the Top 100 International Universities Recognized for Innovation: Geographically, Historically, and Financially

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Abstract
The need for higher education institutions to strategically innovate proves no small feat given strong heritage and reputations for being slow to change. In fact, the international universities most recognized for innovation by Reuters (2018a) span distinctive eras from around the world with the oldest such as Oxford, founded in 1096, and Harvard, dubbed the oldest "corporation" in the United States, founded in 1636. Through an interdisciplinary examination of the top 100 innovation list for the international institutions recognized, the following research question was explored: How do international universities recognized for innovation compare and contrast geographically, historically, and financially? The research design focused on a content analysis by conducting an archival review of higher institutional data for high research universities. Geographic findings report international innovative universities primarily representing three continents (46 in the U.S., 27 in Europe, and 23 in Asia). Historically, most universities were founded over two hundred years ago yet the newest, National University of Singapore, emerged in 1980. Financially, all countries benefit from strong GDPs and institutional financial strengths – some with historically strong endowments to others with dedicated government appropriations. While the use of rankings has been cautioned if taken at face value, the Reuters listing represents a starting point to more closely examine institutions that have been recognized for innovating and adapting effectively to complex societal challenges. This presentation will close with identifying opportunities for further interdisciplinary study such as the grounding of institutional theory as a means for institutions to examine legitimacy and isomorphism.

Keywords: International, Innovation, Interdisciplinary, Universities, Geography History, Finance

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Introduction

Higher education in many parts of the world struggles with reputations as ivory towers closed off from the world with longstanding legacies that can make change difficult (Harris, 2013; Thelin, 2019). The need for universities to strategically innovate in light of mounting societal pressures proves no easy feat. Interestingly, history would actually suggest that while some of the oldest universities like Oxford founded in 1096, Harvard in 1636, and even Stanford in 1885, did not focus on research at their inceptions (Henderson, 1970; Thelin, 2019). In fact, research became a stronger premise within institutional missions in the twentieth century (Harris, 2013; Thelin, 2019) which suggests more substantial organizational change taking place in the higher education realm than conventional thought would suggest.

An international scope for this research work was selected intentionally in light of an increasingly global society and the opportunity to learn from institutions recognized for their innovation efforts around the world. Also, of importance, is to examine the context of innovative higher education institutions from an interdisciplinary perspective to provide more in-depth context beyond a singular lens.

The research question focuses on how international universities recognized for innovation compare and contrast geographically, historically, and financially in an effort to more deeply understand regional relationships, longevity, and resources that shape each institution.

It is important to acknowledge the researcher positionality given her experience in higher education, interdisciplinary studies, innovation, and corporate management and how this work may be impacted. She is a doctoral candidate in the Ed.D. program in higher education from the United States. She holds an interdisciplinary, Master of Liberal Arts degree as well as post-master's international study in areas such as anthropology (globalization and development, global cultures, humanities), business (leadership, international entrepreneurship), and engineering (innovation and design). To mitigate potential bias, she obtained advisor and peer reviews prior to presenting and publishing.

Research Design

An international comparative analysis from an interdisciplinary perspective examined geographic, historical, and financial contexts for the "Top 100" universities recognized for innovation (Reuters, 2018a). Rankings provided a jumping off place to examine the phenomenon of innovation in higher education worldwide. For reference, Reuters (2018b) utilized an algorithm to rank universities based on research expenditures, patent volume, patent impact, research published, research cited, and industry collaboration.

This research employed an exploratory approach focused primarily on qualitative techniques with some descriptive quantitative data to further illuminate findings. Archival documents were sourced to prepare a content analysis (Merriam & Tisdell, 2016) from the self-published information publicly available from the ranked universities as available in addition to macro-data (i.e., World Bank, etc.). For reference, figures were converted to U.S. currency for comparison purposes.

Additionally, a geographic mapping illuminated regional incidence of this qualitative and quantitative data which provided a spatial "birds-eye view" (Yoon, Gulson, & Lubienski, 2018, p. 53) of the international landscape. For instance, the Top 100 (Reuters, 2018a) institutions were plotted on a global map utilizing ATLAS.ti (2020) software. While ATLAS.ti is a CAQDAS qualitative research software program most known as for its robust coding capabilities (Miles, Huberman, & Saldaña, 2014), it also has geospatial features (ATLAS.ti, 2020) that are being used to integrate my broader qualitative coding work beyond this study in a master database.

Interdisciplinary Research Analysis

Interdisciplinary studies foster the opportunity to study complex topics from multiple perspectives (Holley, 2009). The increasing emphasis on innovation in an increasingly complex global society is one such topic that benefits from a deeper exploration beyond one discipline – in this case, by examining differing perspectives geographically, historically, and financially.

Geographic Dispersion

The analysis began with an overview geographically to provide incidence of the institutions at continent, country, and institutional levels. To create this map, all institutions were loaded into ATLAS.ti (2020) CAQDAS software (Contreros, 2017). Geographic findings report international innovative universities to primarily represent three continents (46 in the U.S., 27 in Europe, and 23 in Asia). Note that the U.S. is treated as a "continent" given the strong incidence within the country alone with only two universities represented in Canada. Figure 1 projects this spatial view showing the majority of highly recognized universities to be located in few concentrated areas – the northeastern United States, western Europe (Germany, France, United Kingdom, Switzerland, Belgium, Netherlands, and Denmark), and the Asian Pacific Rim (Japan, Korea, China, Singapore).

Figure 1: International Institutions Recognized for Innovation (Reuters, 2018a) – Geographic Dispersion Utilizing ATLAS.ti Software

Upon deeper exploration, geographic composition is examined by quadrants which showed some differing prominence across continents compared to the rankings list (Reuters, 2018a). For instance, the United States is not only recognized for the most institutions but also shows a disproportionately high percentage of top 25 institutions (68% of top 25 institutions versus 46% of top 100 institutions) versus Europe and Asia. Europe and Asia share equal presence in the top 25 ranking, Asia moves ahead of Europe in the second quadrant, while Europe moves ahead of Asia in the third

quadrant and over both the U.S. and Asia in the fourth. Note that "other" includes four universities in Canada and Israel (see Table 1).

Top 25			26-50			51-75			75-100		
Region	#	%	Region	#	%	Region	#	%	Region	#	%
U.S.	17	68%	U.S.	12	48%	U.S.	10	40%	Europe	10	40%
Europe	4	16%	Asia	7	28%	Europe	8	32%	U.S.	7	28%
Asia	4	16%	Europe	5	20%	Asia	6	24%	Asia	6	24%
Other	0	0%	Other	1	4%	Other	1	4%	Other	2	8%
Total	25	100%	Total	25	100%	Total	25	100%	Total	25	100%

Table 1: International Institutions Recognized for Innovation (Reuters, 2018a) – Geographic Composition by Rankings Quadrant

Historical Vantage

Most universities on the Top 100 list (Reuters, 2018a) were founded over two hundred years ago with a span of 900 years. As Henderson (1970) and Thelin (2019) proclaimed, the oldest universities continue to withstand the tests of time. The oldest institution in England is the University of Oxford (1096), Harvard University in the United States (1636), and Keio University in Japan (1858). Note that years founded are denoted in parentheses.

The Top 100 list (Reuters, 2018a) also includes some of the newest universities that were founded within the past forty years. The newest university overall and in Europe is Karlsruhe Institute of Technology in Germany (2009) that resulted from a merger, noting its origins in 1825 (KIT, 2020). The newest U.S. university is Oregon Health and Science University (1995) upon splitting from the state flagship originally founded in 1887 (Reuters, 2018a). The newest Asian university is POSTECH in Korea (1986). Also, of note, the newest university from the newest country to be recognized is the National University of Singapore (1980) resulting from a merger, while noting its original founding in 1905.

These universities represent distinct educational eras over the past nine hundred years (see Figure 2). Ancient higher education originated in Europe with three currently recognized as innovative leaders in higher education on the Top 100 list (Reuters, 2018a): University of Oxford (1096) and University of Cambridge (1209) both in the U.K., and KU Leuven in Belgium (1425). Institutions emerged in the United States during the Colonial period before the American Revolution in the late eighteenth century (Thelin, 2019) and include four institutions: Harvard University (1636), Yale University (1701), University of Pennsylvania (1740), and Columbia University (1754). The Colonial colleges emphasized strong legacies, traditions, and prestige which are still embodied to this day. These colleges built on the foundations of Oxford and Cambridge, however, embraced new governance, infrastructures, and curricular ideas, or innovations (Henderson, 1970; Thelin, 2019).

Also, of note, the highest ranked German university on the Top 100 list (Reuters, 2018a), University of Erlangen, Nuremberg, Germany, was founded in 1743. The German model trains students with more technical, utilitarian, and specialized curricula at the undergraduate, master's, and doctoral levels (Guruz, 2008; Henderson, 1970, Thelin, 2019).

The most significant emergence of Top 100 universities (Reuters, 2018a) occurred in the nineteenth century as a result of geographic expansion and the creation of land-grant universities in the United States (Geiger, 2016; Thelin, 2018); emerging nation-states in Europe and Asia (Guruz, 2008); and, the adoption of technology-driven universities inspired by Germany and France (Henderson, 1970). In fact, 53 of the Top 100 universities were founded in the 1800s (Reuters, 2018a).

The twentieth century was characterized by an emergence of international institutions from Asia on the Top 100 list (Reuters, 2018a): Kyushu University, Japan (1903); Tohoku University, Japan (1907); Tsinghua University, China (1911); Osaka University, Japan (1931); Seoul National University, Korea (1946); and the National University of Singapore (1980).

Figure 2 provides a visual portrayal summarizing the historical eras of higher education internationally and university examples founded during each timeframe.

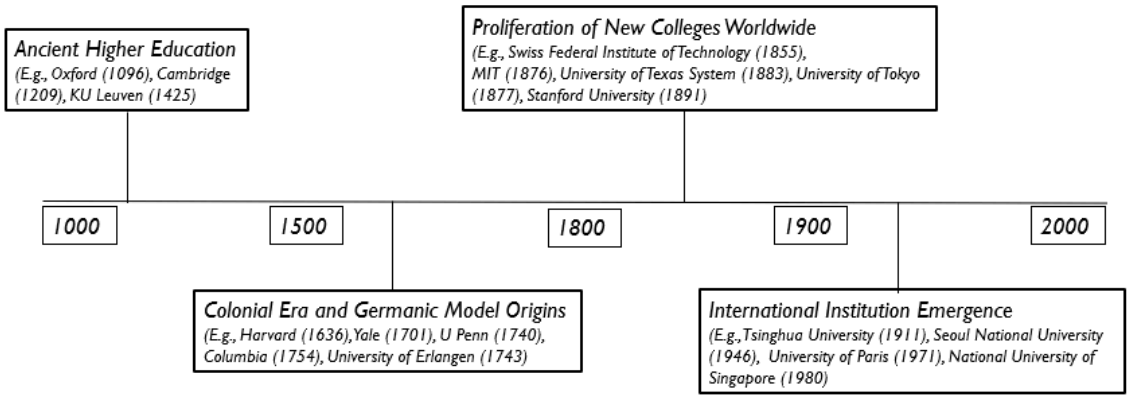

Figure 2: International Institutions Recognized for Innovation (Reuters, 2018a) – Historical Vantage by Era

To examine interdisciplinarily, historical descriptive statistics of university founding dates were added to the geospatial map. Of note, Europe spans the largest range of institutional origins, 1096-2009, with the oldest mean, 1716, and median, 1828. Moving west, the U.S. comprises the next broadest range, 1636-1995, and older mean, 1849, and median, 1861. Then, further to the west, Asia represents the smallest range, 1858-1980, with the newest mean, 1918, and median, 1905, dates (see Figure 3).

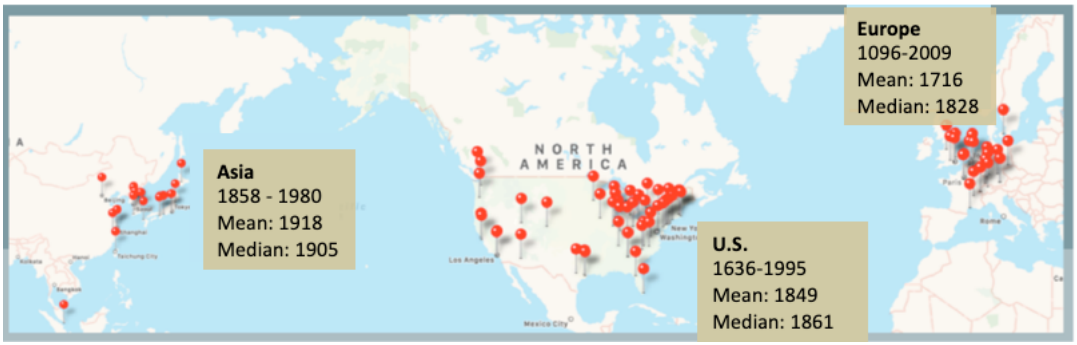

Figure 3: International Institutions Recognized for Innovation (Reuters, 2018a) – Year of Universities Founded by Region (Range, Mean, and Median) on Map Utilizing ATLAS.ti Software

Financial Comparison

Financially, all countries benefit from strong GDPs for their respective countries which is one measure of economic progress at the national level (Lange, Wodon, & Carey, 2018). The 13 countries represented in the Top 100 (Reuters, 2018a) account for roughly 60% of the world's GDP based on the 2017 figures published by the World Bank (see Figure 4 for a GDP breakdown by country reported in U.S. billion dollars).

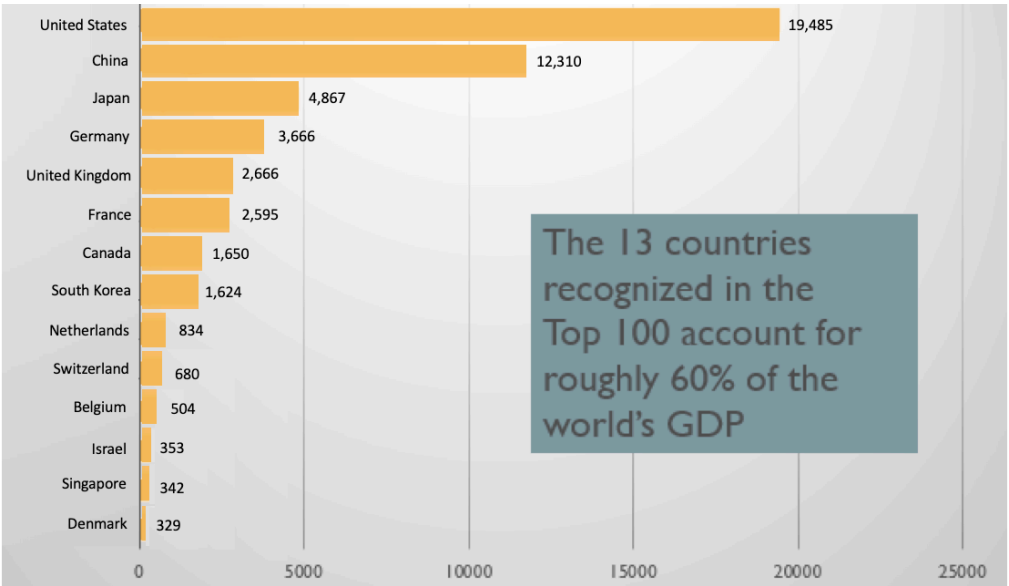

Figure 4: International Institutions Recognized for Innovation (Reuters, 2018a) – GDP by Country in Billions (World Bank, 2017)

The United States leads GDP at 38% for the countries represented on the Top 100 list (Reuters, 2018a) which is -8 percentage points less than the 46% of universities represented. Asia comprises 37% of GDP which is +14 percentage points higher than the 23% of universities represented. Europe's GDP is 22% for the countries on the Top 100 list which is within 5 percentage points of the 27% of universities represented, the narrowest gap between GDP and university representation on the Top 100 list (Reuters, 2018a). Figure 5 overlays the total GDP figures for the U.S., Asia, and Europe on the Top 100 international institutions recognized for innovation (Reuters, 2018a).

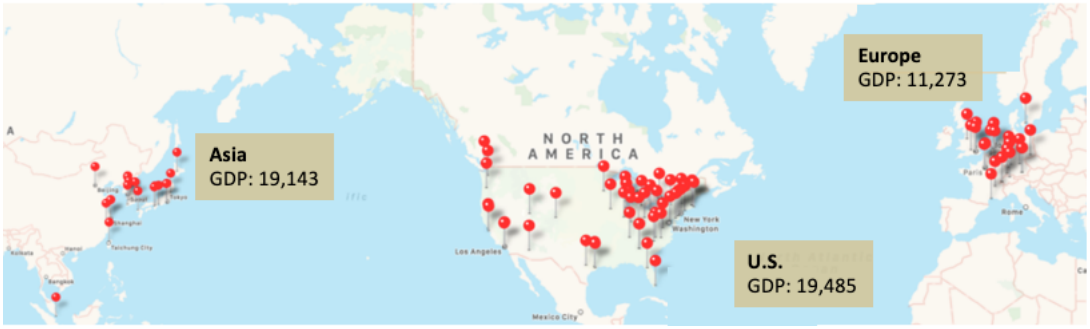

Figure 5: International Institutions Recognized for Innovation (Reuters, 2018a) – GDP by Region on Map Utilizing ATLAS.ti Software

For a closer look at institutional financial models, revenues and expenditures were examined for four universities spanning geographies and historical originations based on a quota sampling method (Miles et al., 2014) related to the Top 100 (Reuters, 2018a) distributions – two universities from the United States, Harvard University (founded in 1636, ranked #3) and Stanford University (founded in 1885, ranked #1); one university in Europe, the University of Oxford in England (founded in 1096, ranked #40); and one university in Asia, the National University of Singapore (founded in 1980, ranked #63). Data and charts were originally included in an in-depth financial study examining revenue streams and expenditures for the four institutions (Montgomery, 2020).

Revenue data was reported from annual financial reports for Oxford (2017) and NUS (2017) and from IPEDS data from the National Center for Education Statistics (2017) for Harvard and Stanford. Figures were converted into U.S. dollars for the University of Oxford from British pounds and for NUS in Singapore dollars (Federal Reserve System, 2017). Revenues per student for each institution were calculated by dividing revenue by the total number of students reported (Reuters 2018a).

Total revenues were lower for Oxford and NUS compared to Harvard and Stanford. Oxford sourced the highest composition of tuition and fees with Stanford and Harvard showing the highest revenue sourced from the "other revenue" category which could represent more innovative, diversified revenue streams beyond traditional funding sources. NUS received over twice the proportion of government funding relative to Oxford, Harvard, and Stanford (see Table 2).

Institution (US $)	Tuition $K	%	Govt. Funding $K	%	Other Grants/ Gifts $K	%	Other Revenue $K	%	Total Revenue $K	%
Oxford	21	19%	13	12%	38	35%	38	35%	110	100%
Harvard	28	13%	20	9%	39	18%	126	59%	213	100%
Stanford	25	5%	77	16%	68	14%	305	64%	475	100%
National University of Singapore	11	17%	30	48%	14	22%	8	13%	63	100%

Table 2: University Revenue Comparison – Cost per Student

In reviewing expenses among the four universities, Oxford spent more on operating expenditures, Stanford led staff expenses, and NUS allocated more towards depreciation and finance costs (see Table 3).

When analyzing on a cost-per-student basis, Stanford spent significantly more per student than Harvard, Oxford, or NUS (see Table 3). Stanford, Harvard, and Oxford spent roughly two-thirds of revenue generated per student. NUS was the only institution that spent slightly more than revenues which resulted in a -1% deficit (see Tables 2 and 3).

Expenditure data was reported from annual financial reports for Oxford (2017) and NUS (2017) and from IPEDS data from the National Center for Education Statistics (2017) for Harvard and Stanford. Revenues per student for each institution were calculated by dividing revenue by the total number of students reported (Reuters 2018a).

Institution (US $)	Staff Costs $K	%	Operating Expenditures $K	%	Depreciation/ Finance Costs $K	%	Total Expenditures $K	%
Oxford	35	51%	28	41%	6	8%	69	100%
Harvard	79	50%	60	39%	18	11%	157	100%
Stanford	183	60%	97	32%	27	9%	307	100%
National University of Singapore	31	49%	24	38%	8	13%	64	100%

Table 3: University Revenue Expenditure – Cost per Student

Note both tables 2 and 3 and corresponding explanations have been reproduced from the previous study to add financial dimension to this interdisciplinary work (Montgomery, 2020).

Discussion

This exploratory research intends to offer multiple opportunities for future studies such as longitudinal looks at rankings movement over the five years Reuters has been publishing their findings. There are also opportunities to ground studies through theoretical lenses such as institutional theory to look for evidence of legitimacy, and mimicking behaviors such as isomorphism. My dissertation examines the cross-section of traditional missions and the strategic use of innovation to assess mission alignment for the Top 100 list (Reuters, 2018a) through the lens of institutional theory with the anticipated defense and publication date in late 2020.

The use of rankings has been criticized for multiple reasons such as surface-level institutional assessments through aggregated scoring with less attention given to the algorithms and methodologies used (Soh, 2017). The Reuters (2018a) listing represents a starting point to more closely examine institutions that have been recognized for innovating and adapting effectively. This ranking acts as a sample of 100 universities to explore the phenomenon of innovation more deeply. Most university rankings examine comprehensive criteria which may or may not include innovation as a subset, such as the Times Higher Education World University Rankings, Quacquarelli Symonds World University Ranking, and Academic Ranking of World Universities, also known as Shanghai Ranking (Soh, 2017).

Innovation continues to be hotly contested in the higher education sphere as evidenced in a special edition of *The Chronicle of Higher Education* (2019) in which innovation was investigated as a mechanism for "high hopes or broken promises" (p. 59). In the current worldwide climate of the COVID-19 pandemic, we are seeing institutions innovate programming and policies in real time as a means to adapt to pressing challenges, and in some cases, to maintain existentiality.

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A New Approach to Entrepreneurial Education for Middle-Aged People

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Abstract
This paper explores the significance of considering the characteristics of the entrepreneurial process in entrepreneurial education for middle ages. Recent entrepreneurship research in the United States indicates that middle-aged entrepreneurs have a higher rate of success than young entrepreneurs (Azoulay, et al., 2018). The data also indicates that most of the age to start a business is middle-aged and older. However, entrepreneurship education is primarily targeted at university students and there are not enough effective entrepreneurship education programs for middle-aged people. Previous research suggests that middle-aged workers are characterized by using their work experience and human networks, for example, as a process for acquiring entrepreneurial opportunities. Another study has demonstrated that successful entrepreneurs create entrepreneurial opportunities by using their resources rather than the marketing approach (Sarasvathy, 2001). For this study, interviews have been conducted with ten entrepreneurs in their 40s and 50s who have experience as office workers. The results reaffirmed that successful middle-aged entrepreneurs use their work experience and personal networks to start new ventures. This study suggests that in addition to traditional business management or basic entrepreneurship education, educational programs that support the process characteristics of middle-aged entrepreneurs would be effective in ensuring their success.

Keywords: Entrepreneurial Education, Middle Age, Entrepreneurial Process Effectuation

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Introduction

This paper suggests that entrepreneurial education courses should be available for middle-aged people and identifies the characteristics that differ between the entrepreneurial process of middle-aged and young entrepreneurs through an interview survey. The Global Entrepreneurship Monitor (GEM, 2018) reports that in most economies, the most prevalent age range that starts a new business is either the 25 to 34 or 35 to 44. A survey of start-up founders in the US (Azoulay, 2018) also shows that nearly 80% of entrepreneurs are between 30 to 50 at the time of founding the business. This indicates that most people start a business after they have already completed their school education and have worked for an organization. The findings of the systematic review of entrepreneurship education by Pittaway and Cope (2007) support the conclusion that entrepreneurship education has an impact on student propensity and intentionality. However, most education-based programs are targeted at young people in secondary school or university undergraduates (OECD, 2009). It indicates that entrepreneurship education for the middle-age group is still very low in terms of program practice and research on it.

This study analyzes the characteristic of entrepreneurs that leads to success from entrepreneurship research. Timmons (1994) stated that entrepreneurial characteristics include “creativity and innovation” and “business management ability, business, know-how, and networks,” and successful entrepreneurs possess both. It has been suggested that entrepreneurship education should focus on a broader range of entrepreneurial attitudes (e.g. creativity, risk-taking, etc.) and not just on the narrow management axis of education (OECD (2008, p112)).

Historically entrepreneurship education originated in business schools in the United States (Katz, 2003) and most of the initiatives in Europe also emerge from the business school sector (Gibb, 2002). Therefore, it is considered that the centre of the entrepreneurship program is primarily the axis of management. Gibb’s (2002) suggests that the traditional focus of entrepreneurship education on business and new venture management is inadequate to address the needs of a society that is challenged by the uncertainties and complexities of globalization, and therefore an innovative and radical approach is needed. Timmons (1994) argues that entrepreneurship involves real-world entrepreneurial activities that are uncertain and unpredictable and consequently traditional models such as psychological and competitive strategy models are not effective.

In terms of the research group for this study, which is the middle-aged group, it is highly likely that business skills such as marketing and business planning have already been acquired due to former jobs. Consequently, skills such as “creativity and innovation” including entrepreneurial will and attitude would be helpful in assisting middle-aged entrepreneurs to succeed. An interview survey on the entrepreneurship process has been conducted with middle-aged entrepreneurs and effective elements for entrepreneurship education that can contribute to their success have been identified.

Theoretical Background－ Value of Middle-Aged Entrepreneurs

According to Gratton (2016), with the "the 100-year life" society due to the longevity that is expected in future, the three stages of traditional life, defined as education, career, and retirement, have become multi-staged. In this scenario, it is important to have varied options for life choices and therefore focusing attention on the entrepreneurial stage is important.

It has been identified that the entrepreneurship success rate based on age group in the United States, according to the National Institute of Economic Studies and the MIT Working Paper (Azoulay et al., 2019), is higher in the case of middle-aged people as compared to young people. The study examined 2.7 million founders in the U.S. who established companies between 2007 and 2014 and hired at least one employee, and it has been observed that the mean age of the entrepreneurs at the time of founding the business is 41.9. The average age of founders of high-growth companies whose sales in the fifth year of establishment came in the top 0.1% is 45.0. In the age group distribution of founders, the success rate is high in the late 30s to early 50s, and the success rate in the early 20s is the lowest. This report indicates that companies established by entrepreneurs in their 50s could grow 1.8 times faster than those established by entrepreneurs in their 30s. They conclude that older entrepreneurs may be more likely to better utilize human, social, and financial capital than young people.

Human capital, including acquisition of, can predict the success of entrepreneurship," This suggests that the existing theory is consistent with the results of this empirical study. Previous studies suggest that middle-aged people, who have a long career experience, have an advantage and can utilize the self-resources cultivated by the experience of the previous job for entrepreneurship and this leads to the success of the venture. Entrepreneurs in the middle-age are worth the promise, and entrepreneurship in the middle-age can be an important option for the new stage of the second career in the age of longevity.

Methodology

The research question for this study is, "What kind of entrepreneurship education is conducive for middle-aged people?" and the following propositions have been made in response to the research question.

Proposition 1: Middle-aged entrepreneurs use personal resources developed from professional experience in the entrepreneurial process.

The hypothesis based on previous research is that human capital, including the acquisition of market and technical knowledge, leads to entrepreneurial success among middle-aged people. These people have more life and professional experience than younger people. Proposition 1 has been formulated based on these studies. Occupational experience here includes work placements, second jobs, and family and community activities. Self-resources refer to work skills, one's abilities, networks, and specific examples of failure and success.

Proposition 2 is formulated because contextual experiences from long professional experience are believed to influence entrepreneurial decision-making directly or indirectly in middle-age entrepreneurship.

To answer the proposition 2, we conducted a qualitative study on the creative process of middle-aged entrepreneurs who started a business independently as a second career. For this study, "middle-aged entrepreneurs" has been defined as entrepreneurs in the age group of 40 to 50 who started independent business operations after taking mid-career retirement from the company that they worked with.

A one-on-one semi-structured interview has been conducted with ten subjects to understand how their work experience influences processes such as, entrepreneurial motives, decision-making and behavior before and after entrepreneurship, direct motivation for entrepreneurship, indirect motives, by focusing on questions such as cooperation from surroundings and support arising from their experiences. These factors are stated in Table 1. Six of the subjects are male while the others are female, and the average age is 51.8 years. Nine people are in management positions. The start-ups established are in the field of consulting, retail sales, educational business, etc., and seven of them established businesses in the same business category as their previous employment. Business continuity ranged from one to twenty-two years, and the number of employees ranged from one to seventy people.

	Business Segment (Main business)	**Years**	**Previous work**	**Managerial Experience**	**Sex**	**Age**
A	Marketing research	18	Marketing & Sales	No	Female	57
B	Manufacture and sale of sunglasses	5	Sales & Promotion	Yes	Male	50
C	Food education planning service	15	Food education assistant	Yes	Female	53
D	Toy design sales/ CD sales	14	Food manufacturing and sales	Yes	Male	54
E	Human resource education and consulting services	1.5	Personnel recruiting business	Yes	Female	42
F	Business plan consulting services	1	Corporate Planning	Yes	Female	56
G	Electric parts design and manufacturing	3	Research & Development, semi-conductor	Yes	Male	55
H	Resident community planning service	19	Sales, business consulting	Yes	Male	54
I	Business plan consulting service	22	Business consulting	Yes	Male	51
J	Business M&A support service	5	B to B Sales	Yes	male	46

Table 1: Breakdown of the 10 sample members

Snowball sampling has been used instead of selecting a population and extracting probabilistic sampling. To avoid sample bias, the study uses theoretical sampling and the gender, industry, business scale, and number of years of entrepreneurship, of the subjects, vary. The analysis has been conducted based on whether the business is service-oriented or technology-oriented, and the length of the entrepreneurial career. Figure 1 shows that the theoretical sampling is dispersed in a biaxial matrix.

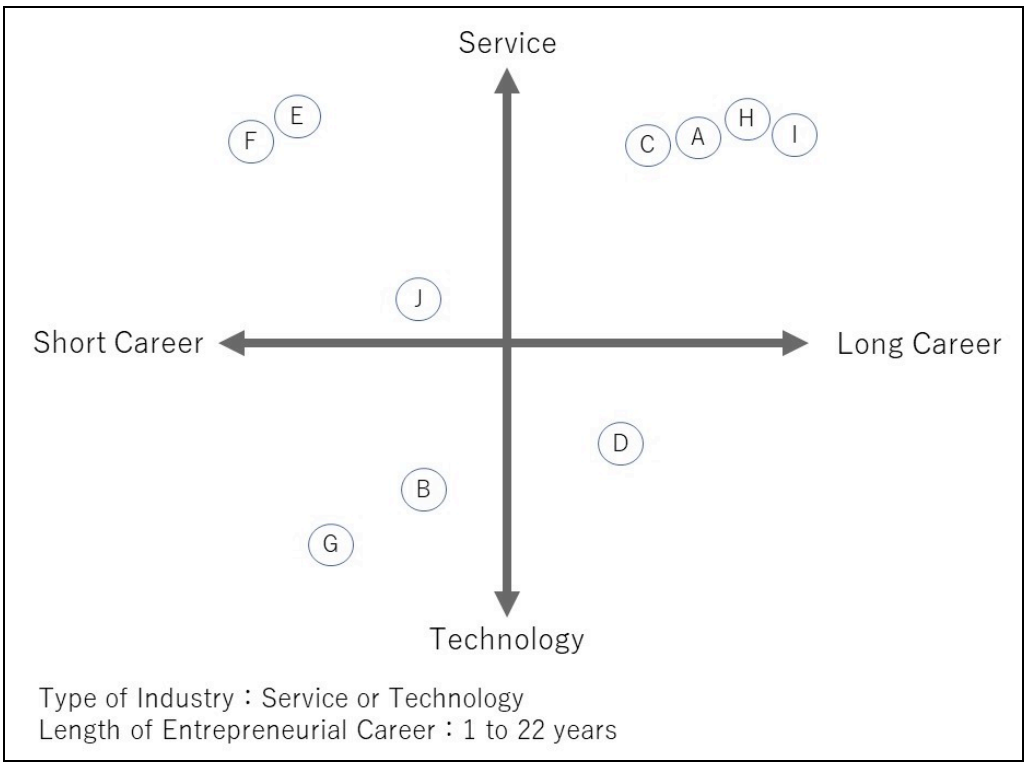

Figure 1: Theoretical Distribution of Sampling

Analysis method:

The Modified-Grounded Theory Approach (M-GTA) coding method has been used. This is considered suitable for the analysis of text-based interview data when the phenomenon to be studied has process characteristics (Kinoshita, 2003). The primary purpose of M-GTA is to draw a conceptualized process diagram from the analysis results, however in this paper, first propositions have been set up, and then the corresponding text parts have been extracted with M-GTA and are labelled. We have proceeded with the following discussions. The interviews have been voice-recorded with the consent of the subjects, and the context related to the entrepreneurial process has been extracted from the data and translated into text documents. Following that, each labeled element has been categorized and organized by proposition.

Results

Representative examples regarding the analysis results of the interview are shown in the table below for each proposition. The extracted texts have been labeled and the results corresponding to the propositions have been sorted and analyzed. The cases supplementing the explanation in each table are labeled and summarized into the concepts that are the propositions.

Proposition 1: Middle-aged entrepreneurs use personal resources developed from professional experience in the entrepreneurial process.

The concept of "self-resource utilization" is divided into two categories: (1) "work skills" and (2) "network." These include occupational and management skills acquired through experience and the corresponding labels are organized in a table.

Proposition 1—Analysis result (1) Use of work skills

The proposition that entrepreneurs with employment experience utilize work skills such as, specialized skills and qualifications gained from the experience of previous jobs in the entrepreneurial process has been analyzed. A typical example is shown in Table 2 below. The subject states that the work skills gained from the previous job have been used to start a business. Additionally, one person stated that they used the work skills acquired from a side job and six people were able to use their own resources and private experiences. Among the private experiences, three women established marketing-based businesses that require a housewife's perspective; these include, food education gained through parenting, ideas for new entrepreneurship that can be pursued by women, and a new style of work keeping in mind the limited time available. It is evident that these resources are more than the experiences gained at the workplace. Seven people started their business in the same industry as the company that they were previously working with. In general, the employees utilized the same work skills that they had developed in their previous jobs, such as sales, marketing, and technical skills. This affirms the proposition that middle-aged entrepreneurs utilize the work skills they developed for their entrepreneurial ventures.

	Code	Concept	Case Description
Use of work skills	C	Started food education service using knowledge accumulated previously as a food coordinator.	C used her experience of assisting in seminars at a food coordinator school and her network of professionals to start her own business.
	E	Started a staff training service business by utilizing experience gained as a staffing agent.	E started a staff training service business after working in the field of recruitment as it leads to an interest in human resources.
	F	Started a business consulting firm using her former business planning experience.	F started a consulting firm with her expertise and the experience that SWOT analysis is extremely important for business planning.
	G	Started a manufacturing company using professional technology learned from a previous job.	G established a manufacturing company using semiconductor technology that was researched and developed in the previous job.

Table 2: Representative examples of Proposition 1 - Results of Analysis (1)

Proposition 1—Analysis results (2) Network usage

Table 3 shows an example of network analysis results. A received a job order from the previous workplace after being encouraged to work independently by the superior in the previous job. C started a business with a person who was a lecturer in the previous job. G began a business with colleagues from the previous job while D started a new venture with an old acquaintance. This indicates that all four entrepreneurs used their network to establish a new venture. In the case of women, examples of private networks included working with teachers from children's school and other parents. In terms of the usage of the network, the same has been utilized for creating multiple networks primarily for motivation, introduction of customers, and establishing direct business partners. These results affirm the proposition that middle-aged entrepreneurs use the networks that they have gained through experience to utilize their own resources.

	Code	Concept	Case Description
Use Network	A	Got work orders from colleagues from previous job.	A's former boss, encouraged her to work independently and promised her the first job order. Her colleagues at the marketing firm remembered her and the work orders originated from there.
	C	Started formulating lectures for a former instructor.	C started a food education service with her teacher, a famous educator whom she had looked up to for more than twenty years.
	D	Created a new business market after reconnecting with an associate from college.	D requested a meeting with the executive of a popular record company, who happened to be an acquaintance from his school. This led to a contract to sell classical music CDs at convenience store chains.
	G	Started own business in the same field using a network of former colleagues and capitalists.	As his former division was sold to a competitor, G and some of his colleagues started an independent business with the same technology.

Table 3: Representative examples of Proposition 1—Results of Analysis (2)

Proposition 2: Professional Experience Influences Decisions in the Entrepreneurial Process of Middle Entrepreneurs

In the case of middle-aged entrepreneurs, it can be assumed that the experience gained from previous work and personal experiences influence the decision-making at every stage of the entrepreneurial process. The following table presents two examples of the influence of experience on decision-making: (1) work experience influences them and (2) identity cultivated through experience influences them.

Proposition 2—Analysis results (1) Work experience influences decision making

Table 4 elaborates on some examples where work experience has motivated decisions in the entrepreneurial domain or has influenced the decision-making process. The latter has the greatest impact while deciding areas for new businesses. Based on his previous experiences, B chose a business that could be established without borrowing money. D is a former food maker and has experience that it costs a lot to have a production line factory and a warehouse to store its inventory, and when developing hit products and selling them at convenience stores, the sales cycle is short in the food market and soon requests new products. Based on this, he began designing toys that have a long sales cycle and do not require a production line and inventory when starting a business. In the case of E, while she was a fledgling manager, she realized that most of her subordinates resigned because of her profit-oriented management. She decided to pursue career counseling and while increasing sales, she reduced the retirement rate and realized the value of human resource development, and thereby started a business on similar lines. As is evident from these examples, decision-making is influenced by long-term work experiences and by transient yet impactful experiences such as successes and failures. These cases affirm that work experience influences decision-making.

	Code	Concept	Case Description
Work experience influences decision making	B	Not borrow money from banks.	During the recession, B was unable to sell cars as to sell cars as customers could not get loans. He decided to establish a business where neither the buyer nor the seller was in debt.
	D	Decided to start a business not need a warehouse.	D experienced the high cost of keeping production lines running and the risk of inventory when he worked at a food company, which made it a priority for his business to have no inventory.
	E	Overcoming previous failure motivated E's future entrepreneurial direction	E overcame the failure of her previous job where the employee turnover rate was high due to inexperienced talent management. That learning led her to start her own human resource development services company.

Table 4: Representative examples of Proposition 2—Results of Analysis (1)

Proposition 2—Analysis Results (2): Identity established by experience influences decision-making

Examples where identity influenced entrepreneurial decisions or became a decision criterion in the entrepreneurial process have been listed in Table 5.

Concept		Code	Case Description
Identity from experience influences decision making	A	Wanted to create job opportunities for housewives.	A started her own business in the hope to create a place for housewives who wanted to work but felt frustrated that they were isolated from society because they had children.
	C	Wanted to teach people the importance of nutrition education.	The experience of eating alone in her childhood made her aware of the fact that families are less likely to eat together, and led her to believe that nutrition education is the foundation of education. The belief formed the base of the food education business.
	H	Prioritize relationships with people over the content of work.	H recognized that the person he/she works with is more important to him than the job itself, therefore he started business to support services to activate the local community.
	J	Career change is a life shift, a chance to enjoy life.	J found a different value of life through his experience of studying abroad after quitting his job. He started an overseas study program agency focused on adults and an M&A brokerage business.

Table 5: Representative examples of Proposition 2—Results of Analysis (2)

A started her own business in the hope to create a place for housewives who were raising children to work. J started an overseas study company for adults after experiencing a major life value change when he quit his job and traveled abroad. These results affirm that the identity, established by experiences, influences decision making.

Proposition 3: Mid-career entrepreneurs learn by reflecting on their experiences.

While analyzing the findings, a new behavioral process has been identified. This has been analyzed as Proposition 3. This is based on the observation that these entrepreneurs were learning to reflect on their experiences from their work and personal life, and to generalize concepts from that learning and apply them to their subsequent decision-making process. Table 6 shows an example of this.

Concept	事例	Concept	Case Description
Learning by experience through reflection	A	Reflection from the experience of using her point of view to establish business without having the same abilities as others.	A experienced that her actions were evaluated instead of her poor sales activities. She realized that she should do her best even if she could not do the same thing as others. When she started working with an electronics manufacturer, she contributed to the development of a freezer by proposing a housewife's point of view against engineers. Based on these experiences, she succeeded in selling by adding value to market research using a housewife's point of view.
	E	Reflecting on the experience learned from the failure of HR management to lead to success.	After failing in sales-oriented management, E learned about career counselling, and realized that the employee-oriented people could improve sales while reducing the retirement rate. From that experience, she started her own business of human resource development service.
	G	Recognizing the weakness of management ability that is biased to technological development, and re-learning to play an active role as a business owner.	After the experience of the previous company's division being sold to a competitor, G realized that his organization was more technology-oriented than the customers and concluded that he had won in technology but lost in business. Motivated by his reflections, he founded a company to challenge himself to further utilize the same technology.

Table 6: Proposition 3—Representative examples of the results of the analysis

In A's case, she learned her work policy of "doing what you can do differently than others" from her poor sales performance at her last job, and as a practice, she developed a freezer that housewives wanted at her next company, over the objections of other engineers. That successful experience raised his awareness of using a different perspective as a differentiating strategy, and he started a market research business from the housewife's perspective. I G experienced the department he was working in being acquired by another company due to the company's poor performance. When he thought about why his department was chosen for restructuring, he realized that he lacked a customer-oriented perspective and concluded that "we won the technology, but we lost the business." Then he started his own business in the same field as his former colleagues and studied management, which he was not good at, in graduate school to overcome his failures. In this way, based on failure, the subjects objectively and affirmatively reflected on the cause of the failure, and redefined their thought process to address the same. This leads to an attitude focused on learning which became a new self-resource that could be effectively utilized.

Summary of Findings

From the analysis, the results of Propositions 1 and 2 are as follows:
Proposition 1: Middle entrepreneurs use their own resources developed from professional experience in the entrepreneurial process.

RESULTS: From the sample analysis, Proposition 1 has been affirmed. Middle-aged entrepreneurs effectively use their professional skills, specific competencies, and networks developed based on their past personal and professional experiences.
Proposition 2: Work experience influences middle entrepreneurs' decisions in the entrepreneurial process

RESULTS: From the sample analysis, Proposition 2 has been affirmed. Middle-aged entrepreneurs' decisions about how to do (how to do) and what to do/not do (what to do/not do) in their choice of business areas and the entrepreneurial process are based on their varied personal and professional experiences influenced by the idea of becoming.

Proposition 3: Middle entrepreneurs learn by reflecting on their experiences.

RESULTS: From the sample analysis, Proposition 3 has been developed.

Middle-aged entrepreneurs do not allow their experiences to be transitory, rather they learn by reflection, generalize their specific experiences, and use them for the next opportunity, thereby avoiding the reoccurrence of failure and moving closer to entrepreneurial success.

Based on these results, we address the research question, "What kind of entrepreneurship education contributes to middle-aged entrepreneurship?" and focus on the following factors.

The use of knowledge and skills gained through experience, that is, starting a business in one's area of expertise and skill set, and the use of networks to reinforce it, is a strength that is observed in middle-aged entrepreneurs. For this reason, education that enhances introspective observation (Moon, 2004), which is an effective approach to reflect on specific experiences and reconstruct them into new concepts, is the key to the effective use of experiences and the success of entrepreneurship.

Discussion

Based on the premise that the characteristics of mature entrepreneurs are not the same as those of young entrepreneurs in terms of behavior, resources, and motivations (Dana, 2011), these characteristics have been identified through an interview survey. The results of this study and previous research have been used to discuss factors that could assist in developing an entrepreneurship education program that is suitable for middle-aged entrepreneurs.

Proposition 1, Analysis (1) reveals that middle-aged entrepreneurs are characterized by their ability to use the skills and knowledge developed through experience. In a survey of 500 fast-growing companies by Ink magazine in the United States on the

relationship between the person's previous occupation and entrepreneurship, it has been identified that 57% of the founders get their business ideas from the industry that they previously worked with and 23% from related industries, and that viable business ideas are based on occupational experience (Bygrave, 2004). This segment of entrepreneurs is likely to be more successful that younger entrepreneurs as they are more likely to have professional careers and to have accumulated personal resources. Based on Analysis (2) three types of networks have been observed, utilization of human resources in the form of business partners and employees, utilization of personal connections in the form of customer referrals, and complementary utilization of skills that they do not have. This is also referred to as "a strength of weak ties" (Granovetter, 1973), and can lead to creativity in business ideas. Propositions 1, Analysis (1) and (2) reaffirm the results of the meta-analysis that human capital leads to entrepreneurial success (Unger et al., 2011; Martin et al., 2013). This corroboration can be explained by the behavioral principle of Effectuation (Sarasvathy, 2001), which states that proficient entrepreneurs begin their entrepreneurial ventures by using the self-resources they have at hand rather than traditional business-strategic marketing techniques. This study suggests that education that can help middle-aged people to use their experience as human capital, rather than new idea generation programs for young people, can lead to entrepreneurial success and promote creativity and innovation.

The benefits of Proposition 2's use of experience are discussed based on the theory of bounded rationality of human decision-making (Simon, 1957). According to Bazerman and Moore (1994), people unconsciously use heuristics in decision making to simplify tasks and make quick decisions. The availability heuristics allows people to make probability and causal inferences about an event based on how readily relevant examples are available to them from their own memories (Tversky & Kahnemman, 1973) and is extremely useful as a decision-making strategy, especially with respect to management (Bazerman &Moore, 1994). In terms of availability heuristics, professional experience leads to a larger base of information which is considered as an advantage while taking decision-making. It has been demonstrated that proficient entrepreneurs prefer heuristics methods to the traditional managerial methods of market research for decision-making (Sarasvathy, 2009), which is a characteristic of the entrepreneurial thought process. These factors suggest that education and training regarding the effective use of experience in decision-making for the middle-aged group could be one of the elements of entrepreneurial education.

In Proposition 3, an experiential learning model (Kolb, 1984) in which the subject conceptualizes self-resources by introspection has been identified. From the example of E, it can be interpreted that she started the business on the strength of her success in overcoming failure in her previous experience. In D's case, he chooses a business that minimized risk based on the lessons learned in his previous job. These examples deserve "experiential learning" which is the cycle of concrete experiences, reflective observation, abstract conceptualization, and active experimentation. Nine of the subjects had management experience. They also had worked on internal projects or became department managers at a young age. It has been observed that people do not automatically learn from experience (McCall, 2004) but experiences such as a challenging job, a failure in leading a project, an assignment in a new area of the company become "courses" in the school of experience (Christensen, 2012). According to Timmons (1994), the three factors that affect the success of a new

business are business opportunity, entrepreneurship, and management resources, and the balance between these factors is important. Business opportunities are created from the skills, knowledge, and personal connections accumulated by the experience of entrepreneurs, and it is conceivable that a concept created by introspection will serve as a management resource for new business and lead to success. The use of new abstractions created through experiential learning is as important to individuals as the core competence (Prahalad & Hamel, 1997), which is the ability to build in-house value that can be offered to customers as the basis of competition within a corporate organization. This can be interpreted as the core competence of the replaced entrepreneur.

These results clearly indicate that middle-aged people have an advantage over young people in terms of experience and the ability to make rational decisions. Adapting these characteristics to entrepreneurship education that is conducive to middle-aged people, that would encourage them to make effective use of their own resources, that is, to use their skills in their field of expertise and to make effective use of their own resources, will lead to educational effectiveness. GEM (2018) reports that 30 to 50% of those who identified good opportunities to start a business in the G7 countries, were deterred by the fear of failure. This indicates that middle-aged second-career workers are more likely to choose not to start a business but to continue working with an employer because of the fear of failure. Entrepreneurship education can promote entrepreneurship among this group by transforming the fear of failure into the expectation of success. While the specific content of entrepreneurship education programs remains to be determined, this study provides a basic introduction in terms of the concepts that could be included in terms of the characteristics of middle-aged entrepreneurs that can be looked upon as entrepreneurial success factors.

Conclusion

This study, based on the aforementioned propositions, defines and analyzes the characteristics of the entrepreneurial process of middle-aged people. It reaffirms that by utilizing their resources, such as work skills, knowledge, and networks developed due to the professional experience, and utilizing concepts abstracted from experiential learning through introspection for decision-making, are strengths that can lead to success. This study affirms that education that can enhance these characteristics can be effective for middle-aged entrepreneurs.

The study uses objective, large-scale data from the GEM and OECD for the background/issues. The rationale for each proposition has been explained by the relationship between human capital and entrepreneurial success and the behavioral principles of Effectuation for Proposition 1, behavioral decision theory and heuristics for Proposition 2, and concepts and theories from previous studies, namely the experiential learning model and core competence for Proposition 3. This study proposes a new outlook regarding entrepreneurship education for middle-aged people, which is different from existing business schools and basic entrepreneurship education programs. It suggests that education that helps middle-aged people to effectively use their own characteristics and strengths, which are their own resources, contributes to their entrepreneurial success.

These findings reflect a part of the characteristics of the entrepreneurial process of second career entrepreneurs and do not capture all the characteristics. This study is a pilot validation with a small sample, and it is hoped that future surveys with larger samples and deeper research on entrepreneurial education will lead to new findings. There are very few practical examples and studies regrading entrepreneurship education for middle-aged people, and this study can serve as a first step toward supporting the careers of middle-aged people in the 100-year life society.

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What Influences High School Teacher Motivation To Engage In Cpd

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Abstract
Numerous studies have confirmed that continuing professional development (CPD) is a significant contributor for improving teacher effectiveness. Hence, this paper reports on a study that explored the motivation of high school teachers in Saudi Arabia to engage in CPD. It adopted a mixed methods (MMR) sequential explanatory design utilising an online questionnaire completed by 425 high school teachers and focus groups with 29 high school teachers. The paper aims to investigate what influences teacher motivation to engage in CPD. The findings identified 48 influential factors that highly enhanced teacher motivation to participate in CPD. These factors were organised into four categories: government and policy, school, CPD and personal factors. Based on these findings, a conceptual framework was developed that has the potential to contribute to the knowledge base on teacher motivation to engage in CPD.

Keywords: Teacher CPD, Teacher Motivation, Policymakers, School Leaders, CPD Within Teachers, Facilitators, Incentives, Heavy Workload, Reforms, Conceptual Framework

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Introduction

Continuing professional development (CPD) is considered an important factor in relation to teachers' professional development. The literature shows that CPD is a broad concept that includes different learning experiences and emphasises lifelong learning (Fraser, Kennedy, Reid, & McKinney, 2007; McMillan, McConnell, & O'Sullivan, 2014). Hence, the definition of CPD adopted in the current study is that CPD is "continuous ... process whereby teachers try to develop their personal and professional qualities, and to improve their knowledge, skills and practice, leading to their empowerment, the improvement of their agency and the development of their organisation and their pupils (Padwad & Dixit, 2011).

Despite the importance of teacher CPD, however, the lack of teacher motivation to engage in such programmes was one of the main reasons for unsuccessful CPD programmes (Hill, 2015; Guskey, 2002; Rzejak et al., 2014). Hence, taking into account teacher motivation for CPD is crucial (Schieb & Karabenick, 2011). Nevertheless, it is confirmed that investigating teacher motivation to engage in CPD is limited (Appova & Arbaugh, 2018; Schieb & Karabenick, 2011). Accordingly, the current study aims to fill this gap and investigate factors influencing Saudi Arabian high school teacher motivation to engage in CPD.

Methodology

The study adopted a mixed methods research (MMR) approach for collecting and analysing the data. Specifically, it used a sequential explanatory design that starts with a quantitative phase followed by a qualitative phase. To collect the quantitative data, an online questionnaire designed in Google Forms was used. The total sample of online questionnaire participants comprised 425 high school teachers from throughout the country. For the qualitative phase, 29 high school teachers who lived in Jeddah made up six focus groups comprising up to 5 teachers per group.

Results

Analysed data regarding what influences teacher motivation to engage in CPD has revealed that there is a range of influential factors playing crucial roles in motivating teachers to engage. These factors were divided into four major categories: (i) policy and government factors, (ii) school factors, (iii) CPD programme factors and (iv) within-teacher factors. Each category comprises two main themes as demonstrated in Figure 1. This division can help to gain a better understanding about each category and to produce meaningful outcomes.

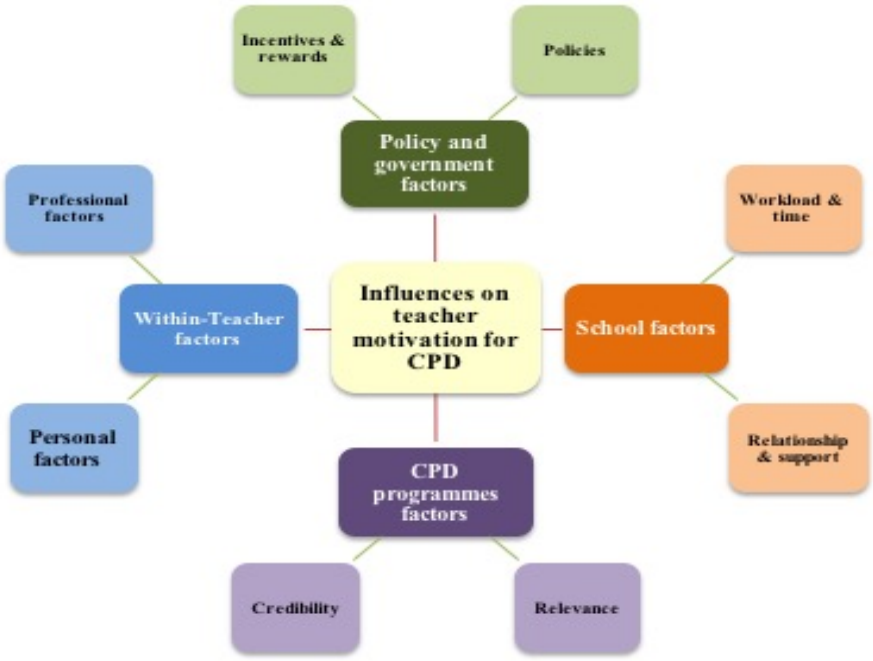

Figure 1: The main themes of influences on teacher motivation to engage in CPD

A. Policy and Government factors

Seven influential factors related to governments and educational policies were found to be strong influences on teacher motivation to engage in CPD, ranging from 60% to 96% of participants. Two themes emerged from this category. The first theme is incentives and rewards and the second theme is related to educational policy factors.

A.1. Incentives and rewards

Analysed data showed that 96% of participants confirmed that incentives and rewards, whether tangible or intangible (e.g. verbal rewards, public recognition and financial incentives), were the most influential factors in teacher motivation to engage in CPD. In line with this, a number of studies emphasised the importance of incentives and rewards in enhancing teacher motivation to engage in CPD (AFT, 2008; Shakir & Zamir, 2014; Yamoah, 2013). For example, having analysed the final report of TALIS (Teaching and Learning International Survey) (2013), Freeman, O'Malley, and Eveleigh (2014) reported that among the most common factors to which teachers in participant countries attributed their lack of engagement in CPD was the absence of incentives.

The focus group participants in this study expressed the view that despite the importance of tangible rewards in motivating teachers, intangible rewards are considered more important for them: in particular, social recognition. compatible with this finding, several studies have shown that recognition is essential and one of the basic needs of humans as confirmed by psychologists such as Herzberg and Maslow (McMillan et al., 2014; Yamoah, 2013). Troudi (2009) stated that teachers need to feel they are recognised and that their educational efforts are appreciated. Troudi (2009) also declared that although the role of teachers and their contributions are well recognised, teachers do not often receive sufficient recognition.

In spite of the important role that incentives play in relation to teacher motivation to engage in CPD, some studies (such as Lohman, 2005; McMillan et al., 2014) reported that they can negatively affect teacher intrinsic motivation. However, there seems to be an acceptance that intrinsic motivation can accompany extrinsic incentives if presented in proper ways which include the following;

- when extrinsic incentives aim to enhance the three psychological needs for humans: autonomy, competence and relatedness (Tranquillo & Stecker, 2016).
- when incentives support learning outcomes and goals,
- when incentives are offered as informative feedback to support motivation rather than in a controlling way,
- and when extrinsic incentives are linked to the quality of performance which can lead people to appreciate their efforts (Brophy, 2013; Isen & Reeve, 2005).

A.2. Educational policy factors

Data analysis confirmed the crucial role that educational policies play in influencing teacher motivation to engage in CPD. Similarly, a large body of research has affirmed the importance of educational policies in relation to teachers' professional development. Considering the importance of teacher CPD, governments are exerting considerable efforts to gain the benefit of CPD for developing teachers (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009). Hence, to achieve desired goals of CPD, educational policies are required to offer sufficiently support and provide opportunities for teachers to develop their knowledge and professional skills (David & Bwisa, 2013).

Studies reported that when educational policies provide inadequate support for CPD that offer teachers chances to improve themselves, teacher motivation to engage in such programmes can be diminished (David & Bwisa, 2013; Lohman, 2006). Furthermore, since it is noticed that new policies involved some stress on teachers as they were required to achieve challenging criteria and were regularly evaluated (Zhu, 2010), stakeholders should pay further attention to teachers motivation to engage in CPD.

B. School factors

Data analyses confirmed that school factors play an influential role with regard to teacher motivation to engage in CPD. Approximately 80% to 95% of participants reported that having less workload and adequate time during school hours, good relationships in school and sufficient support from leaders and colleagues were significant influences on their motivation to engage in CPD. Two main themes of school-related factors emerged: teacher workload and lack of time, and school relationships and support.

B.1. Teacher workload and lack of time

Analysis of data revealed that teachers perceived a heavy workload and having limited time inhibit their motivation for CPD. In line with these findings, a number of studies have reported that heavy workload and lack of time were critical inhibitors for teacher motivation in engaging in CPD (Berg & Chyung, 2008; Freeman et al., 2014;

Hustler, McNamara, Jarvis, Londra, & Campbell, 2003; McMillan et al., 2014; Adu & Okeke, 2014).

Thus, it has been suggested that to reduce the effects of workload and lack of time, it is important to enhance good relationships among school staff as this can contribute to building a culture of collaboration and to sustaining a supportive work environment (David & Bwisa, 2013).

B.2. School relationships and support

Data analysis showed that the climate of a school, characterised by good relationships with school leadership and peers and sufficient support, was found to be an influencing factor on teacher motivation to engage in CPD. Good relationships in school can be described as those where teachers are treated with respect, trust each other, and have a sense of community, as well as having school leaders who are encouraging, approachable and supportive (McMillan et al., 2014).

The literature emphasise the importance of school support and interpersonal relationships between school staff in relation to teacher motivation to engage in CPD (Kempen & Steyn, 2016; Poskitt, 2005). For example, McMillan et al. (2014) stated that positive relationships among school staff were found to be a strong factor in enhancing teacher motivation to engage in CPD. AFT (2008) stated that effective CPD need credible support from school administrators and colleagues, including offering opportunities to work jointly.

School leaders play an imperative role in building a positive school climate that takes into account CPD (Kempen & Steyn, 2016; Poskitt, 2005). Liu and Hallinger (2018) claimed that there is growing body of empirical evidence that school leadership that supports CPD is a significant factor in teachers' and students' development and learning. According to Zheng, Yin and Li (2018), the link between the school leadership and teacher CPD has been widely acknowledged.

C. CPD programme factors

Data analysis revealed that the nature of CPD was strongly influential on teacher motivation to engage in such programmes. Two main themes can be gained from factors related to CPD in this study as follows.

C.1. Relevance

The majority of participants confirmed the significance of the relevance of CPD as a strong influence enhancing their motivation to engage in them. The focus group participants also emphasised that CPD that develop their teaching skills, practices, and enhance curriculum knowledge content can influence their motivation for engagement. The relevance of CPD refers to the degree of significance and relatedness of the content for participants (Bryson, 2013).

In this regard, many studies stress the importance of the relevance of CPD to teachers in order to meet the programme requirements. For example, Cordingley et al. (2015)

stated that all reviews showed that a fundamental element of effective CPD is the strong relevance of the content to teachers' needs and practices.

Regarding the influence of the relevance of CPD on teacher motivation, Karabenick and Conley (2011) declared that in order for CPD to enhance teacher motivation to engage in them, the content needs to be relevant and connected to teachers' learning and students' achievements. In contrast, irrelevant CPD were found as a barrier for teachers to engage in (Freeman et al., 2014; Wan & Lam, 2010).

C.2. Credibility

Data analyses showed about 97% of participants indicated that when facilitators of CPD are credible (qualified and able) to deliver and transform the programmes in an effective way, they will be highly motivated to engage in the programme. In addition, the way of delivering CPD was also found to be important for influencing teacher motivation to participate in CPD. A credible facilitator can be described as an expert in different areas including content knowledge, professional experiences, facilitation skills and expert knowledge in professional development processes (Cordingley et al., 2015).

Studies have stressed the importance of the CPD facilitators on the success of CPD (Cordingley et al., 2015; Darling-Hammond et al., 2009). For example, Cordingley et al. (2015) reported that facilitators of successful CPD were an influential factor on the outcomes of CPD. In addition, Hustler et al. (2003) found that teachers were reluctant to engage in CPD when they found facilitators were not of high quality. Finally, Wan and Lam (2010) argued that factors in relation to facilitators including the style of presentation of CPD should be considered a factor affecting teacher motivation to engage in the programmes.

D. Within-teachers factors

Data analysis showed that teacher-related factors played a significant role in motivating teacher participants to engage in CPD. A total of 21 influencing factors can boost teacher motivation for CPD. While these influential factors seem to be overlapping, they can be divided into two main themes. The first theme is personal factors which include satisfaction, confidence, personal goals and religion. The second theme is professional factors related to teaching competencies and students.

D.1. Personal factors

Analysis of data confirmed that personal factors have a strong influence on teacher motivation to engage in CPD. The majority of participants in the quantitative phase, also echoed by the qualitative phase, emphasised that teachers are highly motivated to engage in CPD to feel self-satisfied in their job, to be more confident as teachers and to achieve their personal goals, such as becoming life-long learners and having additional certificates and advanced positions. Similarly, studies have reported that personal factors were the major contributors to motivating teachers to engage in CPD (McMillan et al., 2014; Wan & Lam, 2010).

Among the personal factors, enhancing self-satisfaction and strengthening confidence were the most significant influences on teachers' motivation to engage in CPD. In line with this, studies have also acknowledged the relationship between teacher satisfaction and confidence and their motivation to engage in CPD. For example, Karabenick and Conley (2011) reported that teacher satisfaction was found to have a relationship with teacher motivation to engage in CPD. Additionally, Gorozidis and Papaioannou (2014) stated that highly motivated teachers tend to show strong confidence in their teaching and are more satisfied when engaging in CPD. Likewise, Karabenick and Conley (2011) stated that teachers who are positively affected by their job, such as the feeling of satisfaction, were more highly motivated to engage in CPD.

In addition, achieving teachers' personal goals was found to be influential in fostering teacher participants' motivation to engage in CPD. While personal goals can vary widely, data showed the most influential personal goals in teacher motivation regarding CPD were: becoming life-long learners, gaining additional certificates, including a teaching license, achieving particular personal goals and career progression. The important role of personal goals in enhancing the motivation for teachers in this study to engage in CPD was found to be in line with other studies. For example, McMillan et al. (2014) reported that personal factors, such as career progression, personal growth and achievement were the most influential motivation for teachers in engaging in CPD. Moreover, Karabenick and Conley (2011) reported that accomplishing personal matters was positively related to teacher motivation to engage in CPD.

Moreover, it has been widely acknowledged that having goals, personal or professional, plays a critical role in enhancing motivation. Hence, when teachers perceive that CPD will assist them in achieving their goals, they will be more likely to be motivated to engage in them. Jesus and Lens (2005) affirmed that having goals was considered to be the major variable in teacher motivation to engage in CPD. Conversely, when teachers believe that their goals are unattainable, they tend to experience negative consequences, such as a feeling of burnout (Jesus & Lens, 2005), which was found to be a detrimental factor diminishing teacher motivation to engage in CPD (Karabenick & Conley, 2011).

D.2. Professional factors

Analysis of data showed that some professional factors have a strong influence on teacher motivation to engage in CPD. The majority of participants emphasised that they were highly motivated to engage in CPD in order to enhance their teaching competencies and improve student achievement outcomes. Karabenick and Conley (2011) reported that reliable teachers who considered themselves responsible for their students' achievement and for the quality of their teaching were highly motivated to engage in CPD. Professional factors were divided into two types: teaching-related competencies and student-related factors.

D.2.1.Teaching-related competencies

Data analysis confirmed that professional factors involving teaching competencies play a significant role in enhancing teacher motivation to engage in CPD. These

factors comprise improving teaching skills, deepening understanding of the teaching profession, dealing with the difficulties related to the profession and taught subjects, and being a successful teacher. The focus group participants stressed that they were motivated to engage in CPD in order to improve their professional and teaching skills. Several studies report similar findings. For example, McMillan et al. (2014) found that among the highest factors influencing teacher motivation to engage in CPD was their desire to improve their knowledge and skills. In addition, a large study covering hundreds of schools throughout England conducted by Hustler et al. (2003) showed that teachers were motivated to spend the most time on CPD that explicitly related to improving their skills and increasing their subject knowledge.

Sogunro (2015) claimed that teachers as adults need to have a rational reason to be motivated to engage in CPD. Wlodkowski (2003) also stated that adult learners who are interested in what they are learning will be more motivated to engage in this learning. Therefore, CPD should be relevant to teachers to provide them with essential professional skills and activities that they can apply immediately. When CPD are irrelevant to teachers and do not improve their competencies, they will be less likely to engage in the programmes.

D.2.2. Student-related factors

Findings also revealed that teachers were motivated to engage in CPD due to factors related to their students' achievement. A high number of participants showed that they were highly motivated to engage in CPD in order to improve their students' learning, to deepen their understanding of how students learn better, and how to keep pace with them in the digital era. In line with this, Day (1999) and Penner (2000) stated that improving student achievement was found to be the main motivator for teachers to want to develop themselves more professionally. Similarly, recent studies showed that many teachers are motivated to improve themselves by engaging in CPD because they care about students' learning (Cave & Mulloy, 2010; Gorozidis & Papaioannou, 2014).

As mentioned previously, increasing student achievement outcomes is one of the main objectives of CPD; hence, teachers who are aware of their professional responsibility should be motivated to improve themselves in order to address this requirement. Darling-Hammond et al. (2009) argue that in order to enable students to achieve a high level of thinking and the skills necessary to be successful in the 21st century, there is a need for teachers to have necessary teaching skills and a high level of knowledge. Karabenick and Conley (2011) found that effective teachers who realise the requirements of their profession for taking care of their teaching skills and enhancing their students' achievement were highly motivated to engage in CPD.

Conceptual Framework

The study findings have led to developing a conceptual framework, illustrated in Figure 2., that provides insights into teacher motivation to engage in CPD. It is designed to help all stakeholders concerned with teacher professional development to comprehend a large number of highly influential factors that play significant roles in enhancing teacher motivation to engage in CPD. The framework also demonstrates that there is an overlap of influential factors on teacher motivation for CPD and,

therefore, it is important to take all factors together into consideration. In addition, the framework provides stakeholders with a broad view of the main categories of factors related to teacher motivation for CPD. This broad view can increase the understanding of how stakeholders can guarantee that teachers are motivated to engage in CPD. In fact, it has the potential to assist in the design and implementation of CPD in a way that ensures achieving the desired goals.

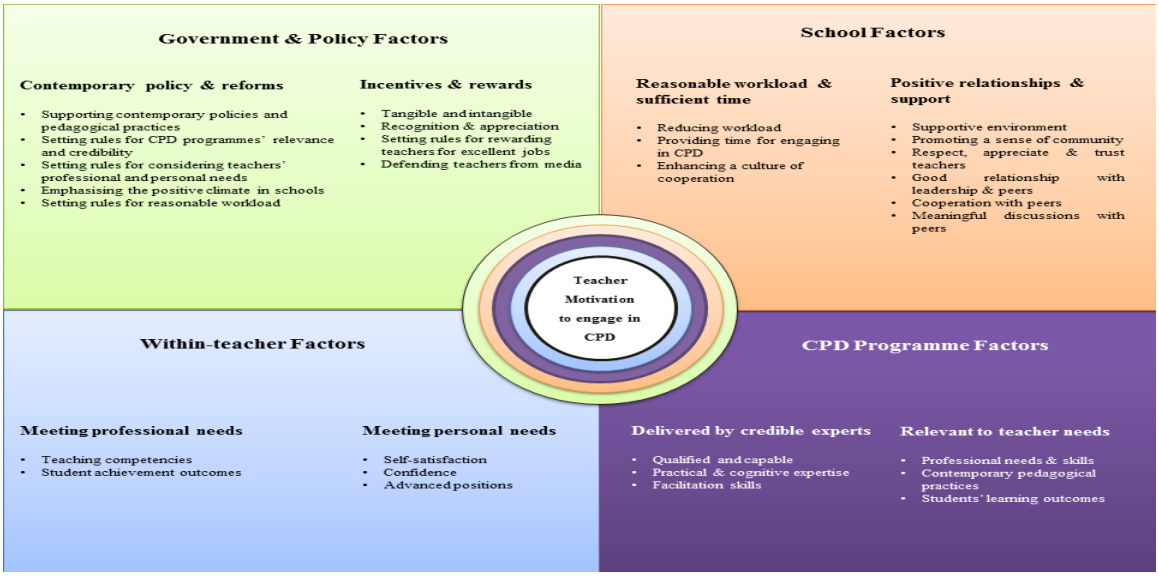

Figure 2: The conceptual framework for teacher motivation to engage in CPD

Government and policy factors

Through addressing the two main themes of this category regarding contemporary policy and reforms and incentives and rewards, policymakers can play an important role in enhancing teacher motivation to engage in CPD. Given that, policymakers should pay more consideration to contemporary policies and pedagogical practices that ensure teachers keep pace with the modern demands of the 21st century. Setting guidelines around different aspects of teaching and learning can assure enhancing teacher motivation to engage in CPD. These guidelines should support the design CPD that is relevant to teachers' needs and provided by facilitators who are experienced and credible. While not directly related to CPD policy, policymakers also need to consider establishing guidelines for teachers' workload in school so that they are reasonable. Findings from this study showed that when this is the case, teachers are more motivated and have more time to engage in CPD activities. In addition, policymakers should consider providing guidelines for schools in setting up a positive climate where collegial interactions among staff are encouraged and supported. Moreover, policymakers should consider guidelines to ensure that teachers' professional and personal needs are satisfied, whether in school or during CPD.

Furthermore, the framework provides a structure for policymakers to consider the importance of incentives and rewards in enhancing teacher motivation to engage in CPD. Recognising teachers' excellent performance and rewarding such efforts need to be taken into consideration by policymakers. Hence, policies rewarding and encouraging excellent teachers could be established at school level and the Ministry of Education as well. Additionally, as proof of appreciation and recognition of teacher

performance, policymakers need to take responsibility for defending teachers from the attacks of media.

School factors

The framework offers two main themes relevant to schools that can provide school leaders with guidelines in relation to teacher motivation and CPD. Leaders should pay attention to teacher workload and demands on their time to enable them to engage in CPD. Reducing teacher workload to a level deemed reasonable by teachers will provide teachers with sufficient time to engage in CPD. The framework also urges school leaders to enhance positive relationships among school staff so everyone feels respected and trusted and their work is appreciated. In addition, the framework encourages leaders to promote a sense of community that supports cooperation and enhances meaningful discussions with others. This community can help to overcome the negative outcomes of heavy workload and lack of time as factors that can inhibit teacher motivation to engage in CPD.

CPD programme factors

The framework shows the two main themes related to the CPD through which teacher motivation to engage in CPD will be enhanced. The framework asserts that facilitators have to ensure the quality of CPD and their relevance to teachers' professional needs, knowledge and skills. CPD need to provide teachers with contemporary pedagogical practices and address issues associated with students' learning and achievement. In addition, the framework shows the importance of CPD being relevant to teacher needs and skills and the need for them to be facilitated by credible experts who have expertise in a range of educational fields. Hence, the facilitator needs to be capable and qualified with regard to educational knowledge and practices. Additionally, the facilitator should have the skills to present and deliver the content of CPD in such a way as to assure CPD are effective.

Within teacher factors

Finally, the framework shows that teachers' personal and professional needs are important factors related to teacher motivation to engage in CPD. Hence, it is important for stakeholders, including policymakers, supervisors, principals and teacher leaders, to understand that meeting these needs is essential if teachers are to be motivated to engage in CPD. Stakeholders should assure meeting teachers' professional needs in relation to teaching skills and knowledge and student learning. Moreover, the framework encourages stakeholders to pay attention to satisfying teachers' personal needs as well. These needs include self-satisfaction and confidence which link to teachers' positive feelings and having an advanced position in their profession.

When stakeholders are aware of these four categories of factors and work to accomplish them, they will achieve several advantages apart from teachers being motivated and encouraged to engage in CPD. The advantages of addressing these factors include that the school environment will be warm, supportive and encouraging, teachers will feel satisfied with their jobs and then more likely to perform better, and CPD will be more efficient and effective.

Conclusion

In conclusion, the aim of this paper was to investigate the influential factors on teacher motivation to engage in CPD.

Finally, the last research question investigated what influences teacher motivation to engage in CPD programmes. Four main categories of influences, consisting of 49 factors, have been examined. They were organised under the major themes of policy and government factors, school factors, CPD programme factors and teacher factors. All these factors were found to influence teacher motivation to engage in CPD programmes. Through examining these categories, eight main themes emerged, divided into two main themes for each category.

Through this chapter, the main findings in relation to the research questions have been discussed in-depth to achieve the main objective of the study. The chapter has shown that the findings from this study align with several studies regarding teacher are motivation to engage in CPD programmes. Moreover, it has shown that different motivation theories can be applied to gain a better understanding regarding teacher motivation to engage in CPD programmes. In addition, it has been revealed that both types of CPD programmes, formal and informal, can be valuable and influence teacher motivation to engage in them if the programmes are relevant to teachers' needs. The chapter has also provided eight important themes related to the influential factors that enhance teacher motivation to engage in CPD programmes (Figure 1). These themes have been divided into the main categories of influential factors on teacher motivation to engage in CPD. These categories comprise government and policy factors, school factors, CPD programme factors and teacher factors. Finally, the chapter has revealed different aspects regarding teacher motivation to engage in CPD programmes that emphasise the gap of literature around this issue.

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Incorporating Adult Learning Principles in High Risk Equipment Operations Training

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Abstract
This paper considers the application of adult learning principles in training learners to operate high risk equipment such that they develop a sense of responsibility and accountability for the choices they make for themselves both during and post training. A literature review was utilised to review currently applied adult learning principles and the discussion considers these with reference to high-risk work particularly from a safety development perspective. Vocational Education and Training sectors throughout the world are traditionally responsible for training delivery in these areas where generally andragogical principles, as defined by Knowles (1970), are applied and with, in some cases, application of a heutagogical approach, as outlined by Hase and Kenyon (2000). Aside from considering these approaches, a new approach is proposed, referred to as authology, with a basis of including notions of responsibility and duty of care in adult learning. Collins (2004) suggests that all theories of adult education are based on building on prior learning and using methods that treat learners with respect, whilst recognizing that people learn differently. This involves learners taking responsibility for their own learning however does not overtly address developing an ongoing sense of responsibility, as is critical to those working in high-risk occupations. There are numerous training programs in vocational education and training, such as those related to equipment and plant operation, for which development of learner responsibility is a critical component in the training, particularly given the potential to cause harm, injury or fatality.

Keywords: Adult Learning Principles, Vocational Education, High Risk Work, Training Practices, Learning Styles, Authology

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1. Introduction

Adult Learning Australia (2020) outline that Alexander Kapp and Eugen Rosenstock-Huessy formed theories around adult education, which were later extended by Malcolm Knowles. Mowson (2018) further illuminates Malcolm Knowles defined the term 'andragogy' in the 1970's as referring to methods and principles used in adult education. Knowles (1970) used term 'andragogy' to explain the art and science of helping adults to learn. In 1984, Knowles identified six adult learning principles including: The need to know; Self-concept; Experience; Readiness to learn; Orientation to learning; and Motivation. These learning principles established a platform for training practices beyond the basic provision of instruction and are especially applicable to vocational education and training where a main goal is to develop job ready workers.

Knowles (1990) outlines that an andragogical approach is advocated as a way of facilitating more meaningful outcomes for learners. Within vocational education and training, there is evidence of use of an andragogical approach based on provision of flexible delivery, supporting the notion of learners as individuals in a specific or particular context, and on the basis that learners are required to take responsibility for their own learning (Choy & Delahaye, 2002).

The concept of andragogy can emphasise the value of the process of learning. Watson (2015) elaborates that andragogy uses approaches to learning that are problem-based and collaborative rather than instructive, and also underscores equality between the teacher and learner. Trainers, on this basis facilitate a learners' progression toward self-directed and responsible learning, whilst fostering the learner's internal motivation to learn. Adult Learning Australia (2020) outlines that motivation can be reduced by where learning experiences do not encompass adult learning principles. Inclusion of adult learning principles in training practices strengthens the outcome of the learning such that knowledge and skills are better retained which is fundamental to producing workers who will engage in their workplaces not only effectively, but also safely.

Applying andragogical principles to technical education elicits any number of best practices in training provision. These include giving learners the opportunity to use the knowledge and experience that they have acquired and to apply these to new learning events and scenarios (Watson, 2015). Watson also notes that adult learners are ready to learn when they experience a need to learn in order to better cope with real-life tasks or problems (Knowles, 1980 p 44, as cited in Fidishun, 2000). Trainers, then, are in a position to, through application of andragogical principles, enable a learner's readiness for problem-based learning and improve the learner's awareness of the need for the knowledge or skill being developed through the training activity.

Another adult learning principle in vocational education and training is that of the relevancy orientation of adults. Adult learners have a desire to appreciate the relevance of what they are learning to what they want to accomplish (Watson 2015).

Given that adults learn through direct experience, their training and learning activities should include active and practical participation and provide a range of usable and functional techniques and practices that can improve their everyday lives, whether in

or out of a workplace context.

Heutagogy is another learning principle worthy of consideration. Hase and Kenyon (2000) surmise that heutagogy is the study of self-determined learning and noting the approach is an attempt to challenge some ideas about teaching and learning. The approach is presented as an extension to andragogical approaches as described by Knowles. Heutagogy considers knowing how to learn as a fundamental skill, particularly necessary with innovation and change common in workplace environments and communities. This premise highlights the need for adaptability in the workplace, a skills that can be developed during training. Hase and Kenyon submit that a heutagogical approach recognises that learners need flexible in their learning. Flexibility in this case refers to a trainer providing resources and the learner designing the actual course he or she might take by negotiating the learning, essentially with the trainer acting as a facilitator and the learner providing a degree of control over the course of the learning. This principle advocates that trainers should concern themselves with developing the learner's capability, rather than just embedding discipline-based skills and knowledge (Hase & Kenyon, 2000).

Blaschke (2012) informs that competent learners demonstrate the acquisition of knowledge and skills and the acquired skills can be repeated and knowledge that can be retrieved. The knowledge and skills are not only replicable and repeatable, but can also be applied to a range of contexts, such as is required in any work environment. Capable learners are able to reproduce knowledge and skills in unfamiliar situations.Blaschke (2012) states that capability can be seen as an extension of one's own competence, noting that without competency there cannot be capability. A heutagogical approach condones development of capability beyond competence. Learners are able to increase their awareness of their preferred learning style and are able to recognise these in context and thus adapt new learning situations to their learning styles, and in turn, making them more capable learners.

With a focus on both competency and capability, heutagogy moves trainers a step closer toward better addressing the needs of adult learners in complex and changing work environments (Blaschke, 2012). The incorporation of heutagogical practice presents an opportunity for trainers to effectively prepare learners for the workplace and for becoming lifelong learners. Heutagogical practice foster learner motivation by cultivating learners who "are fully engaged in the topic they are studying because they are making choices that are most relevant or interesting to them" (Kenyon & Hase, 2010, p. 170, cited in Blaschke, 2012). As such, the heutological approach is associated with self-determined learning. The learner is central to the process and the trainer acts a mentor to facilitate the learning. Learning in this environment allows a learner to synthesise new knowledge through utilization of reflective and critical thinking skills.

Davis (2018) summarises that whereas pedagogy is teacher-led learning and andragogy is self-directed learning, heutagogy takes an approach that is different to both approaches. This notion is on the basis that a heutagogical approach is self-determined learning. The heutagogical approach encourages learners to uncover their own problems and questions to solve. In this case, rather than undertaking and completing tasks assigned by the trainer, the learners seek out areas of uncertainty and complexity in the subjects they examine. Trainers help by providing context to

learners' learning and create opportunities for them to explore subjects fully.

Davis notes that for heutagogical oriented training, the purpose is to create a learning environment in which learners can determine their own goals, learning paths, processes, and products. She outlines that when applying heutagogical approach, the learner transitions from passive recipient to analyst and synthesizer. These abilities may be considered as some of the most valuable skills for learners interacting with a world requiring knowledge management and curation (Davis, 2018). A consideration of these learning principles, and an understanding of adult learning principles by trainers, is essential in an adult learning environment focused on training related to high risk occupations or use of high risk equipment.

2. Method

The discussion and conclusions drawn are based on a literature review together with consideration of the current adult learning principles in vocational education training and assessment. This paper outlines the application of these adult learning principles within a specific context, where training and assessment is related to high risk plant and equipment operations. The discussion firstly establishes where current approaches based on accepted adult leaning principles fit into the training repertoire and then examines aspects of high risk work that may not be effectively addressed. An additional approach that should be integrated into training activities is then considered, particularly from the perspective of establishing a greater sense of responsibility and meeting duty of care obligations.

3. Discussion

3.1 Significance of adult learning principles

Collins (2004) identifies that the teaching approach should be based on the objective of the teaching-learning situation and believes that the learner-centered andragogic may not be appropriate in all adult education settings, as supported by Imel (2004), cited in Collins (2004). Collins notes that the training approach should be based on the objectives of the learners, the training content, and may include other factors. As such, Collins identifies that selection of one training approach may not be suitable for all training scenarios.

There are several related and relevant themes presented by Collins (2004) to be considered. The first of these is the notion that the learner should be actively involved in learning and should be encouraged to be active. This entails provision of the opportunity to practice new behaviour in a safe and supportive environment.

To outline the value of active participation Collins (2004) refers to Rogers (1969) who distinguished two types of learning, referred to as cognitive and experiential. Collins outlines that cognitive learning can be seen as academic knowledge, whereas experiential learning encapsulates learning by doing and notes that Rogers perceived the qualities of experiential learning as personal involvement, self initiated, learner evaluated, and having a pervasive effects on the learner. Rogers (1969) ties into the concepts of andragogical principles with suggestions that significant learning can occur when the subject matter is perceived as having relevance for their own purposes by the learner, stating that “A somewhat more formal way of stating this is that a

person learns significantly only those things which he perceives as being involved in the maintenance of or the enhancement of his own self" (p. 158).

Collins (2004) also introduces transference and suggests that transference occurs through association where a learner can associate newly acquired information with something they already know. Associative learning essentially take place through experience. The extent to which this occurs is related to the learner's degree of original learning. Collins (2004) notes that transference is greatest when the level of original learning is high and when the information being learned contains elements that are of extreme benefit to the learners work environment. Again, these concepts tie in with the principles associated with andragogical approaches. There are then a number of key principles derived from andragogy and heutagogy that can be applied to training and, in turn, adult learning and their application should vary with the learning content, context and purpose.

Collins identifies that not all people learn in the same way and to engage all learners, methods by which information is communicated should be varied. In order to so, methods can include group discussion, role-playing, lecturing, case studies, games, questioning, and using varying technology. Collins (2004) concludes that all theories of adult education are based on appreciating and applying a learner's prior learning and their experience and notes that "adult learning requires building on this prior learning, using methods that treat learners with respect, and recognizing that people have different learning styles and have a variety of responsibilities and time commitments" (p. 1489). Colins advises that the optimal role of the adult learner in the learning situation is one that is characterized by of a self-direction, self-motivation and collaboration in the learning process and is an individual who takes responsibility for learning.

3.2 Adult Learning Styles

Aside from adult learning principles, adult learning styles also warrant consideration when delivering training. Adult learning styles refer to learning approaches that learners naturally prefer to maximise their personal learning experience (Adult Learning Australia, 2020). Peter Honey and Alan Mumford, cited in Adult Learning Australia (2020) and based upon the work of Kolb, have identified four adult learning styles. Knowing that there are different learning styles allows trainers to vary the learning activities and experiences they provide to their adult learners and this variation can, in turn, improve the learner's ability to not only learn but also retain the learning.

Peterson (2019) identifies that a significant difference between teaching children and teaching adults is the self-concept of adult learners. She identifies that adult learners are usually mature and self-confident enough to know their strengths and weaknesses and how they are able to best learn, including the most suitable environments and practices. This notion leads into the application of self-directed learning. In an situation of self-directed leaning, Peterson (2019) advises that learners can design their studies around their preferred learning style whether this is visual, auditory, or kinesthetic, also referred to as tactile learners.

Smith and Dalton (2005) recognise that in a vocational education environment there are wide differences in learners, and developing training methodologies that are suited

to these learners is likely to lead to more effective learning, greater satisfaction among learners, and stronger motivations to persevere in the learning activity. In order to accommodate varying learning styles, trainers need to be able to recognise the styles within their learner cohorts and provide a range of training activities to allow each learner to excel.

3.3 High Risk Equipment

Vocational education and training can involve learner development of competence in a range of plant and equipment operation depending on the course or qualification being undertaken. These can include any range of equipment from hand tools through to heavy vehicles to be operated on public roads. Workplace Health and Safety Queensland (2019) identify that machinery and equipment have moving parts and the action of moving can have enough force in motion to cause injury to people. The use of machinery and equipment is a requirement for many occupational roles and common in most workplaces. Given the potential to cause harm, injury or fatality, the effectiveness of training is critical to the ongoing safe use of the equipment by the learner.

Many countries around the world have recognised that there are specific plant and equipment that are more likely than others to cause workplace injury or fatality. As an example, Safe Work Australia compiles the Work-related Traumatic Injury Fatalities data set. The data set provides national statistics on all workers and bystanders fatally injured at work (Safe Work Australia, 2020). The Safe Work Australia (2020) data highlights the mechanisms most likely to cause injury and/or fatality in Australian workplaces, with vehicle collision to be the most likely, followed by being hit by moving objects. These fatalities are associated with plant such as heavy vehicles/trucks and agricultural plant and equipment in the majority.

Training, and consequently learning, needs to go beyond the mechanical and operational aspects of the plant, such as which levers do what, to application of gained knowledge being used and contextualised such that a duty of care can be maintained to prevent injury and fatality.

In order to effectively train a learner to operate high risk plant and equipment, a range of adult learning principles need to be applied to develop the skills and knowledge to mechanically operate the machine, make adjustments to allow for the context, environment and task at hand, and maintain situational awareness and apply an ability to extrapolate skills and knowledge in a way that they are tied to maintaining safe and responsible practices.

3.4 Application of Adult Learning Principles to High Risk Equipment Operations Training

In applying Knowles principles of adult learning, trainers must recognise that adults must have a hand in the design and development of their learning experience. Watson (2105) outlines ways that this can be achieved and this includes developing rapport with the learner to encourage questioning and consideration of concepts. The trainer must also show interest in the learner's thoughts and opinions which includes actively and carefully listening to any questions asked. Provision of both negative and positive feedback regular constructive and specific feedback allows learners to review their role and approach to their learning and provides an opportunity for them to review

their goals and attained goal completion.

Training commences with leading the adult Learner toward inquiry before oversupplying them with facts. Trainers must also acknowledge the preferred learning style of the learner (Watson, 2015). Assessment tasks should set projects or tasks for the learner that reflect their interests and which they must complete.

Adult learners need to be able to relate the learning to real world uses, gains and applications. If they can not recognise how particular learning is going to apply to real world situations, then they are not likely to be excited about the learning process. Trainers are required to provide meaningful learning experiences that are clearly linked to personal, workplace and life goals. This requires the trainer to ask questions that motivate reflection, inquiry and further research (Watson, 2015). Adult learners must also be given the opportunity to absorb information, rather than merely committing it to memory. Allowing opportunity for absorption requires the trainer to create activities that allow adult learners to interact with specific tasks, such as simulations. In turn, learners will then store the information in their long term memory, particularly through replication, repetition and experience, thus building familiarity.

Training and assessment should promote active participation by allowing learner to try things rather than observing. Learners must be given the opportunity to practice and consolidate their skills. Cordiner (2020) concurs with highlighting that practicing skills in a controlled environment allows a learner to grow self-efficacy in new tasks that prepares them to act autonomously beyond the learning environment, such as their workplace. Cordiner notes that the more an adult learner can practice new skills, competencies or the application of knowledge, the more transformational impact the learning intervention will have.

Self-efficacy is the belief we have in our abilities and competencies (Chowdury, 2020). Chowdury refers to Albert Bandura (1977), a pioneer humanist and contriver of the concept of self-efficacy, who defined self-efficacy as “people’s beliefs about their capabilities to produce designated levels of performance that exercise their influence over events that affect their lives”, and goes on to outline that self-efficacy determines how we think and feel about ourselves. Self-efficacy should be considered a primary goal in training and assessment as it contributes to the value and retention of the training.

Trainers should develop and utilise training activities that focus on problem solving, involving identifying the problem, considering alternatives, decision making, and implementing a solution. Thompson (2019) suggests posing realistic questions and problems to encourage problem-solving is more effective than rote learning. To highlight this point, Thompson (2019) considers that we really do not expect a manager, in a workplace context, to ask an employee to recite a processes from employee handbook by memory.

Narayan, Herrington & Cochrane (2019) discuss the integration of a heutagogical approach in training design and note that effective training requires design of learning activities, tasks and a learning environment that encourage elements of learner participation, personalisation and productivity. Likewise, the trainer should aim to

conduct learning activities in authentic contexts chosen by the learner to enable exploration and experimentation.

3.5 Current Adult Learning Principles are not Necessarily Inclusive of a Sense of Responsibility

In any workplace environment where someone is relying on an individual to be careful, and that reliance is, in the circumstances, reasonable, then it will generally be the case that the individual owes them a duty of care. Adult learners understand that they have a duty of care to themselves and others and strive to ensure they are able to meet this obligation.

Adults undertake training not only for their needs but also so that they can provide higher level care for others. As such, here we can introduce an extension adult learning principle, which can be referred to authology, derived from the Latin 'Author' meaning responsible. The basis of the principle is that of an adult learner's need to be aware of and take responsibility for their actions in a workplace and ensure that their learning meets their social obligations to protect themselves and others. Authology then, is based on a tenet that adults have a sense of responsibility and duty of care which are rooted in the individuals' belief system. Duty of care in this context may be defined as a moral or legal obligation to ensure the safety or well-being of self and others. By extension, a duty of care exists when an individual's actions could reasonably be expected to affect other people.

The authological approach can be seen as an extension of andragogical and heutagogical approaches in that it facilitates an adult learner's ability to increase their sense of responsibility. The focus of the learning principle being on building the learner's needs to take responsibility for the welfare of others. The approach is therefore socially centric whilst maintaining andragogical principles. The learner is required to take responsibility for their own learning together with responsibility for the social implications of their own learning. The need to build ones capacity to provide effective duty of care may be seen as an additional pillar to those presented in Knowles initially identified key pillars of understanding adult learners.

Beaumont (2020) discusses the characteristics related to responsible adults and postulates taking responsibility for our choices provides the symmetry of reciprocal exchange and the basis for trust. Beaumont further presents that responsibility is a congruence between the actions we choose and our values. A number of specific characteristics are outlined and these include an ability to inquire, investigate, seek, and embrace facts and truth. Adults have a need to ground their knowledge in fact and reality rather than simply believing what they are told. Through the training process, a sense of responsibility can be developed through the training practice. Authology requires a trainer to provide a contexts and environments where a learner can develop their sense of responsibility and duty of care. Training authologically requires the trainer to provide opportunity to develop responsible thinking and development in, using Beaumont's identified characteristics:

- Honesty
- Focusing thoughts and attention
- Thinking through alternatives and consequences
- Clear and consistent thinking and expression
- Seeking out expertise

- Self-discipline
- Impulse control
- Openness to new ideas and information
- Willingness to accept blame for errors
- Rationality
- Able to make judgements on collected evidence
- Considering a variety of points-of-view
- Adaptation and flexibility
- Adjusting beliefs and actions to accommodate newly understood facts
- Autonomy
- Integrity
- Understanding that ideas, choices, and actions have consequences.
- Belief that effects and outcomes have causes.
- Internal Locus of Control

All of these characteristics are extremely important in the use of high risk plant, which requires a high level of responsibility to ensure safe performance. Typically, any workplace health and safety system is built around the notion of duty of care and workers are indoctrinated into these principles as soon as they enter the workplace. Duty of care includes invoking responsibility. In high risk plant operations, the duty of care aspect of the work being undertaken is inflated on the basis that the worker has the increased potential to cause harm due to the nature of the equipment and work tasks performed. Particularly since failure to exercise care in operation of the specific plant may lead to foreseeable injury.

Beaumont (2020) outlines that responsibility requires autonomy and that adults can only feel accountable and be held accountable for the choices they make for themselves. Free choice, Beaumont suggests, is only possible when we are autonomous and notes the relationship between the two in that as autonomy increases, responsibility increases with it. In a training environment then, learners should be given the opportunity to work autonomously which ties in to heutagogical approaches. Autonomy grows with competence as does the perceived level of responsibility.

Where one person or agency imposes arbitrary rules in an attempt to control another, as can often happen in a training environment, those imposed rules reduce autonomy, and therefore reduce responsibility. Trainers in adult settings need to minimise imposing arbitrary rules and allow learners to recognise that their ideas, choices, and actions do matter and do have consequences. Beaumont (2020) recognises that treating adults like children by imposing arbitrary rules that destroy autonomy often encourages them to act like irresponsible children.

The core of acting responsibly requires considering the needs of others and the community, not only themselves (Beaumont, 2020) and this notion is the foundation of the concept of authological thinking. Further, a responsible adult learner will integrate experiences and information to act rationally, consistently, and reliably rather than unpredictably, inconsistently, irrationally, and erratically (Beaumont, 2020). Franzoso (2018) considers that responsibility is the ability to respond to situations and events and is a value we adopt in adulthood. Responsibility is adapted in adulthood as children are unable to as they have not yet developed discernment or their ‘intellectual dimension’/logic. Acting responsibly and meeting duty of care

obligations are central to adult learning and subsequent application of that learning in a workplace.

Training and assessment activities inclusive of developing responsibility require working autonomously, adapting to the task requirements and environment. McCombs (2020) identifies that the most effective strategies involve improving learners' abilities to identify and manage their emotions, appreciate and understand the perspectives of others, establish pro-social objectives, solve problems and use a variety of interpersonal skills to handle developmentally relevant tasks.

4. Conclusion

Effective training is critical in training scenarios where inadequate training can lead to injury or fatality, such as in high risk plant or equipment operations. Regardless of a Trainer's favored instructional approach, the goal is to prepare learners to undertake workplace activities safely and successfully. The skills and experience learners gain from self-determined learning are central in applying and maintaining the learning in an ongoing manner to a range of workplace contexts. Allowing learners to develop a sense of responsibility through training activities to subsequently meet obligations to a duty of care effectively should be considered a fundamental applicable adult learning principle. In a high risk plant and equipment operations training environment, an authological approach should be integrated by trainers.

To train adults authologically, trainers need to discover how to help learners develop the ability to make appropriate choices and take responsible control the activities they perform. This can be achieved through guiding adult learners to understand their learning interests, dispositions to be active and autonomous learners and capacities or strengths in the required competency areas.

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Improving Clinical Handovers: An Interdisciplinary Undergraduate Teaching Scheme

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Abstract
In 2007 the World Health Organisation highlighted the dangers of poor communication within handovers in the clinical safety and continuity of care of patients worldwide. Many of these handovers occur between doctors and nurses who receive little formal training in this skill during their undergraduate degrees, with few derived from education theory and almost none delivered via interdisciplinary means. As the COVID pandemic has drawn final year medical and nursing students into the workforce, effective evidence-based teaching of this topic is needed now more than ever. The authors developed a case-based interactive teaching session based on Kolb's Learning cycle and a Constructivist paradigm, using simulation practices to develop the students' clinical skills. The sections of the session were mapped onto two further pedagogical theories: Gagne's Event of Interaction and Pillars of Handover Education. Three pilot sessions were completed by 18 medical and nursing students, with pre- and post-questionnaires used to assess their confidence and ability to formulate coherent handovers. Statistically significant improvements were seen in all criteria assessed, with students demonstrating particular improvements in better understanding the wishes and capabilities of the other specialty during a handover (Δ=5.2, $p < 0.0001$), and confidence in knowing what information to best provide (Δ=3.8, $p < 0.0001$). A drop in the perceived barriers to providing a handover, and the associated anxiety that can result, was also observed (Δ=-3.5, $p < 0.0001$). The implementation of this pilot scheme of interdisciplinary teaching sessions allowed student doctors and nurses to gain practice and confidence in their ability to escalate and handover appropriately between disciplines- a vital skill in the face of the COVID pandemic- with candidates showing immediate improvement.

Keywords: Medical Education, Educational Theory, Teaching & Learning, Undergraduate, Interdisciplinary, Clinical Handovers, Handoffs, Multidisciplinary

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Introduction

During the early hours of a night shift, there is a common fear shared between newly qualified nurses and doctors alike. That is, the acutely deteriorating patient, and their need for escalation. Though much anxiety may surround the management of this clinical scenario, many health professionals report apprehension in the process of the phone call itself required to handover a patient (Lundin et al, 2018). This can be true of either the nurse making the call, or of the doctor receiving it. One solution to this concern has been to provide teaching within the degrees of the respective professions, but although the field of medicine is largely a multidisciplinary one, very little interdisciplinary work is seen within the undergraduate curriculum (Gordon, Hill, Stojan & Daniel, 2018). In both the institutions involved in this research, the University of Cambridge and the University of Hertfordshire, neither provide any formal teaching sessions which incorporate students from both courses. Despite this, they are expected to work together from their first day of work.

Interventions in communications and effective handovers have been proven to provide cost-effective improvements in the attitudes, skills and knowledge of professionals (Gordon et al., 2018). Though few have stemmed from a basis in evidence-based pedagogy and educational theory, there is now a growing body of literature in the subject (Gordon, Grafton-Clarke, & Hill, 2019).

In order to address these concerns, the authors created and piloted an interdisciplinary two-hour lesson on communication in effective handover and escalation. This session was designed for four student doctors and four student nurses to follow a case-based interactive teaching session based on Kolb's Learning cycle. It drew its learning from a Constructivist paradigm and used simulation practices to develop their clinical skills. In these initial sessions, the goal was not necessarily to achieve perfect handovers, but to understand and practice a structure that could be relied on to underpin a handover in difficult and stressful scenarios.

Background

Clinical handover can be described as the transfer of professional responsibility from one person to another. This may be between professional groups, and either temporary or permanent (Blyth, Bost, & Shiels, 2017). The effective implementation of this is crucial for patient safety and the accurate transfer of clinical information, in both the escalation of deteriorating patients, and the exchange of ward-based responsibilities during a shift change. It facilitates multidisciplinary collaboration, as well as providing safe and competent long-term care to the patient (Gordon et al., 2018). The World Health Organisation in 2007 highlighted the dangers of poor communication in handovers in the clinical safety and continuity of care of patients around the world. Miscommunications and omission of vital information have led to poorer clinical outcomes, longer stays in hospital and worse patient experiences (World Health Organisation, 2007). It has thus been implemented to be a part of their High 5s Project that was launched to address the greatest worldwide concerns to patient safety (World Health Organisation, 2013).

This problem has been further exacerbated by the implementation of the European Working Time Directive (EWTD), which has led to an increased number of shifts in a

typical week for both doctors and nurses. This has resulted in a greater number of handovers each week, greater disruption to continuity, and a greater chance of poorer handovers, leading to poorer patient outcomes (Maybury, 2014).

The risk of providing poor handovers is not confined to any one professional role, and it is thus a shared responsibility for the whole clinical team (Doyle & Cruickshank, 2012). Though there are many opportunities to develop these skills whilst on the job these are often ad hoc, unstructured, and may lack a more experienced team member to provide guidance. It could be argued that a more effective approach to improve the quality of handovers is by implementing structured teaching during the undergraduate curriculum (Gordon & Findley, 2011).

Clenland, Ross, Miller and Patey (2009) highlighted the need for this in the medical profession, with many junior doctors feel underprepared in the effective handover of critically ill patients. They identified five key themes that factor into this anxiety: definition of handover; experience of handover as a junior doctor; perceptions of junior doctors' handover skills and attitudes; systems factors and their interaction with individual factors; and the 'what' and the 'how' of teaching handover.

As for nursing students, handover and communication skills are often expected to be picked up informally during rotational experiences, and there is often little formal teaching regarding the quality of content within the handover itself (Lally, 2001). This leads to a disparity between how well nurses are trained in handovers by the time of graduation, and is largely dependent on opportunity.

Methods

Intervention Design & Pedagogical Theory Used

Our intervention design was guided by key studies and based on relevant educational theory, in particular utilising Kolb's Learning Cycle (as outlined in Appendix 1) and a Constructivist approach.

Based on a systematic review by Gordon et al. in 2018, it was concluded that educational interventions in handover are best placed to occur in a practical, work-based setting, where the benefits of the skills learnt can be immediately understood.

Few medical professionals experience undergraduate teaching sessions with other clinical professionals, especially in teaching sessions that focus on the interaction between specialties, as opposed to providing shared teaching of common topics (Gordon et al, 2018). This is an oversight we sought to address with our intervention.

The style of learning utilised for our intervention was based on the pedagogical theory of Constructivism (Ertmer & Newby, 2013)- a style in which the learner constructs knowledge based on past experiences, and is considered more effective for complex, ill-defined concepts, such as those often faced in the practice of medicine (Jonassen, 1991). This style was also noted to be considered more effective in the context of andragogy- the learning methods specifically utilised for adult learners. As outlined by Knowles, Holton and Swanson (2012), adults possess qualities that influence their capacity to learn, including being problem solvers, independent learners, having

greater experience, and motivation as an internal process. They argue these traits require a more Constructivist approach to teaching.

When considering the application of this to teaching handover and communications, it was concluded that a Constructivist approach would be to utilise students' experiences and implement critical reflection to draw out useful learning points. This application of focused reflection or 'directionality' has been demonstrated to allow for more personalised and impactful learning experiences (Dewey, 1986), and was achieved during the session via the self-reflective model of Kolb's Learning Cycle (Kolb, 1984). In the design of our teaching intervention, we mapped each step of the cycle to a task or objective to facilitate the teaching of handover theory and technique (Figure 1, Appendix 1).

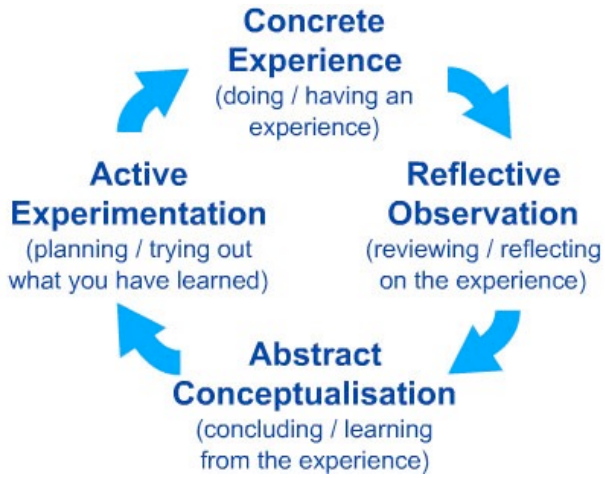


Figure 1: "The Experiential Learning Cycle" (McLeod, 2017)

The session was designed to begin with Reflective Observation to provide the initial experiences and material for the lesson, before moving on to Abstract Conceptualisation where conclusions could be teased out from these experiences, guided by a facilitator. The facilitator subsequently linked these conclusions into a discussion of the SBAR approach to handovers, and its relevance or potential drawbacks in the suggested scenarios (Shahid & Thomas, 2018).

The latter half of the teaching session was designed to take a more practical, providing the students the chance to solidify these skills in practice through discussion and Active Experimentation. To complete this cycle, Concrete Experiences were generated by using faster, simulation-style examples, allowing students to practice real cases in pairs, with feedback provided by the remaining observing students and the facilitator.

Finally, a potential issue to address was that of multiple distinct group identities (Tajfel, Billig, Bundy & Flament, 1971) resulting in an 'In-group' and an 'Out-group'. This is a relatively common problem within the NHS between different professional groups, and could have hindered the interdisciplinary nature of our intervention. As such, it was addressed by mixing groups throughout the session to remove the 'In-/Out-group' mentality, offsetting this concern.

Data & Statistical Analysis

Our graph was plotted as mean values ± standard deviation (SD) using GraphPad Prism 8, with which statistical analysis was also performed. Significance stars were calculated using paired, two-tailed Student's *t*-tests, with statistical significance demonstrated as follows: *p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001.

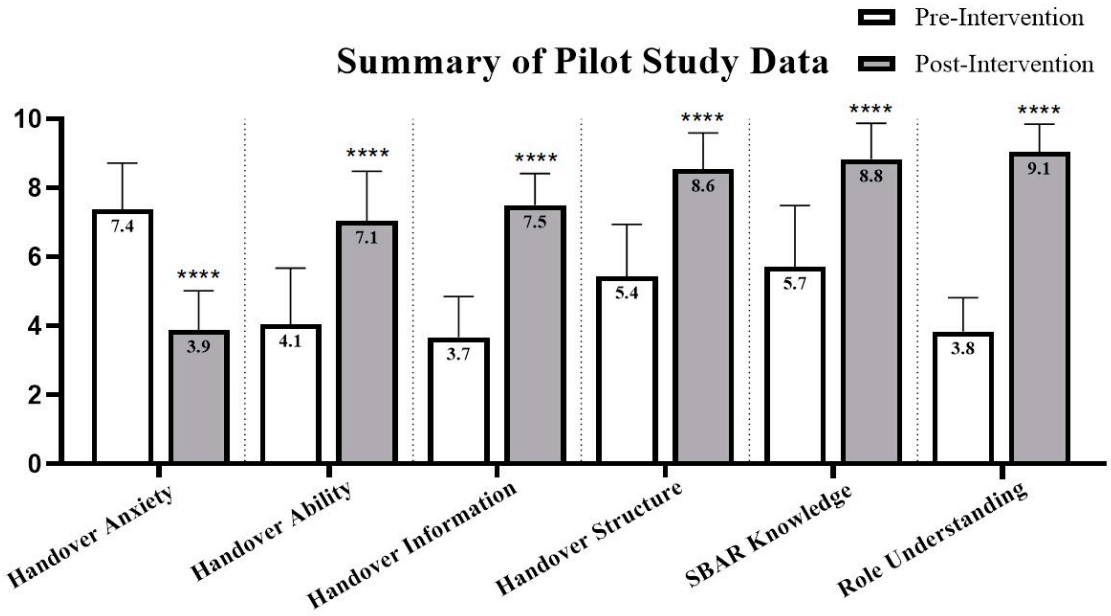
Results

10 Nursing students and 8 Medical Students participated in these pilot sessions, and all 18 completed the pre- and post-session questionnaires. Statistically significant improvements were seen in all criteria assessed (Table 1), with students demonstrating particular improvements in better understanding the wishes and capabilities of the other specialty during a handover (Δ=5.2, p < 0.0001), and confidence in knowing what information to best provide (Δ=3.8, p < 0.0001). A drop in the perceived barriers to providing a handover, and the associated anxiety that can result, was also observed (Δ=-3.5, p < 0.0001).

	Pre-Intervention Mean	**Post-Intervention Mean**	**Mean of Differences**	**Standard Deviation of Differences**	**95% Confidence Intervals**	**p-value**
How well do you understand the exact responsibilities and abilities of the other **job roles** in this teaching session?	3.8	9.1	5.2	0.73	4.86 – 5.59	<0.0001
How confident are you in your knowledge of **SBAR**, and how to use it?	5.7	8.8	3.1	2.42	1.91 – 4.32	<0.0001
How confident are you in your ability to **structure** a handover?	5.4	8.6	3.1	1.75	2.24 – 3.98	<0.0001
How confident are you in knowing what **information** to put in a handover?	3.7	7.5	3.8	0.92	3.37 – 4.29	<0.0001
How confident are you in your **ability** to do a clinical handover?	4.1	7.1	3.0	1.28	2.36 – 3.64	<0.0001
How **anxious** are you to make a clinical handover of an unwell patient out-of-hours?	7.4	3.9	-3.5	1.47	-4.23 – -2.77	<0.0001

Table 1: Pre- and Post-Intervention Questionnaire Results

Additionally, all 18 students stated that they would recommend this teaching session to colleagues, giving very kind and positive feedback.



Graph 1: Summary of Pre- and Post-Intervention Results

Discussion & Limitations

The cornerstone of this teaching session was in the practical use of Kolb's learning cycle, in a Constructivist manner, to guide the development of effective communication of handovers. Its benefits are clear as it removes the hierarchical nature of a classroom, engages the student in a more active learning role, and utilises all participants in the session (Fenwick, 2005; Reynolds, 2009). Nonetheless, it is not without its criticisms and challenges. Both the students and authors encountered several difficulties with this method, bringing into focus some of the limitations of our session.

In order to begin the session with Reflective Observation, there is a reliance on the students providing experiences to draw from. Unfortunately, this was comparatively lacking in the medical students- few were able to recall, and appropriately discuss, examples of handovers, either good or bad. This was exaggerated by the contrast with the nursing students, who demonstrated far greater practical experience, potentially stemming from their greater amount of clinical observation (Lally, 2001). This reliance on the baseline knowledge and engagement of the students towards the beginning of our session highlighted a potential issue- if little is volunteered from the participants, a very stilted session can result and may lead to a difficult split between open dialogue and resorting back to didactic teaching methods. The facilitator is meant to manage these discrepancies through appropriately providing comments and directing questions to others within the group. However, this approach shifts the reliance onto the facilitators developing their own expertise in enabling experiential learning, without simply imposing their own experiential learning points on the students as often occurs (Tomkins & Ulus, 2016).

In contrast, the disparity in experience between the students was reversed in Abstract Conceptualisation, in which the medical students had comparatively more experience with identifying and applying learning points to subsequent scenarios after the initial scenario has already been discussed. These discrepancies highlight the challenges of providing a shared, multidisciplinary teaching session to groups of students whose undergraduate courses take very different approaches and focus on different learning styles.

These difficulties were further encountered during Active Experimentation, in which many of the students found it difficult to assimilate a large quantity of auditory information while cases were verbally discussed or 'handed-over' to them. This likely represents the different learning styles preferred by the students, whether they be visual, written or kinesthetic information (Fleming, 2001)- in particular many nursing students often show kinesthetic learning traits (James, D'Amore, & Thomas, 2011). However, given that in practice most handovers are provided verbally this hurdle was necessary to improve the students' skills in receiving handovers. During our pilot sessions a discussion was integrated focusing on how best to articulate auditory information to those who struggle with receiving it, as well as which key points of information are important to listen for when receiving a verbal handover. This discussion will need to be further refined and incorporated into our future sessions.

During this stage, several students also demonstrated notable resistance to the act of simulating handovers. A potential source of this anxiety to engage with experimentation may stem from minimal interpersonal rapport built between the students, which can be difficult to create within a short space of time. This alludes to a wider problem seen within small group teaching, especially that of a mixed background; the balance between creating an environment that is conducive to learning, and the provision of the learning itself. Gagne's Events of Instruction (Gagne, 1985) provide an approach to better address this- the introduction of an 'icebreaker' activity within the 'Gaining Attention' phase could have facilitated questioning and interaction throughout the rest of the lesson (Chlup & Collins, 2010). This may have helped resolve some of the apprehension seen by the students to engage with the later stage of "Eliciting Performance". To improve future teaching sessions the remainder of Gagne's Event of Instruction, which can provide a clear pathway for sessions specifically aimed to develop practical skills within adult learners, were considered and mapped onto the outline of our session (Table 2).

In addressing further ways to refine our teaching session, the three "Pillars of Handover Education" (Darbyshire, Gordon, and Baker, 2013) that lead to effective handover education were also considered, and again mapped to our session- a summary of both theories applied to our work can be seen in the table below (Table 2). Retaining our application of Kolb's Learning Cycle as a basis of the session, we can implement the 'Responsibility and Accountability' pillar within the 'Reflective Observation' phase, where the students can discuss experiences of errors or poor handovers to highlight the professional responsibility each of us have. The 'Information Management' pillar is comprehensively covered during the 'Abstract Conceptualisation' and 'Active Experimentation' stages of roleplaying scenarios, and finally an understanding of 'Systems to Facilitate Handover' is addressed in 'Concrete Experience' of practice in the workplace, and the checklists or mnemonics that be utilised.

Kolb's Learning Cycle	Interdisciplinary Teaching Section	Gagne's Events of Instruction	Pillars of Handover Education
Reflective Observation	Open Discussion of the roles of nurses and doctors	(1) Gaining Attention (2) Informing learner of objectives (3) Stimulating recall of prior learning	Responsibility and Accountability
Abstract Conceptualisation	Review of the information required for handovers	(4) Presenting stimulus (5) Providing learning guidance	Information Management
Active Experimentation	Group work within disciplines of working through cases	(6) Eliciting performance (7) Providing feedback (8) Assessing performance	Information Management
Concrete Experience	Practice examples between disciplines of telephone handovers	(6) Eliciting performance (7) Providing feedback (8) Assessing performance (9) Enhancing retention and transfer	Systems to Facilitate Handover

Table 2: A Comparative Mapping of Educational Theories to the Interdisciplinary Communication Teaching

A final limitation to be discussed is the sample of participating students. Our sample size of 18 students represents a small proportion of the total healthcare student body our session is designed for, and this must be taken into account when drawing conclusions. Furthermore, while the medical students were recruited from an existing cohort of random students regularly supervised by the lead author (and so are relatively representative of the medical student body), the nursing students were recruited via an email asking for volunteers to 'opt in' to the teaching session. This approach naturally self-selected students who were more likely to engage with the session, and so this may not necessarily be representative of the cohort as a whole.

Despite its limitations, the importance of our study became evident during the latter half of the teaching sessions, where the relative inexperience of many students across both disciplines with utilising the SBAR handover tool was apparent, potentially through either poor understanding or infrequent use. While most of the students knew of the SBAR acronym, many failed to appropriately prioritise the information needed in each section, leading to them getting 'lost' in the SBAR tool and rambling through the categories, producing ineffective handovers. This was ultimately addressed successfully within out teaching sessions, emphasising the benefits of our intervention, the need for additional teaching in this area of clinical practice, and the importance of further work in this field.

Such work could include investigating whether the improvements seen in our sessions translated to empirical improvements in real clinical settings, whether such improvements positively impacted on patient safety, and whether skills gained during our sessions declined over time or were integrated into the participating students' long-term clinical practice, all with a greater sample size.

Conclusion

What this pilot study demonstrates is the first application of Kolb's Learning Cycle to an interdisciplinary teaching program in a district general hospital, with immediate benefits seen in self-reported confidence, knowledge and skills of undergraduate students.

Limitations affecting this pilot study included the voluntary nature of the session, producing an inherent selection bias towards students attending who were more likely to engage with the session, and the limited number of participants. Furthermore, as the data collection was limited to confidence and self-assessment, it highlights the need for more extensive assessment tools in these areas.

Regardless of this, we can learn from the obstacles faced during this initial set of teaching sessions to refine our intervention, and begin to extrapolate a potential multi-session program of repeated cycles to further guide our students to more effective handovers, improved patient safety, and more synergistic workings between professional disciplines.

In light of the COVID-19 pandemic, a safe and robust interdisciplinary clinical team is needed now more than ever. As we continue to build on this work, expanding our sample size and including more thorough assessments of both knowledge and practical abilities, we must be mindful of the requirements of social distancing and the difficulties this may bring to a session designed specifically for in-person interactions. Contingencies will need to be in place as we prepare to roll out this program to the 50 interim foundation doctors and 50 extended placement nursing students within our trust, but as the nation eases its lockdown we must be prepared to take steps towards shaping the new face of in-person clinical teaching.

Appendix 1: Lesson Plan Format

Course: Cambridge Uni Medicine MBBChir & Uni of Hertfordshire Nursing BSc
Lecturer: [*Anonymised*]
Topic: Interdisciplinary Communication Teaching
Venue: Lister Hospital **Time:** 13.30-15.30
Number of Students: 4 Nursing Final Years + 4 Medical Final Years

Aim	To improve the handover and escalation communications seen between different disciplines, more specifically, between nurses and doctors

Learning Outcomes (objectives)	**a)** Understand and appreciate the shared and separate roles of doctors and nurses within healthcare	**b)** Appreciate the importance of effective handover and escalation calls, and what information should be prioritised
By the end of the session the students will be able to:	**c**) Work through example cases preparing what should be mentioned in a handover	**d)** Practice handing over between nursing and medical students

Time	**Outcomes / Objectives Reference**	**Teacher Activity**	**Resources**	**Assessment Method**	**Mapping of Kolb's Learning Cycle**
13:30	a) b)	Intro & pre-questionnaire	Phones (Google Form)	Questionnaire	
13:45	a)	Open discussion of the roles of nurses & doctors	Phones (Mentimeter)		Reflective Observation
13:55	b)	Review of the information required for handovers	Computer/ Projector		Abstract Conceptualisation
14:15	c)	Group work within disciplines of working through cases	Cases		Active Experimentation
14:30	d)	Practice examples between disciplines of telephone	Hospital Phone	OSCE-style observation	Concrete Experience

		handovers			
15:15	a) b)	Feedback & post-questionnaire	Phones (Google Form)	Questionnaire	

Appendix 2: Pre- and Post-Intervention Questionnaire

Student No: **Date:**

How well do you understand the exact responsibilities and abilities of the other **job roles** in this teaching session?

Not at all

1	2	3	4	5	6	7	8	9	10

Extremely well

How confident are you in your knowledge of **SBAR**, and how to use it?

Not at all

1	2	3	4	5	6	7	8	9	10

Extremely good

How confident are you in your ability to **structure** a handover?

Not at all

1	2	3	4	5	6	7	8	9	10

Extremely good

How confident are you in knowing what **information** to put in a handover?

Not at all

1	2	3	4	5	6	7	8	9	10

Extremely good

How confident are you in your **ability** to do a clinical handover?

Not at all

1	2	3	4	5	6	7	8	9	10

Extremely good

How **anxious** are you to make a clinical handover of an unwell patient out-of-hours?

Not at all *Extremely*

1	2	3	4	5	6	7	8	9	10

anxious

Would you recommend this teaching session to your colleagues? (Please circle)

Yes *No*

Any further comments/feedback:

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