EFFECTS OF A GUIDED COOPERATIVE EXPERIENTIAL LEARNING STRATEGY IN FLIPPED CLASSROOM ON STUDENTS' PARTICIPATION, PERFORMANCE, AND PERCEPTION IN LEARNING ENGLISH

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by

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LIST OF ABBREVIATIONS

FF	Full Flipped
SF	Semi Flipped
CG	Control Group
FC	Flipped Classroom
CL	Cooperative Learning
EL	Experiential Learning
CEL	Cooperative Experiential Learning
App	Mobile Applications
HOTS	Higher Order Thinking Skills
MOTS	Middle Order Thinking Skills
LOTS	Lower Order Thinking Skills
ICT	Information and Communications Technology
MCQ	Multiple Choice Questions
LO	Learning Outcomes
PISA	Programme for International Student Assessment
PBL	Problem-Based Learning
AR	Augmented Reality
VR	Virtual Reality
EFL	English as a Foreign Language
ESL	English as a Second Language
TVET	Technical and Vocational Education and Training
IV	Independent Variable

DV	Dependent Variable
GUI	Graphical User Interface
UML	Unified Modeling Language
FR	Functional Requirement
NFR	Non-Functional Requirements
IOS	iPhone OS

LIST OF APPENDICES

KESAN STRATEGI PEMBELAJARAN PENGALAMAN KOPERATIF TERBIMBING DALAM PERSEKITARAN *FLIPPED CLASSROOM* TERHADAP PENYERTAAN, PRESTASI DAN PERSEPSI PELAJAR DALAM PEMBELAJARAN BAHASA INGGERIS

ABSTRAK

Pelajar Malaysia tidak mempunyai kemahiran yang mencukupi untuk bertutur dalam Bahasa Inggeris dengan betul. Ini disebabkan kaedah pengajaran dan pembelajaran yang digunakan di sekolah hanya fokus dengan penggunaan buku teks sebagai medium arahan yang tidak mengalakkan kemahiran berfikir aras tinggi di kalangan murid sekolah menengah menyebabkan persekitaran pembelajaran yang pasif. Seterusnya memberi kesan kepada perkembangan kemahiran bahasa Inggeris terutamanya pertuturan dan penulisan. Kajian ini bertujuan untuk mengetahui kesan *flipped classroom* dengan penyatuan strategi Pembelajaran Pengalaman Koperatif (CEL), untuk meningkatkan penyertaan dan prestasi pelajar (penulisan dan pertuturan) dalam Bahasa Inggeris dan mengukur persepsi mereka terhadap intervensi tersebut. Sampel kajian bagi penyelidikan ini adalah seramai 95 orang pelajar tingkatan 4 dari dua buah sekolah perempuan. Tiga kumpulan (*full-flipped*, *semi-flipped* dan kumpulan kawalan) telah dipilih berdasarkan persampelan kelompok dan rawak. Reka bentuk kuasi-eksperimen telah digunakan dengan menggabungkan kaedah pengumpulan data kualitatif dan kuantitatif. Instrumen yang digunakan ialah ujian pra, ujian pasca, tinjauan soal selidik persepsi, rubrik persembahan dan rubrik penyertaan. Data dianalisis menggunakan statistik deskriptif, ujian-t sampel bebas, ANCOVA sehala

dan ANOVA. Data kualitatif (soalan terbuka) dianalisis menggunakan analisis tematik. Dapatan kajian menunjukkan terdapat perbezaan yang signifikan secara statistik antara nilai min skor penyertaan bagi kumpulan rawatan *full-flipped* dan kumpulan kawalan (p = 0.001, 95% C.I. = [5.33, 23.40]) dan kumpulan rawatan *semi-flipped* dan kumpulan kawalan (p = 0.036 , 95% C.I. = [0.44, 18.22]) keputusan menunjukkan bahawa kedua-dua kumpulan rawatan mempunyai skor penyertaan yang lebih tinggi daripada kumpulan kawalan. Keputusan skor penulisan menunjukkan perbezaan yang signifikan antara kumpulan rawatan *full-flipped* dan kumpulan kawalan (p = 0.000, 95% C.I. = [9.33, 25.67]) dan kumpulan rawatan *semi-flipped* dan kumpulan kawalan (p = 0.011, 95% C.I. = [1.81, 18.11]). Dapatan ini menunjukkan bahawa kedua-dua kumpulan rawatan menunjukkan prestasi yang lebih baik daripada kumpulan kawalan. Keputusan prestasi pertuturan menunjukkan bahawa skor min bagi kumpulan rawatan *full-flipped* (M = 73.25, SD = 13.59) adalah berbeza secara signifikan daripada kumpulan kawalan (M = 59.79, SD = 17.42) (p <.001). Begitu juga, skor min bagi kumpulan rawatan *semi-flipped* (M = 69.48, SD = 16.40) adalah berbeza secara signifikan daripada kumpulan kawalan (p = .04). Dapatan ini menunjukkan bahawa kedua-dua kumpulan rawatan menunjukkan prestasi yang lebih baik daripada kumpulan kawalan. Dapatan itu juga mendedahkan skor min kumpulan *full-flipped* lebih tinggi berbanding kumpulan *semi-flipped* untuk penyertaan, prestasi penulisan dan prestasi pertuturan. Ujian-t sampel bebas dan analisis kualitatif juga menyokong penemuan ini justeru membuktikan bahawa penyepaduan strategi CEL dalam rancangan pengajaran *flipped classroom* telah berjaya meningkatkan penyertaan dan prestasi pelajar dalam Bahasa Inggeris.

EFFECTS OF A GUIDED COOPERATIVE EXPERIENTIAL LEARNING STRATEGY IN FLIPPED CLASSROOM ON STUDENTS' PARTICIPATION, PERFORMANCE, AND PERCEPTION IN LEARNING ENGLISH

ABSTRACT

Malaysian students lack the skills to speak proper English. The issues include the current teaching and learning strategies applied in schools that focus on textbooks as the medium of instruction, discouraging the development of higher order thinking skills among secondary school students, resulting to a passive learning environment. This subsequently has affected the development of English language skills especially speaking and writing. This study aimed to determine the effect of the flipped classroom with the integration of Cooperative Experiential Learning (CEL) strategies, to improve student's participation and performance (writing and speaking) in English and to gauge their perception of the intervention. Research sample were 95 form 4 students from two all girls' schools. Three groups (full-flipped, semi-flipped and control group) were selected based on cluster and random sampling. A quasi-experimental design was employed incorporating qualitative and quantitative data collection methods. Instruments used were pre-test, post-test, perception questionnaire, presentation and participation rubric. Data were analyzed using descriptive statistics, independent sample t -test, one-way ANCOVA and ANOVA. The qualitative data (open-ended questions) were analyzed using thematic analysis. The findings showed that there were a statistically significant differences between the mean value of participation score for

the full flipped and control group (p = 0.001, 95% C.I. = [5.33, 23.40]) and the semi flipped and control group (p = 0.036, 95% C.I. = [0.44, 18.22]) the results suggest that the treatment groups had higher participation scores than the control group. The results of the writing score showed a significant difference between the full flipped and control group (p = 0.000, 95% C.I. = [9.33, 25.67]) and the semi-flipped and control group (p = 0.011, 95% C.I. = [1.81, 18.11]). These findings indicate that the treatment groups performed better than the control group. The results of the speaking performance showed that the mean score for the Full Flipped group (M = 73.25, SD = 13.59) was significantly different from that of the Control group (M = 59.79, SD = 17.42) (p < .001). Similarly, the mean score for the Semi-Flipped group (M = 69.48, SD = 16.40) was significantly different from that of the Control group (p = .04). These findings suggest that the treatment groups performed better than the control group. The finding also revealed the full flipped scored a higher mean compared to the semi flipped group for participation, writing and speaking performance. The independent sample t-test and the qualitative analysis further supports these findings proving that the integration of the CEL strategies in the flipped classroom lesson plan has successfully improved student's participation, performance and perception in English.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Education is an important aspect to focus on for Malaysia to become a developed nation (Wan, Sirat, & Razak, 2018). In order to achieve this, technology and education needs to go hand in hand to improve the quality of our education system. Technology has become an essential component in all areas of life and for all ages especially in the younger generations. According to Sujatha and Bhuvaneshwari (2021), the digital natives are inseparable from technology because they have been exposed to internet access and mobile devices at a very young age, hence able to adapt with the progress of the digital world. As the evolution of technology improves, it can provide a more advanced learning opportunity which allow learners to obtain and increase their knowledge anytime and anywhere through digital learning methods which includes blended learning (Sulaiman, 2018). The rise of blended learning has been significant in the modern learning environment because of technology such as YouTube (Alqarni, 2018). Alqarni (2018) defines blended learning as a combination of e-learning and traditional learning that allows educators to incorporate activities during the classroom session to improve the efficiency of face-to-face learning. There are many methods of conducting the blended learning strategies.

Flipped classroom, which is a form of blended learning have shown to increase students' motivation, participation, and academic performance (Aidoo et al., 2022). Even though flipped classroom has been recommended to be suited in the Malaysian classroom, the pedagogy is still considered new, until the start of the pandemic which made flipped classroom the preferred teaching and learning method during the lock

down (Tan et al., 2022). Flipped classroom incorporates many aspects that are beneficial to the learners especially during the classroom activities. Shin et al. (2022) explained that the in-class activities within the flipped classroom provide students the opportunity to improve their learning process through activities such as reflection, problem solving and feedbacks during discussion. In order to guide the learners to improve their learning outcomes through flipped classroom, a proper design of the teaching and learning experience is essential to create a meaningful learning process.

Hence, Chiang and Wu (2021) suggest that the learning experience to be more student-centered which systematically connects the learning activities throughout the flipped classroom process. Students should be active in the learning process so that they are able to engage in the activities for example discussions and team work tasks which help promote active learning and aid in their learning experience (Lin, 2021). Lin (2021) suggested both experiential learning and cooperative learning as a strategy to improve active learning within a flipped classroom environment. Through experiential learning, students go through a systematic cycle which allows them to materialize their experience and convert it to new knowledge to help them better understand the content (Lin, 2021). Meanwhile cooperative learning allows them to scrutinize their work with other students and establish their personalized understanding and mastery of the new knowledge (Lin, 2021). Therefore, this research will focus on the strategies which is the Cooperative Experiential Learning that will be included in the flipped classroom design to improve student learning experience.

1.2 Background of Study

Technology was adopted in the Malaysian schools with the inception of e-learning to initiate the transformation of a developed nation where the government had introduced the expansion of Information and Communications Technology (ICT) within areas of business, industry, and education (Chan, 2002). Jethro, Grace, and Although ICT was supposed to be more well established in the Malaysian schools, there are some downfalls in using the technology. Cheok, Wong, Ayub, and Mahmud (2017) reported that even with the ICT skills training provided to the teachers, there were concerns on this and the lack of technical support that does not encourage teachers to further engage in ICT.

Ebrahimi, and Jiar (2018) highlighted that although there was a high percentage of Malaysian teachers and students who prefers the use of ICT in class, there were still many barriers that needs to be addressed such as the lack of ICT training. The authors reported that there was a high percentage of students without any ICT training. It was also recorded that the ICT classes in secondary schools were conducted about 2 minutes and 46 seconds per hour of class time on average (Ebrahimi & Jiar, 2018). Teachers also expressed concern with the lack of working computers that inhibits e-learning in class and because this incurs high cost some teachers prefer the traditional face-to-face approach instead (Cheok et al., 2017).

Aside from the ICT use shortcomings in the Malaysian classroom, the teaching and learning (T&L) methods in the Malaysian classroom are still focused on textbook as the medium of instruction (Zulkifli & Adnan, 2021; Aziz & Kashinathan, 2021). Students only listen without much thought process as they are not given the chance to

express their ideas and discuss issues with other students, hence restricting their eagerness to want to learn (Leng et al., 2018; Yanju & Lakshmi, 2019; Zulkifli & Adnan, 2021). This creates a passive learning environment where students only memorize and not understand what they are learning, therefore, depriving them of acquiring sufficient communication and analytical thinking skills (Leng et al., 2018). This has become an issue in the T&L of English among secondary school students as the strategy only focuses on finishing the syllabus rather than the quality of students' learning process (Yanju & Lakshmi, 2019). As a result, Malaysian secondary school students lack the skills in mastering the English language skills especially speaking (Aziz & Kashinathan, 2021) and writing (Li & Razali, 2019; Saravanan, Palanisamy & Aziz, 2021).

This raises the next issue that involves Higher Order Thinking Skills (HOTS) questions. HOTS is an important characteristic that students need to cultivate so that they are equipped to brace the challenges and problems of the 21st century and progress to their full capability which is highlighted in the objectives of the Malaysian educational policy (Wilson & Narasuman, 2020). According to Parimaladevi and Ahmad (2019), there were many issues that discourage students to answer HOTS questions which include being passive during class and not showing interest to answer questions although they know the answer for some while others lack sufficient knowledge that hinders them from engaging in discussions with other students and their teacher. The authors also pointed out that students were filled with anxiety and become shy to answer questions as they are afraid of making a mistake in front of other students. Saravanan et al. (2021) also agree that Malaysian secondary students have difficulty in articulating their ideas in classroom discussions which affects their performance in the higher tertiary level. Furthermore, there is a concern

of time management during class where teachers are focused on completing their syllabus hence having limited time for HOTS activities (Parimaladevi & Ahmad, 2019).

Therefore, with the shortcoming of using ICT and inadequate use of T&L strategies Cheok et al. (2017) suggested creating a system that can be more useful in practice by designing a learning environment that is complemented by technology where pedagogy and content matters is examined for higher ecological validity. The most suitable pedagogical method that accentuate student-centered learning and gives student the space to improve their learning skills and increase their understanding of the content, is the flipped classroom (Yin, 2020). However, Lin (2021) explains that the flipped classroom is not suitable for primary school students as they do not have the skills to handle discussions and critical analysis. Therefore, this study only focused on the secondary school students.

Flipped classroom is defined as the reversal to the traditional method where the method of teaching and delivering of the content for example contents can be in a form of videos, is received outside of class involving Lower Order Thinking Skills (LOTS) to encourage activeness in the classroom through activities such as problem solving, discussion and analysis involving HOTS (Lin, 2019; Sattar et al., 2019). This research incorporates these videos within a mobile app called Jom English! so that the students can acquire some basic knowledge before attending class. According to Tan, Zakuan, and Abd Aziz (2022), teachers can upload materials which require minimal intellectual interaction for students to read / watch before class (out of class) and then give the students more time to reorganise their thought process through a more hands-on and active sessions in class. Through this pedagogical model, students

go through the content through educational technologies (out of classroom) and the time spent in class can be prioritise to reinforce learning (Say & Yıldırım, 2020).

The learning strategies that are incorporated within this research are cooperative learning and experiential learning. Camp et al. (2012) emphasized on the substantial contribution of cooperative learning (CL) in developing students' understanding of the content through support and active discussions. In addition, Erbil (2020) suggested merging Vygotsky Theory with flipped classroom as both the conceptual foundation are focused on active learning which is related to this research. Meanwhile Kolb and Kolb (2008), defined experiential learning (EL) as a method to elicit student's initial understanding and ideas of a topic so that their ideas are refined and improved. Lin (2019) strongly suggests the integration of CL and EL within a learning environment because students will acquire skills to help them achieve HOTS. Incorporating the CL within the EL model would benefit the students to gain the skills of doing, reflecting, internalizing, and practicing while they discuss and analyze their ideas and to structure a better perception and understanding of the content (Lin, 2019).

As a summary, this research attempted to implement the integration of a mobile app with the CEL strategies within a flipped classroom to assist teachers in creating a more diverse teaching and learning environment for secondary school students and to promote active discussions in classrooms and improving academic performance.

1.3 Problem Statement

Previous studies reported that teacher-centered strategy or traditional classroom is the norm in the Malaysian classroom (Leng et al., 2018; Zakaria, Ahmad

& Rahman, 2021) where the teacher is the main source of knowledge while the students are passive listeners, hence limiting their participation in their own learning process (Leng et al., 2018). Zulkifli and Adnan (2021) also highlighted similar concerns regarding students solely focusing on the teachers' teaching and feedback with no significant communication between students and teacher along with other students as well which contributes to being a passive learner. Students need the opportunity to participate in the classroom through a student-centered learning environment.

Furthermore, using a textbook as the main T & L strategy discourages students' enthusiasm to want to learn and advance their knowledge (Zulkifli & Adnan, 2021). In addition, Leng et al. (2018) emphasize on the disadvantages of using the teacher-centered method in the long term as students will have difficulty in communicating with others and retain inadequate analytical thinking skills. Apart from that, according to Yanju and Lakshmi (2019), English subject was also taught using the traditional method creating a passive learning environment for the students because teachers are not able to focus on individual students due to the big student number and restricted teaching time. This also hinders students' participation in the classroom.

Consequently, the weakness of this teacher-centered classroom was reflected in students' academic performance. The result of the SPM English paper based on the analysis report by the Ministry of Education (2019) shows that only 16 percent of the students achieved excellent grade (ranges from A+ to A-) which is lower compared to other subjects such as Bahasa Melayu (32.9 percent), Mathematics (31.2 percent) and Science (20.6 percent). The percentage of students in the range of D and E is at 33.5

and in the range of G (fail) is at 19.5 which gives a total of 53 percent. Furthermore, Li and Razali (2019) also highlighted concerns regarding the lack of English efficiency among Malaysian students because of the traditional teaching method especially in English speaking (Aziz & Kashinathan, 2021) and writing (Saravanan et al., 2021) skills. Zainuddin et al. (2019) agree that students need to be given the chance to master the English language at the school level, so that when they enter the higher tertiary level, they can handle their courses with the minimum English proficiency which they have acquired at this stage. This is a serious concern as it directly affects these students as they continue their studies to the higher tertiary level and also determine their employability specifically in the Malaysian private sector.

Cooperative learning is a strategy that promotes active learning and social interaction because it allows students to enhance their skills and knowledge by interacting in classroom activities by exploring and experimenting while students dictate on each other's work thus creating a meaningful learning process (Zulkifli & Adnan, 2021). Lin (2019) recommends the integration of both the cooperative learning and experiential learning within a flipped classroom environment because cooperative experiential learning strategy encourages active engagement between students to build up their learning process to higher order thinking. In addition, technology is an important element to consider in the T & L strategy for secondary schools because Zain et al. (2020) and Zulkifli and Adnan (2021) agree that Malaysian secondary students were technologically advanced compared to other generations and can learn using their mobile devices. According to Yanju and Lakshmi (2019), technology is an important component in a students' learning process therefore the author suggests that

teachers use flipped classroom to integrate technology and provide student a more favorable space to improve their learning experience.

Therefore, this study aimed to design and develop a mobile apps to integrate flipped classroom and embed the cooperative experiential learning for English learning. English subject was the focus because the cooperative learning method is not recommended for courses that involve calculation and information analysis as advised by Zulkifli and Adnan (2021). The purpose of this study is to investigate the impact of the intervention towards students' participation, writing and speaking performance, as well as their perceptions after applying the flipped classroom intervention.

1.4 Research Objectives

The purpose of this study was to examine the effects of incorporating a flipped classroom with the integration of a mobile app and the CEL strategies as the inside and out of class activities to improve class participation and the performance in the English language of secondary school students. As stated in the problem statement, participation, writing performance and speaking performance are the main dependent variables that were investigated in this research. Additionally, perception was also added to gauge the impression of students on the adoption of the flipped classroom as a new learning environment. Hence, the following are the research objectives of this study:

1) To investigate the difference in class participation between a) Full Flipped; b) Semi-Flipped; and c) Control Group.
2) To investigate the difference in writing performance between a) Full Flipped; b) Semi-Flipped; and c) Control Group.

3) To investigate the difference in speaking performance between a) Full Flipped; b) Semi-Flipped; and c) Control Group.
4) To investigate the perception of a) Full Flipped; and b) Semi-Flipped students on the implementation of flipped classroom.

1.5 Research Questions

The research questions for this research are:

1) Is there any significant difference in class participation between a) Full Flipped; b) Semi-Flipped; and c) Control Group?
2) Is there any significant difference in the writing performance between a) Full Flipped; b) Semi-Flipped; and c) Control Group?
3) Is there any significant difference in the speaking performance between a) Full Flipped; b) Semi-Flipped; and c) Control Group?
4) What is the a) Full Flipped; and b) Semi-Flipped students' perception on the implementation of flipped classroom?

1.6 Research Hypotheses

H_1 There is a significant difference in class participation between a) Full Flipped; b) Semi-Flipped; and c) Control Group.

H_2 There is a significant difference in writing performance between a) Full Flipped; b) Semi-Flipped; and c) Control Group.

H_3 There is a significant difference in speaking performance between a) Full Flipped; b) Semi-Flipped; and c) Control Group.

H_4 There is a significant difference between a) Full Flipped; and b) Semi-Flipped students' perception on the implementation of flipped classroom.

1.7 Theoretical Framework

Theories applied in this study are the revised Bloom's taxonomy, cognitive constructivism, social constructivism (Mahmud et al., 2018; Eppard & Rochdi, 2017) and Zone of Proximal Development (Eppard & Rochdi, 2017; Erbil, 2020). According to Mahmud et al. (2018) these theories can cater to the needs of a flipped classroom and encourage active learning amongst students within the learning environment.

The revised Bloom's taxonomy is compatible with the concept of flipped classroom because it can cater to both the out of class (delivery of content) and in class activities where tasks are given to the students to improve their thinking skills facilitated by the teacher (Eppard & Rochdi, 2017). Lin (2021) also agrees that the Bloom's taxonomy can aid with the improvement of the flipped classroom because it is connected to the theoretical analysis of the Bloom's taxonomy where the learning objectives were categorised into different levels of difficulty which were addressed both out of class and in class activities. Although Bloom's taxonomy encourages higher order thinking activities, there was no specific details on how to master these levels therefore the cognitive constructivism and social constructivism theories were also incorporated within the theoretical framework to determine the learning strategies that happens in each stage (Eppard & Rochdi, 2017).

1.7.1 Revised Bloom's Taxonomy

According to Eppard and Rochdi (2017), Bloom's Taxonomy is a concept of learning illustrated in a form of a pyramid that signified different levels of learning

that focuses on knowledge acquisition. The taxonomy applies to the flipped learning environment where the communication of information was attained independent outside of classroom while the interpretation and argument on the information was conducted during class as this involves the critical thinking skills. The advantage of applying the revised Bloom's Taxonomy within the flipped classroom environment was to actively aid students during their class activities that involved higher order thinking skills (Eppard & Rochdi, 2017). Integrating both the Bloom's taxonomy and flipped classroom can benefit both teachers and students because the process replaces the out-of-date teaching methods such as memorizing and drilling with more engaging classroom activities for the students (Lin, 2021).

1.7.2 Constructivist theory

According to Hawks (2014), Constructivist theory assumes that a person can construct, understand, and reflect on knowledge and its meaning based on personal experience. Constructivist teaching strategies provide a good impact to students' cognitive and social development (Kalina & Powell, 2009). Cognitive constructivism is developed individually through personal progress while social constructivism is developed by means of collaboration and interaction amongst students and teacher, therefore the transfer of knowledge will be different to assists student in connecting these theories (Kalina & Powell, 2009) which is relevant to this research. Hawks (2014) added that students become active in learning and are responsive in class through collaboration and thus ensuring that essential concepts are fully grasps with the facilitation of the instructor.

Both the cognitive constructivism and social constructivism applied to the flipped classroom that encourages active learning among students as they collaborate during the classroom time through activities and discuss the video lessons which they have watched at home. At this point students would have grasped a certain percentage of the content through remembering and understanding which covers the lower-level cognitive learning.

To further build their mastery and higher-level learning on the content, interactive activities conducted during class time help improve understanding and meaning of the content hence encouraging engagement and interaction in the classroom. As acknowledged by Overmyer (2014), interactive activities conducted in a constructivist environment encourage learners to play an active role which effectively boost engagement and motivation in learning. Therefore, the flipped classroom is an ideal model that encourages students to be responsible for their learning, further promoting engagement, collaboration, interaction, and creativity which makes it the best model to provide a platform for passive students to be interactive in class.

1.7.3 Theory of Zone of Proximal Development (ZPD)

Vygotsky's Theory of Zone of Proximal Development (ZPD) blends well into the flipped classroom method (Bishop, 2013; Bishop & Verleger, 2013; Erbil, 2020; Overmyer, 2014). According to Vygotsky (1978), the learning process happens when students solve a problem either on their own or with help (Bishop, 2013). Students construct their own meaning of the knowledge which they acquired on their own out

of class and during their collaboration session in class they experience the process of improving their own mental representation.

Learning is the construction of meaning and knowledge that can be achieved as an individual or in a social environment (Montessori, 2005). The gap between what these students know before and after the active learning session in class, is called the Zone of Proximal Development (ZPD). Vygotsky proposes the implementation of cooperative learning exercises for less proficient students to progress with the help of their more competent peers within the ZPD, therefore individually constructing meaningful schemas (Bishop, 2013; Overmyer, 2014). Overmyer (2014) further emphasized that this method matches with the philosophy of the flipped classroom, where the classroom time is effectively utilized with collaborative work and individualized scaffolding tasks.

1.8 Conceptual Framework

The conceptual framework used in this research was a combination of the flipped classroom model, the revised Bloom's Taxonomy by Krathwohl (2002) and the cooperative experiential learning strategies which is depicted in Figure 1.1. The conceptual contribution from this research was to assimilate the concept of the flipped classroom and the relation to the Cooperative Experiential Learning (CEL) and Bloom's revised taxonomy.

Lin (2021) explains that the flipped classroom was a good teaching environment, which provides the opportunity for students to learn the content by watching the video lesson out of class first before actively participating in class

activities that allows the student to increase their understanding and apply what they have learnt in the real-life scenario. The idea of the flipped classroom for this research was to switch the content that is taught in class with the activities given by the teacher outside of the classroom. Meaning what is normally taught in class was learned at home through videos and reinforcement learning was conducted through in class activities. Khairudin, Salleh, and Ibrahim (2017) emphasised the importance of flipped classroom which allows students to express their thoughts on the content during the class discussions hence developing their communication and critical thinking skills. Therefore, in this research, there is a need to identify a strategy that can accommodate the complexity of a flipped classroom which not only involves learning in an inverted method but also to evaluate the tasks conducted in a collaborative environment to improve the critical thinking and communication skills.

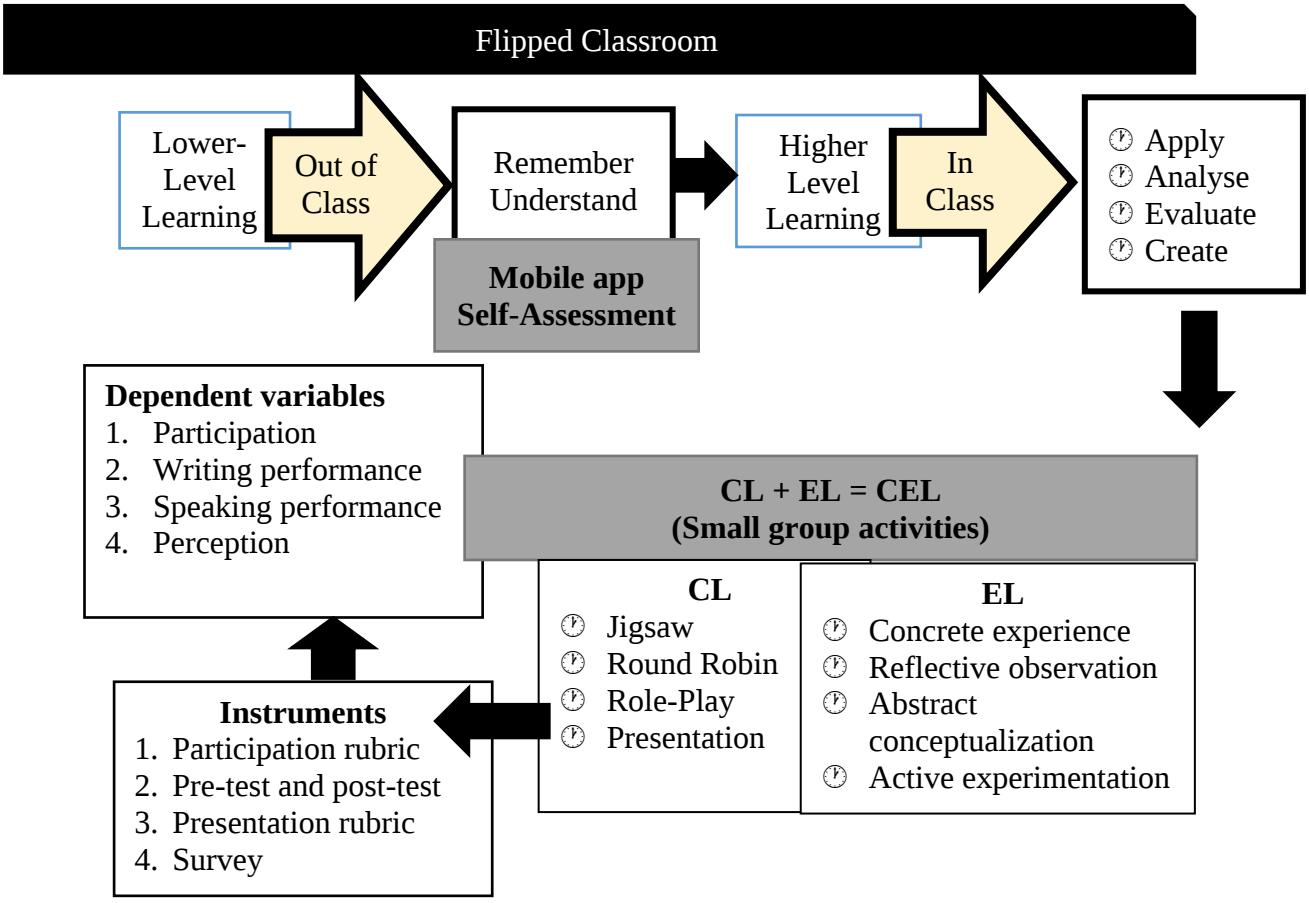

Figure 1.1 Conceptual Framework

Hence, Eppard and Rochdi (2017) strongly support the integration of the revised Bloom's taxonomy within the flipped classroom environment as it allows the dissemination of the content (lower order thinking) attained independently outside of class while the in-class learning focuses on activities that need critical thinking skills (higher order thinking) to comprehend information with the guidance of an instructor.

So, based on Figure 1.1, the lower-level thinking activities were done out of class by watching video lessons through the mobile app to help them to remember and understand the content before class. The video lessons were all created by the researcher and consist of topics that were used in this research which were people, environment, and presentation. The mobile app used in the research is called the Jom English! app which was also developed by the researcher. Two mobile apps were developed to cater to the full flipped and semi flipped groups. For the full flipped, the mobile app consists of short video lessons which consists of content that was learnt in class and a related quiz. This app was named Jom English! While for the semi flipped, the same video lessons were included but without the quiz because the quiz was given in class instead. The app was named Jom English! SF.

The design of activities and how the classroom was conducted was based on the revised Bloom's Taxonomy by Krathwohl (2002) and Cooperative Experiential Learning strategies. Lin (2019) argues that through the CEL strategies, students can upgrade from lower order thinking skills (LOTS) to higher order thinking skills (HOTS) by developing skills such as applying, analysing, evaluating, and creating. As depicted in Figure 1.1, the higher-level learning was conducted in class with the combination of both experiential learning model and cooperative learning activities

that promotes higher order thinking skills. The flow of the activities is guided by the experiential learning model which consists of four stages (concrete experience, reflective observation, abstract conceptualization, and active experimentation). Meanwhile the cooperative learning activities such as jigsaw, round robin, role play and presentation were integrated within these four stages. The following sections briefly explain the cooperative learning, experiential learning and the significant of combining these strategies.

Finally, the dependent variables of this research are participation, performance, involving writing and speaking performance and students' perceptions. The instruments are participation rubric, pre-test and post-test to measure writing performance, presentation rubric to measure speaking performance and a survey to measure students' perception towards flipped-classroom.

1.8.1 Cooperative Learning

Davidson and Major (2014) reported that there was strong evidence demonstrating improvement in academic performance, knowledge development, thinking skills, social skills and course satisfaction among students that were working in small groups as compared to those who are not. Millis (2002) states that the cooperative learning involves small groups that work on specific task that was assigned to them. Students not only share ideas but also help each other learn, therefore the contribution of each group member was significant. Cooperation is a framework that emphasizes on communication that is developed to support the achievement of a defined goal by way of people working together in a group (Panitz, 1999). Macaulay and Gonzalez (1996) explain that the instruction provided within the cooperative

learning allows the students within the small groups to work with one another that will enhance the learning of both individual and overall group members. Cooperative learning assists the interaction amongst learners through a structured process to achieve a pre-determined goal in the end (Panitz, 1996). Cooperative learning was chosen for the purpose of this study because the design of learning activities was compatible in all six levels of the Bloom's taxonomy and the improvement of the higher-order thinking skills (HOTS).

1.8.2 Experiential Learning

Knutson (2003) defined experiential learning as an inclusion of phases involving reflection designed so that the learner can relate a current learning experience to past and future experience. Kohonen (2007) describes experiential learning as an educational design which combines both theoretical and practical that embodies the importance of learning through observation and actively participates by doing to create a more meaningful learning experience. Learners are encouraged to learn using various methods of interaction that include learning from their own and other learner's experiences (Kohonen, 2007). Kolb (1984) stated that the experiential learning is accomplished through the completion of experience, reflection and learning cycle. There are two categories of experiential learning which are field based learning and classroom based experiential learning (Schwartz, 2012). For the purpose of this study, classroom-based learning was deployed as the learning technique within the flipped classroom environment. Cannon and Feinstein (2014) proposed the collaboration of the revised Bloom's Taxonomy within the experiential learning environment to establish suitable educational objectives.

1.8.3 Cooperative Experiential Learning

In this research, students collaborate and discuss ways to solve assignments and tasks given by their teacher as a coordinated group. As explained in the previous section, the experiential learning model is a cycle that is made of concrete experience, reflective observation, abstract conceptualization, and active experimentation. Each of the element in the cycle focuses on certain function of the classroom activities. The concrete experience was the action of learning out of class while the reflective observation was the classroom discussion based on the learning that was done out of class. Abstract conceptualization was the assimilation of the new knowledge from discussion during the reflective observation. This was followed by the active experimentation where students recreate and revise the knowledge that they have learned. Students participate in the classroom discussion based on the instruction by the teacher and then demonstrate their understanding of the knowledge through role-play and presentations. Therefore, by incorporating cooperative learning in the experiential model within the reflective observation stage, the students were able to discuss and analyze the content with their group members and construct their own understanding of the content (Lin, 2019). Lin (2019) proved that the cooperative learning was compatible with the experiential learning model, hence making it a suitable model to be integrated within a flipped classroom learning environment.

Teachers act as a facilitator within this flipped classroom environment while students fully immerse themselves by actively participate in classroom discussions. Thus, this conceptual framework allows the change of role between both teacher and students resulting in the change of teaching methods from the traditional teacher-centered learning to the students-centered learning environment. Further elaboration

on the design of activities based on the revised Blooms' Taxonomy and cooperative experiential learning strategies is illustrated in the following chapters.

1.9 Significance of Study

This study provides an improved insight and suitable flipped classroom model with the use of technology to be applied in secondary schools that caters to the current teaching and learning (T&L) needs, which emphasizes on student-centered environment. The lack of use of ICT and focus on only traditional teaching methods have initiated the direction of this research. This research contributes to the field of instructional design and an innovation of instructional strategies in secondary schools. It is important to address the issue of using the suitable T&L strategies to improve current students' learning environment to promote participation and performance. The lack of English proficiency among Malaysian students is also crucial to be addressed to boost their chances to be employed and achieve the standard of a knowledge-based society. This issue needs to be focused at the school level as it is beneficial to those students who get an early start in improving their English language skills. Flipped classroom inspires students to collaborate and be active in learning.

This research has six contributions: (i) focus on student-centered learning that gives students the space to be more responsible of their learning, (ii) provides a framework in conducting the flipped classroom with an enhanced instructional strategy that promotes group work, communication, participation and overall academic performance, (iii) reduce the practice of traditional teaching while increasing meaningful discussions in class through the integration of cooperative experiential learning strategy, (iv) introduce short videos that can help students understand the

concept before their class activities, (v) the proposed instructional strategy and T&L strategies can improve students English language skills which are writing and speaking, (vi) the development of the lesson plan in this study can be used as a guide for teachers to be more creative in their teaching strategies with the aid of technology.

1.10 Operational Definition

1) Flipped classroom

According to Lin (2021), flipped classroom is defined as a pedagogical approach where students watch video lessons out of class and actively perform in classroom discussions and tasks design by their teachers. In this study, flipped classroom is an environment that allows students to remember and understand (lower-level learning of the Bloom's revised taxonomy) the content out of class and then demonstrate their understanding of the content learned by cooperating and participating in small group activities or assignment assigned by their teachers during class time. The teacher will act as the facilitator. The higher-level learning of Bloom's revised taxonomy is address in class through the CEL strategies. There are two modes of flipped classroom in this study as follows:

a) Full-Flipped - experience the CEL strategies in class where the teacher guides and provides immediate feedback to the students throughout the session – students download the app, watch the videos, and attempt the quiz outside the classroom, (immediate feedback, Flipped with quiz out of class, CEL) and

b) Semi-Flipped - experience the CEL strategies in class where the teacher provides delayed feedback to the students at the end of the session - students

download the app, watch the videos out of class and attempt the quiz inside the classroom, (delayed feedback, Flipped with quiz in class, CEL).

c) In the Control Group, students experienced traditional teaching and learning first before the CEL strategies in class where the teacher guides and provides immediate feedback to the students throughout the session - students are encouraged to download the app, watch the videos, and attempt the quiz outside the classroom, (immediate feedback, traditional teaching and learning, quiz in class, CEL).

2) Jom English! (Mobile app)

This is the app created by the researcher for the purpose of this research. The app consists of learning outcomes which were addressed during the flipped classroom session. The learning outcomes were tagged to relevant video lessons that the students viewed before participating in their classroom activities. There were also quizzes that students attempt before class. The quiz was only applied to the full flipped group because the other groups take the quiz in class. The app was created from a free app generator therefore there were limitations such as the duration of the activeness of the app and the number of menus that can be viewed after being published. The app is only active for three months from the date the app was published.

3) Videos

In this study, videos were incorporated in the Jom English! app to convey the content. All the content videos were created by the researcher. The videos explain the content of the topics used in this research. One video was created to address the topic of

people. This video was entitled “The right thing to do” which depicts the types of people and how they reacted in the given scenario. There were good and bad characteristics explained in the video. For the environment topic, there were two videos integrated in the app to address issues regarding saving our earth and global warming. Terms, definitions, and concept related to the environment were included in the videos to improve students understanding in the topic. Finally, the presentation video was added as an additional topic to help students with their speaking performance after the treatment. This video provides tips and tricks in improving their speaking skills especially in public.

4) Cooperative Experiential Learning (CEL)

According to Herwina et al. (2018), CEL was derived from three concepts which are cooperation, experience, and learning. There was no specific definition for CEL found in related studies as most of the research only explains both CL and EL separately. Therefore, this research defines CEL as a model that integrates cooperative learning activities within the experiential learning stages to create an active learning environment and experience of learning through cooperation and experience to accomplish a pre-determined set of goals.

5) Participation

Dancer and Kamvounias (2005) define participation as an active engagement process which involves preparation, contribution to discussion, group skills, communication skills and attendance (as cited in Rocca, 2010). In this study, participation refers to how much the students are involved in the class activities. Participation can include being more proactive in asking questions, giving suggestions, having difference in

opinion and so on. The class participation is assessed with a rubric based on the guideline by Bean and Peterson (1998). The authors suggested three attributes which were preparation, contribution, and attitude as the rubric construct. In order to match the objectives of this research, the researcher added a new attribute (quality of the contribution). This rubric consists of score and level of performance (exemplary (4), proficient (3), developing (2) and unacceptable (1)), which was validated by five panel of experts.

6) Performance (Writing and Speaking)

Performance refers to students' achievement in both the writing assessment and speaking assessment in English.

a) Writing Performance

Students were given a pre-test and a post-test for the written performance. The structures of the pre-test and post-test were the same but the questions were different. Both the pre-test and post-test consists of a short passage with short answer questions. Pre-test consists of one reading comprehension followed by six short answer questions. The post-test also consist of one reading comprehension which is longer than the pre-test, followed by ten short answer questions. Both the tests were validated by two experienced English teachers.

b) Speaking Performance

A presentation rubric adapted from Allen (2014) was used to assess the speaking component. Allen (2014) recommended four criteria in grading oral presentation which were organization, content, delivery, and language used while the grading scale