The Use of Edutainment in Promoting Higher Order Thinking Skills in ESL Writing among Malaysian University Students

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Abstract
The aim of this article is to investigate the perceptions of university students on the use of edutainment in promoting Higher Order Thinking Skills (HOTS) in English as a second language (ESL) writing. 20 diploma students from Malaysia University of Science & Technology (MUST) participated in this study. This study adopts quantitative research design where a set of questionnaires was distributed to the students. Before answering the questionnaire, the students went through a treatment using edutainment. They had to play an online game downloaded from Play Store. They spent 13 weeks playing the game. At the end of the treatment, they had to sit for the post test. Then they were asked to complete the questionnaire. This study is in bringing positive impact to the society starting from the ministry to the students regarding the importance of the edutainment implementation in classroom teaching. The findings reveal that the students perceived that Edutainment has affected the stimulation of higher order thinking skills in their writing. This suggests that edutainment should be incorporated in the teaching and learning English.

Keywords: Computer Assisted Language Learning (CALL), Edutainment, ESL writing, Higher Order Thinking Skills (HOTS), Malaysian students, mobile game

Introduction

Writing is an important part of communication. Good writing skills allow a person to communicate a message with clarity and ease to a far larger audience than through face-to-face or telephone conversations. According to Dj and Sukarnianti (2015), writing is an effective method for individuals to communicate and expressing ideas, feelings and opinions to other individuals. Moreover, writing skills is one of all the four skills that students need to master. An individual with great writing skills is constantly successful at conveying everything that needs to be conveyed.

To measure individual's intellectual level and the ability to portray something, writing skill is always the best platform. Hence, the technique of teaching and learning writing should be diversified and not only conform to the conventional learning components. This is to ensure that the methods adopted can attract students and thus can increase their participation in writing activities and later improve their writing skills. This matter is closely related to the techniques and approaches to teaching used in a classroom session where writing skills is taught. Therefore, edutainment approach has been introduced by the Ministry of Education to make lesson more enjoyable and exciting. Edutainment is the component of the execution of technology of modern forms of entertainment in traditional classes, lessons, workshops, and lectures (Yaylaci, 2016). According to Capila and Bhalla (2010), they discovered that the concept of edutainment is one of the approaches toward outlining and achieving and deliver media message to teach and engage the students in relation to meet the educational goals to expand the students' knowledge on educational issues.

According to Alias, Rosman, Rahman and n   Dewitt (2016), the Malaysian Education Blueprint for higher education have noticed that Malaysian students need to create thinking abilities so that they can be prepared for future jobs opportunities especially from preschool to post-secondary. Higher Order Thinking Skills (HOTS) are treasured because students are believed to be prepared to face challenges in academic life and job responsibilities in a daily basis. Hence, students with HOTS are equipped with high capacity of thinking out of the box in order to succeed in this 21st century life and careers. However, the government exertion of presenting Higher Order Thinking skills in Malaysian Education is still at its underlying stage. Puchta (2012) indicates that higher order thinking is a complicated thinking that requires extra struggle and formed valued results. In order to develop higher order thinking skills, learners need to be a critical thinker. Higher order thinking skills include critical, logical, metacognitive, creative thinking and reflective thinking and they will be activated when learners face uncertain problems and ambiguous questions. As a result, it will help in promoting growth and other intellectual skills.

Technology has dependably been at the front line of human education. As technology ends up around the world, there is an expanding momentum to fuse it into education. According to Zaki, Wook, & Ahmad (2015), the central focus of the use of technology in teaching and learning is to attract students besides elevates the effectiveness of learning process of the students. The use of technology in education leads to numerous benefits. For instance, escalating access to education which can be accessed anytime and anywhere, improving the effectiveness of the teaching and learning process itself (Surjono 2015). Aksakal (2014) revealed that the core purpose of edutainment is to incorporate education with entertainment. The concept available in edutainment

is one of the alternatives that can be utilized by teachers in order to adjust education with the needs of today's generation of students. Education is essential in planning worldwide and sensible citizens who are keen to be a part of an exceptionally assembled and technology-based society (Berry & Baker, 2010). Hence, the execution of edutainment is best done when educators assimilates this platform into teaching. Along this line, students are prone to the essential elements of 21st century learning at such a young age which is the best age to grasp everything especially learning a language.

This study will foster a positive attitude among Malaysian teachers towards the integration of Edutainment in improving writing skills of the students. Recently, students displayed poor outcomes in writing. Thus, by integrating a different approach or method such as edutainment in teaching and learning process in classroom will boost teacher's attitude.

Besides that, this study is significant in familiarizing the undergraduate students with the application of edutainment to promote higher order thinking skills in writing. The implementation of Edutainment in classroom learning was introduced in the late 1990s. It is also beneficial to the educators as both teacher and students are the focal consumers in this field of education. This study will help to give a clearer picture in terms of understanding the effectiveness of Edutainment as a platform for a betterment in teaching writing in classrooms besides how by developing edutainment into teaching and learning session will affect students' motivation in engaging themselves with fascinating and educational classroom.

Edutainment therefore plays a vital role in engaging students' interest and English language learning among individuals. Since they spend most of their time in the classrooms, it is crucial to note that language learning and students' interests towards teaching and learning process of the classrooms are of equivalent significance in getting these skills and engaging English language. This is supported by a study of the impact of an edutainment program that targeted high school students by Bjorvatn et al. (2019). They discovered that the approach has increased students' interest in learning in the short run, engagement between language and students in the long run and at the same time reduced school investments on other outdated teaching instruments to teach.

A number of related studies have been focusing on the integration of edutainment in promoting higher order thinking skills in reading for ESL learners. However, studies that promote higher order thinking skills in writing is yet to be found in Malaysia, especially in Edutainment based learning. Since writing skills seem to be the most difficult skills and play a crucial role in mastering a language, it is supreme for the readers to acknowledge its importance (Blanka, 2010). The purpose of this study is to identify the perceptions of using Edutainment in promoting higher order thinking skills in English writing.

Higher Order Thinking Skills (HOTS)
The Importance of Higher Order Thinking Skills (HOTS)
In the cognitive hierarchy, higher order thinking skills are the highest according to DeWitt et. al, (2015). As posited by Anderson and Krathwohl (2001), basically, higher order thinking skills in learning can be defined as the expanded use of the cognition to overcome challenges in learning.

This is a concept established from Bloom's Taxonomy of Learning (1956). The capability of facilitating critical thinking and problem solving affects the transfer of learning (Brookhart, 2010).

Teachers agree that it is so important to teach students higher order thinking skills (Yee et al., 2012). According to a study by Dorgu (2016), the utilization of higher level questions which requires the students to incorporate and utilize different ideas level that will enhance students' learning that is the way to acquire knowledge or skills or attitudes towards subjects that can cause behavioural changes.

Vernez, Culbertson and Constant (2014) claim that different activities that promote HOTS can be conducted in class to evaluate students' abilities in creating new knowledge based on the previous learned knowledge. According to Saido, Siraj, Nordin, & Al_Amedy (2018), in Bloom's taxonomy the order is from concrete to abstract according to the hierarchy of cognitive development from lower level to higher level of the processing of student's cognitive. Knowledge, comprehension and application which are the first three levels in Bloom's taxonomy are categorized as lower level of thinking skills that covers basic recognition of these domains. Conversely, the last three levels which are analyse, synthesise and evaluate foster the learning performance of the students that require them to utilize higher order thinking skills (Ghani, Ibrahim, Yahaya & Surif, 2017).

This is supported by Singh et al. (2018) in their study on which emphasized on the utmost contribution by the teachers in incorporating HOTS in 21st century learning process in classroom activities. The findings of the study disclosed that the modules for HOTS can be used as a guideline for the students under teacher's supervision to implement and integrate thinking skills in the learning process of teaching writing.

AlKhatib (2019) conducted a study on Higher-Order Thinking Skills in Engineering & Humanities. He concluded that proposed teaching activities' initial assessments show high improvement in student learning and were applied successfully in higher education and partially tested first-grade students.

Tiew and Ng (2019) revealed that HOTS pedagogical practices employed by teachers in Malaysian schools could be categorised as practices that promote and practices that inhibit the teaching of HOTS. The synthesis revealed that some practices that promoted the teaching of HOTS were brainstorming, constructivist learning, inquiry teaching, thinking map, and problem-based learning whereas some practices that inhibited the teaching of HOTS were teacher-centered learning and teaching lower-order thinking skills.

Methodology

This research adopts quantitative method using questionnaire as the main collection of data. A set of questionnaires developed for this study is adapted from a questionnaire developed by Yee et. al (2010). 20 Diploma in Logistics and Freight Forwarding Management students who are taking Intermediate English subject from Malaysia University of Science & Technology (MUST) are selected as the research sample. The age of the participants ranges from 19-20 years old consisting

of nine male students and 11 female students. The selection of the students is based on their previous exposure towards entertainment in education.

In this study, a simulation process which requires the students to play the online games and a set of close-ended questionnaire were prepared to collect data on the perceptions on the integration of edutainment in their ESL writing.

After the simulation process, students were asked to answer a set of closed-ended questionnaire. This instrument was used to examine the perceptions on the use of Edutainment to stimulate higher order thinking skills in their writing.

The questionnaire consists of two parts including demographic profile of the students followed by the second part which is on the six levels of Revised Bloom's Taxonomy: 1) remember 2) understand 3) apply 4) analyse 5) evaluate and 6) create. For each level, three questions were prepared. This part of questionnaire required the respondents to indicate the level of agreement on the use of Edutainment in stimulating higher order thinking skills in their writing.

Simulation Process

In order to collect data, a mobile game app named Mo n Ki World Dash from Google Play Store was adapted. As stated in Google Play Store, this game is first fun arcade game with an attractive concept of "Learning while Playing". The skills available in this game is higher order thinking skills (HOTS) which is one of the utmost crucial skills in soft skills other than creativity that players encounter the relevance of this game and the learning of English language in classroom. Students developed HOTS while playing this game in order to complete all 50 levels.

Students were instructed to download the game from Google Play Store for Android users before they were tutored on further explanation regarding the game.

Treatment

A simulation software named Mo n Ki World Dash was used as a treatment process in this research. The concept of this game is 'Learning while playing'. The concept itself is in accordance with the platform of this study which is Edutainment. This game is vital in contributing the help to elicit a 21st century students with higher order level of thinking skills in English language classroom.

First and foremost, the participants were asked to upload this mobile app from Google Play for a start. There are 50 levels altogether to complete this game. Mo n Ki World Dash is a world tour that requires the players to run and rush throughout some of famous places and more than 20 real life popular monuments around the world. The places are Rio, Italy, India, United States of America, South Africa and London. The runner will rush and run freely to each country in order to complete all the tasks including catching the last train home, finding the subway, collecting fuel for Olympic ceremony, locating the ingredients for the best pizza in the region and etc. in this software, it provides more than 350 Global Trivia and fun facts about the countries to learn and beneficial to the students. Students were required to complete every level in order to gain more information about a country. The first country they encountered was South Africa. They had to

run and collect as many coins as possible. They will get additional coins worth about 250+ if they clicked on the questions that lead them to the information about that country. In order to gain knowledge about those countries, 50 levels of the game need to be completed. Researcher conducted this treatment for 11 weeks with five levels to play each week.

For the first week of the treatment, students played first five levels of the game which brought them to travel around South Africa. The journey continued in Rio de Janeiro started off with level six until level ten for the second week of the treatment. Another two levels of Rio which is level 11 and level 12 were played together with the journey in London until level 15. Next, since there are eight levels in total in London, students completed level 16 until level 20 in the fifth week. Level 21 until level 25 in week six brought the students to Italy followed by another four levels in the same country which is level 29 plus level 30 in the USA for week seven. It 37 was then followed by level 31 until level 35 in the USA in the 8th week of the treatment. Level 36 until level 38 in the USA added off with level 39 and level 40 in India in week nine. The journey in India covered 12 levels overall started with first five levels in that country which is level 41 until level 45 in week 10, level 46 until level 48 in week 10 finished off the journey in India with level 49 until level 50 in week 11. The game took place for 30 minutes for each session hence; it did not interrupt the academic requirements of the classes researcher teaches.

The treatment has taken place for 13 weeks. At the end of the treatment, a post-test essay was conducted to examine the use of the HOTS elements in the essays. From here we can see the perceptions of the students towards the use of edutainment in promoting HOTS.

Findings

The presentations of findings are divided into six types of categories:
remember, understand, apply, analyse, evaluate and *create*.

Remember

Remember is the first category of Revised Bloom's Taxonomy which refers to the ability to retrieve knowledge from memory when it is used to recognize or regain facts to recall previous learned lesson, material or information. As reported in Table one, the first stated statement which is "I am able to retain information from the game" scored 4 mean score with none of the students answered strongly disagree, only one student answered disagree, three students answered slightly agree, nine students which scored agree as their level of agreement showed the highest number of students. Lastly, six of them answered strongly agree. This can be proven when they are able to retain information from the game during the first phase of Revised Bloom's Taxonomy.

For the second statement, "I am an innovative person", the mean score is 3.45 which means almost every student agree with the statement that they are innovative person. 11 out of 20 students answered agree and one student answered strongly agrees as their level of statement for the second statement. However, one student strongly disagrees with the statement. With the results of the second statement, it is proven that most of the students are creative in thinking.

As stated in the third statement which is "I am a person who depends on lecturers to repeat previous learned lesson", the mean score from the SPSS results is 2.95.

Table 1. *Frequency and mean score - Remember*

No.	Statement	1	2	3	4	5	Mean
1.	I am able to retain information from the game	0	1	4	9	6	4.00
2.	I am an innovative person	1	2	5	11	1	3.45
3.	I am a person who depends on lecturers to repeat previous learned lesson	0	8	5	7	0	2.95

Understand

Next, the second level in Revised Bloom's Taxonomy is understand. It is concerned with the ability to create meaning from various types of purposes either written messages or actions for instance, summarizing, interpreting, explaining and so forth. During this stage, students should be able to construct messages to verify that they understand the information or lesson given.

None of the students strongly disagree with "I know how to describe the lesson based on the game in general", followed by only one student disagrees and four students slightly agree. seven students agree and the greatest number of students which is the remaining eight strongly agree with the statement. It shows that the game has helped the students to understand better to describe the lesson.

The second statement is "I know how to explain games in detail the ideas from the game. For this statement, the mean score is still high with 3.65 where not one of the students answered strongly disagree, only one of them answered disagree while eight of them answered slightly agree and the other eight agreed while the remaining three students strongly agree with the statement. It can be depicted that almost every student is able to describe the ideas from the game in details by applying the second category in Revised Bloom's Taxonomy.

Furthermore, the mean score for the third statement remains high with 3.8. Ten students agreed with the statement "I can explain the lesson based on the game to my peers in classroom". None of them scored either strongly disagree or disagree while seven of them slightly agree with the statement. On the other hand, ten students agree and three of them strongly agree with the statement. For this phase of Revised Bloom's Taxonomy, it shows that most of the students are able to acclimate themselves into the second phase by understanding the game and applying this category into their learning process from the game.

Table 2. *Frequency and mean score - Understand*

No.	Statement	1	2	3	4	5	Mean
1.	I know how to describe the lesson based on the game in general	0	1	4	7	8	4.1

2.	I know how to explain in details the ideas from the game	0	1	8	8	3	3.65
3.	I can explain the lesson based on the game to my peers in classroom	0	0	7	10	3	3.8

Apply

Apply category in Revised Bloom's Taxonomy is concerned on the ability to utilize or carry out a procedure by implementing or executing the materials in rigid and recent circumstances. It refers to circumstances where learned lesson or information is utilized via simulations or presentations. As stated in Table 2, the results showed that the game has impacted the students positively in stimulating their higher order thinking skills in writing. Mean score for the first statement is 4.3 with none of the students answered strongly disagree or disagree to the "I am able to answer the exercises based on the game given in class" statement. Meanwhile, only one student answered slightly agree followed by 12 number of students agree and seven of them strongly agree with the statement.

As for the second statement, the mean score is 4.2. Four students slightly agree followed by eight students agree and the remaining eight answered strongly agree with the statement "I am able to transfer the information from the games into the exercises given".

Moreover, the mean score for the third statement is 3.3. Only one student answered strongly disagree and four students disagree as they are not often involved in writing competition before. However, six students slightly agree with the statement followed by six students who agree and the remaining three students who strongly agree with the statement. This might be due to the student's minimal interest towards writing competition. Therefore, there are still several students who participated in such competition before. Overall, the results portray positive remarks from students' perceptions towards the utilization of Edutainment in promoting their higher order thinking skills in writing by applying writing skills and use the information they have gained from the game into their daily activities.

Table 3. *Frequency and mean score - Apply*

No.	Statement	1	2	3	4	5	Mean
1.	I am able to answer the exercises based on the game given in class	0	0	1	12	7	4.3
2.	I am able to transfer the information from the games into the exercises given	0	0	4	8	8	4.2
3.	I am often involved in writing competition	1	4	6	6	3	3.3

Analyse

The *analyse* category is related to the ability of the students to part the concepts, determine whether the breaking parts are linked to one another or correlated to the whole purpose. The functions are categorizing, investigating, differentiating and so forth. It is also the ability of the students to illustrate these functions by constructing surveys, charts or diagrams. In this phase, students should be able to distinguish between the concepts that they first separated. According to Table 3, the mean score for the first statement is 4.35. No one answered strongly disagree and disagree on the statement. The frequency of the students who answered slightly agree and agree are three and seven respectively followed by ten number of students who strongly agree with the statement "I have no problem in editing my work".

Next, the second statement which is "I have no problem in completing essay writing given in class within the given time". The frequency of the students who chose strongly disagree and disagree as their answers are zero. 8 students have chosen slightly agree as their answers while seven of them agree with the statement. Meanwhile, five students answered strongly agree hence, making the mean score 3.85 for this phase of Revised Bloom's Taxonomy.

As for the last statement in this category, "I have no problem in identifying grammar errors in my work", the mean score from the SPSS results is 3.85. None of the students have chosen strongly disagree as their answer and only student who disagree. This might be due to their difficulties in recognizing their grammar errors. However, there are five students who slightly agree with the statement followed by 10 students who have chosen agree as their answer which means they are able to identify their own grammar mistakes in their work with the remaining four students who answered strongly agree for the statement. Generally, the students face no difficulties in detecting their grammar errors hence, it is shown that they can apply analyse phase from Revised Bloom's Taxonomy from the game.

Table .4 *Frequency and mean score – Analyse*

No.	Statement	1	2	3	4	5	Mean
1.	I have no problem in editing my work	0	0	3	7	10	4.35
2.	I have no problem in completing essay writing given in class within the given time	0	0	8	7	5	3.85
3.	I have no problem in identifying grammar errors in my work	0	1	5	10	4	3.85

Evaluate

The second last category in Revised Bloom's Taxonomy is evaluate. This category refers to making decisions dependent on criteria and principles by critiquing and studying. The process of evaluation is including recommendations and reports that can be constructed by some of the products. This phase is crucial before the last phase which is create because it is a part of earlier

conduct before an individual produce something during create phase. Generally, during this category, students are expected to be able to criticize, judge and even check the importance of the tools or platform used to improvise their skills. According to Table 4, the mean score for the first statement which is "I face no difficulties in solving the project or evaluation based on the views and ideas of the game" is 4.0. This statement is concerned on whether the students are able to resolve or validate any project given in regard with the ideas they obtained from the game. None of the students chose strongly disagree or disagree as their answers according to the results from SPSS. There are four students answered slightly agree to the statement as they might face minimal complications in evaluating any tasks given based on the game. Conversely, there are 12 students who did not face any problems in solving the given classroom activities by selecting agree as their level of agreement to this statement.

Next, the second statement stated, "I face no difficulties in solving the problems to act immediately to resolve critical problems based on the game". The statement refers to the immediate action that can be taken when students encounter the need to resolve critical problems related to the game. According to the table, the mean score for the first statement is 3.95. For the strongly disagree and disagree level of agreement, none of the 20 students have chosen either one of the options. Same as the first statement, these students might not face any difficulties and hardships in solving the problems to give an immediate action in resolving critical problems that they face during the tasks in classroom based on the game. On the other hand, five students have chosen slightly agree to the statement while 11 out of 20 students answered agree to the statement as their level of agreement. Four students chose strongly agree to the statement as they did not face any complications at all in working out on the tasks given to act based on the game.

Thirdly, the last statement for this category in Revised Bloom's Taxonomy is "I face no difficulties in justifying a decision to complete written tasks". This statement is concerned on the justification made by the students in completing the given written tasks. The mean score for this statement is 3.8. Same as the two statements above, none of the students answered strongly disagree as their level of agreement while only two students have chosen disagree and five number of students selected slightly agree to the statement. This may be due to the difficulties they faced in justifying a decision to complete the written tasks given in class. However, there are eight students who did not encounter any complications in justifying a decision to accomplish the task by selecting agree as their level of agreement. Similarly, the remaining five students have picked strongly agree to show that they too, face no hardships in rationalizing a decision on the written tasks. In respect to the results from SPSS for this category of revised Bloom's Taxonomy, it can be proven that the utilization of Edutainment as a platform to teach English language in class has a beneficial impact on students.

Table 5. *Frequency and mean score - Evaluate*

No.	Statement	1	2	3	4	5	Mean
1.	I face no difficulties in solving the project or evaluation based on the views and ideas of the game	0	0	4	12	4	4.0

2.	I face no difficulties in solving the problems to act immediately to resolve critical problems based on the Game	0	0	5	11	4	3.95
3.	I face no difficulties in justifying a decision to complete written tasks	0	2	5	8	5	3.8

Create

Ultimately, the final phase in Revised Bloom's Taxonomy by Anderson and Krathwohl (2001) is create. This stage refers to the ability of individuals to place all the elements to form something new and structured by preparing, creating or generating. Individuals are required to combine everything together in such a new, recent and different in creating something new. It is known as the most difficult stage in this revised taxonomy due to the fact that it stimulates higher order thinking skills. As depicted in Table 5, the mean score is 2.55 for the statement "I have difficulties to generate ideas during discussions in class". Three students strongly disagree with the statement. This means, four of them did not face any complication in generating ideas during discussions in class followed by nine students who have selected disagree as their level of agreement which reflected that they face no difficulties in such situation. Then, four out of 20 students slightly agree with the statement. It shows that they might encounter some slight difficulties. The remaining four students have picked agree and strongly agree for the first statement as their answer that has portrayed that they faced hardships in generating ideas during discussions in classroom.

Next, the second statement indicated that "I have difficulties to generate ideas during discussions in group". This statement is concerned on whether the students face any difficulties in generating ideas during discussions in group while discussing on any tasks or activities given. The mean score for this statement is 2.55. The highest frequency of students is 10 out of 20 which is disagree with the statement that they ever faced any difficulties to generate ideas during group discussions while four students picked strongly disagree as their level of the agreement. Meanwhile, the remaining four students agreed and strongly disagreed with the statement due to the difficulties that they have faced during the group discussions.

Lastly, the third statement which is "I have difficulties to generate ideas during open discussions" has resulted 2.35 for the mean score which is the lowest score among all. Nevertheless, student five and student eight answered the statement with strongly disagree and agree respectively. Thus, it may be considered as they did not face any obstacles during open discussions in order to generate and contribute ideas to the other classmates.

Table 6. *Frequency and mean score - Create*

No.	Statement	1	2	3	4	5	Mean
1.	I have difficulties to generate ideas during discussions in class	3	9	4	2	2	2.55

2.	I have difficulties to generate ideas during discussions in group	4	10	0	2	2	2.55
3.	I have difficulties to generate ideas during open discussions	5	8	3	3	1	2.35

Discussion

The Perceptions of Using Edutainment in Promoting HOTS in English Writing

The six categories of Revised Bloom's Taxonomy listed in the questionnaire that were used to collect data for this study were based on the adaptation from a study by Yee et. al (2010). Those categories were identified as the major domains for higher order thinking skills.

Based on the finding, it is found that generally, through Edutainment, the students can apply six major categories listed in Bloom's taxonomy in their writing. The results showed that nearly one third of the students hardly ever apply any of the categories in higher order thinking skills in their writing prior to the use of edutainment in their writing classroom. Approximately 10 percent of them have encountered difficulties in generating ideas and gathering information to write. The findings generally revealed positive perceptions from the students in all categories of HOTS. Most of the students perceived that Edutainment has helped them to improve their post-test results by promoting higher order thinking skills in their writing.

Remember

It is obvious that students perceived that they can retain information from the game where they can use as the information in their writing. The overwhelming positive mean score with 4.00 is credited to the Edutainment approach utilized during treatment process in the class. This finding is similar to Frafika Sari et al. (2018) where they indicate that in order to help students to stay motivated and engaged in class, the integration of technologies elements is fundamental.

Edutainment is believed to assemble innovative person that always curious and interested in digging things that they can remember from the previous learned lesson. Innovation in the working environment has been professed to be a key factor in hierarchical survival and achievement. University students are the main source of future advancements in authoritative settings (Montrieux et al., 2015). Therefore, being an innovative person is important in shaping the undergraduate students so they can be prepared before facing the working atmosphere. More than half of the students assumed that they are innovative person after the treatment process.

Despite all the positive perceptions from the students, the researcher found that students still depend on the lecturers to repeat previous learned lesson. Edutainment plays a crucial role in reminding the students on what they have learned previously in the sense of there is continuity on what they are going to learn to create new information and what they have learned to be linked in their writing. Nearly half of them assumed they faced difficulties in remembering previous learned lesson. However, the remaining students perceived they do not depend on the lecturers because they enjoyed playing the game as supported by Dorner et al. (2016), in developing a number of

cognitive skills, the interesting structure of activities embedded in video games provide learners a "mental workout" as an exercise for them to think more. Thus, during this stage, it can be seen from students' point of view that they can apply *remember* category in their writing with the help of Edutainment.

Understand

Edutainment approach has caused the students to fulfill the criteria of being able to apply this category in their writing based on the findings from students' perceptions. The mean score strongly showed that they know how to describe the lesson based on the game in general. It is proven with the help of Edutainment in class subsequently affected their understanding towards the lesson hence, they can give explanation generally as students are more engaged in the language learning. The mobile game app has made the students anticipate lesson conducted in class which further leads to better understanding on the lesson as supported by (Giannakos & Vlamos, 2013) where the enjoyment on students to play video games in class has resulted in positive effects for a better understanding.

Also, it can be seen the students assumed they know how to explain in detail the ideas from the game. The realization of the importance of mobile game app in gaining a better understanding on a lesson is important. It helps to equip the students with the ability to acknowledge a lesson to be explained and students are aware of the advantages they may face in the future. This is supported by a study by Alamri (2016) where he mentioned that video games offer a chance for learning effectively and students can simply acquire and understand knowledge and perform in the classroom. In this 21st century, traditional learning styles normally fail to generate students' interest and teachers need to integrate technology in the classroom.

With the integration of Edutainment in classroom learning, students perceived that they can explain the lesson based on the game to their peers in classroom. This is due to the understanding as they enjoyed learning the lesson by using the mobile game app as postulated on a study from Putra (2018) where the results showed learning a lesson with the integration of Edutainment software was effective with respect to interest level of the students.

Apply

As far as *apply* is concerned, it is clearly affected by the session spent on the games. It is obvious that this category tops the other categories in promoting higher order thinking skills in writing where the highest mean scores derived from two statements. It is proven that students assumed they were able to complete the exercises based on the game given in class. Edutainment is believed to engage the students in language lesson that is educational and yet fun at once by going against the norm of how plain and unattractive language learning is. The learning process can be effective if students are able to apply their results and new retained information when they have admission to recent information on the lesson through Edutainment (Gorra & Bhati, 2016).

Majority of the students perceived that they were able to transfer the information from the game into the exercises given. It means they can fully apply this category when completing the tasks after they gained new material through the incorporation of Edutainment in the lesson. This category is fundamental in higher order thinking skills as it is concerned with student's ability to

implement the materials in recent settings. The positive remarks from the students is because the mobile game app is interesting to the point that majority of them were able to apply this category in their writing.

Edutainment plays an important part in ensuring *apply* category in writing as it involves more than just thinking as indicated by Kim and Kim (2015) as the utilization of learned lesson can be perceived in presentations or competitions. This finding is supported by Aksakal (2014) when he mentioned that core purpose of edutainment is to incorporate education with entertainment. The concept available in edutainment is one of the alternatives that can be utilized by teachers in order to adjust education with the needs of today's generation of students.

Analyse

Nearly all the students assumed that they face no difficulties in editing their work. They can categorize, investigate and differentiate their work accordingly. This is due to the assimilation of the mobile game app into learning session as an aid in helping them applying this category to amend their work by being able to distinguish between the concepts that they separated for editing part. Students find Edutainment as an enjoyable approach to use in learning language (Korkmaz, 2013).

Based on the findings, more than half of the students presumed that they have no problem in completing essay writing given in class within the specified time. The enough given time helps the students to analyse before completing the essay. This is because the mobile game app has stimulated their *analyse* category as they enjoyed learning the lesson with fun and attractive approach and did not face any problem or difficulties. The fourth category in Revised Bloom's Taxonomy is believed to be affected by the incorporation of Edutainment in writing class.

The points explained above show the importance and effectiveness of Edutainment in applying *analyse* in writing. According to the findings, students' point of view on this matter is they did not have any problem in identifying grammatical errors in their work. This might be due to the information gained from the game where they learned about the rules of grammar by reading all the information and knowledge provided as it is fun and stress-free to learn through mobile game app.

Evaluate

In ensuring the student's ability to promote higher order thinking skills in writing, students must be able to accommodate this category. It is concerned with the student's ability to make decisions dependent on the criteria and principles by criticizing. Based on the findings, the mean score showed positive perceptions from the students since they faced no difficulties in solving the project based on the ideas of the game. Edutainment approach conducted by the lecturer helps to keep their interest as new understandings help the students in applying *evaluate* in their writing. This is because the mobile game app is educational yet fun at the same time hence, the students enjoy learning session in class and gained information from the game at once. It also equipped students with the ability to criticize and check the importance of the game used to improvise their writing skills. Therefore, this justifies that the project was solved by critiquing the ideas of the game.

It is also perceived by the students that they face no difficulties in solving the problems to act immediately to resolve critical problems based on the game. They are expected to think critically in ensuring the development of 21st century students that can think critically before carelessly accepting any new information by continuously searching the legitimacy of the information received (Malik, 2018). Edutainment provides the students with a stress-free surrounding that they can cope with the learning process as it is the norm of young adults to like playing games but at the same time thirsty for new ideas and information. Therefore, as assumed by the students, with the integration of the game in classroom learning, students can resolve critical problems.

Based on the findings, nearly all the students did not face any difficulties in justifying a decision to complete written tasks. They perceived that due to the advantage of Edutainment in providing students' excitement and approach, the written task was completed easily as they applied this category based on the mobile game app to rationalize a decision making. As far as evaluate category is concerned, it is positively affected by Edutainment. The students are seen to portray their ability in making wise decisions to complete any written tasks given.

Create
As kids and young adults invest most of their time in playing games, Edutainment is one of the best approaches to incorporate in classroom learning. According to a study by Aksakal (2015), it is found that Edutainment method gives a big impact on students learning process as they have a great time in experiencing how to create new knowledge and idea. Based on the findings, half of the students find it difficult to generate ideas during discussions in class be either in group or open discussions.

Based on the findings, nearly half of the students faced difficulties in generating ideas during open discussion. In ensuring student's ability to apply this category in writing, they should be able to create new materials to be shared. The mobile game app utilized in classroom learning must be able to accommodate this final category of Revised Bloom's Taxonomy, so they face no hardships in producing new ideas during open discussions. Despite the critical lack of student's ability to create new ideas, more than half of the students perceived that they can generate new information by their own critical thinking to be shared with the group members during various kinds of discussions. Capila and Bhalla (2010), seem to agree with this when they claimed that the integration of HOTS in classroom approaches deliver media message to teach and engage the students in relation to meet the educational goals to expand the students' knowledge on educational issues.

Vernez, Culbertson and Constant (2014) claim that different activities that promote HOTS can be conducted in class to evaluate students' abilities in creating new knowledge based on the previous learned knowledge.

Students in this era of fourth industrial revolution (4IR) need to be equipped with higher order thinking skills in order to have a healthy competition and stay pertinent in these recent industries. Before proceed with working industries, students are expected to be prepared in mastering writing skills to fit in the working situation such as writing a report, applying leave for

holidays, key in important data and so forth. Hence, it is fundamental for students to master and stimulate higher order thinking skills in their writing before they face real world. However, there is lack of Edutainment application in English writing classroom (Makarius, 2014) to help and equip the students with such skills.

Conclusion

Interestingly, nearly all the participants/students perceived that Edutainment has affected the stimulation of higher order thinking skills in their writing as proven in the output of the questionnaire. All the six categories in Bloom's taxonomy were applied by the students at diversity level of their acquirement. However, it is noted that the final category which is *create* need the most improvement. Students need to be able to create and invent new material in order to be a good fit in working industries in the future. It is significant to generate new and fresh ideas to make a great contribution. These findings are reliable with the results found in the first two research questions as Edutainment are seen to give a positive impact along with the main factor in stimulating higher order thinking skills that act as an aid to help students in improving their writing.

In conclusion, the undergraduate students acknowledge that regular practice of integrating Edutainment will be a great advantage for them to elevate the application of higher order thinking skills in their writing. The findings of the study show the positive perceptions of the students and it is recommended that further studies should be conducted with bigger sample and different levels of studies.

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