JIP
Jurnal Inovasi Penelitian

IMPROVING STUDENTS' VOCABULARY MASTERY USING PLICKERS FOR ELECTRICAL AVIONIC DEPARTMENT

By
Maria Asumpta Deny Kusumaningrum[1] & Dewanti Ratna Pertiwi[2]
[1,2]Sekolah Tinggi Teknologi Adisutjipto; Yogyakarta, (0274) 451263
Email: [1] mariadeny@stta.ac.id & [2]dewanti.ratna.p@gmail.com

Abstract
The lack of English vocabulary mastery becomes a problem faced by Electrical Avionic department students at STT Adisutjipto Yogyakarta. Mostly, the students learn about the technical term of vocabulary in their field. Students feel bored to have old dated activities in learning English. They stay in a dormitory without laptop, mobile phone, television, and internet access. They have a pressure to pass the requirement subjects as well as English in accordance with their cooperation with Garuda Indonesia. Based on this problem, the researcher chose online learning media using "Plickers". Plickers is an online tool that has supporting application for facilitating students without any electronic devices. Because of the urgency for English needs in STT Adisutjipto, this research was conducted to solve the problems occurred. The research aimed to answer a research question which is how Plickers improves students' vocabulary mastery. The data collected from 24 college students. The researcher applied action research by conducting two cycles through journal log, observation, questionnaire and interview. The students' vocabulary mastery improvement was measured by comparing the score from mid-term test, students' project in visiting the workshop and written test. The results of this study showed that there were students' vocabulary mastery improvements. The online learning media, Plickers, has significant role in improving the students' vocabulary mastery.
Keywords: Plickers, Vocabulary Mastery, Electrical Avionic Study Program & STT Adisutjipto

INTRODUCTION

The language teaching and learning's integration of computer and technology has been acknowledged pervasively. The existence of various applications such as educational games and internet access has made educational technology develop rapidly (Ross, Morrison, & Lowther, 2010) and it is integrated into various technological applications in teaching and learning (Mogbel & Rao, 2013). A Computer Assisted Language Learning (CALL) is considered as one of the methods in teaching and learning activities, according to Chapelle and Jamieson (2008), such as using computer, technology and online learning resources to facilitate second-language teaching and learning.

In Indonesia, the introduction of technology usage in teaching and learning practices continues to be a challenge for Indonesia's Ministry of Education and Culture. It is a comprehensive policy which is set out in the Indonesian Qualification Framework (Kementrian Pendidikan Nasional Republic of Indonesia, 2012). In short, the Framework is theoretically made up of nine levels of certification in which each level has different requirements to be completed. As far as the system is concerned, Indonesian teachers with a Bachelor or Master's degree are in the sixth level to eighth, which require them to be able to use technology in their teaching practices. Another National policy, the regulation of Ministry of Education and Culture Number 65 of 2013 about the Elementary and Secondary Education Process Standards, Chapter 1, Section 13 (Nuh, 2013), also encourages

teachers to design the teaching and learning activities using technology.

Nowadays, the introduction of ICT in schools by enhancing the availability of computer hardware, software and networking should not be seen as an isolated example of transition. More accurately, the economic, social and technological shifts have led to the new era are realities. Therefore, it is important that educators must not only aware of the impacts arising from social, cultural, political, economic, and educational policies and programs but also are able to manage them skillfully at the classroom level.

In response to the above conditions, this study was aimed to implement Plickers as an alternative learning media in which teachers can use to support their teaching practices, particularly in English subject as a Foreign Language (EFL). The discussions were assisted by the researcher analytical experience in the use of software, issues in the researcher's English class, related previous studies, and literature review. The researcher wanted to solve a problem on the lack of English vocabulary mastery by students in Electrical Avionic Study Program at STT Adisutjipto Yogyakarta. The students not only learn general English but also learn English in engineering term. Moreover, students feel bored to have old dated activities in learning English since having English course every day. They stay in a dormitory without laptop, mobile phone, television, and internet access. They have a pressure to pass the requirement subjects as well as English in accordance with their cooperation with Garuda Indonesia.

The students have a "burden" to pass every subject delivered in English and they need big and much effort to accomplish it. The educational institution has a responsibility to prepare the students to be a professional engineer. As a result, the college provides an English course to support students' English mastery. The students use English both in the theoretical books and practical works, so they have to always improve their English mastery.

In this case, a fun and effective English class is needed to equip the students in facing the professional competition. Because of time limitation, the researcher only focused on Plickers to be implemented in this research. Plickers is an online media that has supporting application to facilitate students without electronic devices. This paper provided insights into alternative educational technology can be used by teachers. Additionally, this study was beneficial to encourage teachers to utilize technology in EFL classrooms. Thus, this research was intended to answer a problem formulation which is 'How did Plickers improve students' vocabulary mastery?

There are some terms mentioned in this study to be defined in order to avoid misunderstanding and lead readers to a better understanding on the topic being discussed. Plickers used in this research is an application to stimulate active learning. It is one of online learning media which provide supporting application to facilitate students without electronic devices and internet access. Plickers is an awesome assessment tool that can be used to assess the students' knowledge quickly through multiple choice questions. It is a classroom polling system which is able to display results in real time.

To play Plickers, every student is given a card with a unique visual code. The code has 4 sides, each lettered A, B, C and D. The student holds the card and shows the letter to be answered. The teacher uses the smartphone to slowly scan the room. The application recognizes the cards, records that the teacher assigned them to and captures the answer that the student chose. The application only records each student's answer once. Plickers is appropriate with students' condition because they are not equipped with gadgets and internet access. Using Plickers, they can enjoy the learning media in their classroom. In this study, learning media can make the learning processes become conducive, efficient and effective. Ahmadi (2018) confirms that learning media has a significant role in improving teaching and

learning activities inside or outside classroom, especially in increasing students' achievement.

Electrical Avionic students are the participants where the researcher gained the data. They are in the second semester. In this study, they were asked to answer some questions related to technical term vocabularies. They use English every time in the teaching and learning process such as the module, the lecturers' explanation, and the communication between lecturers and students. However, in the learning process they often found difficulty in vocabularies. Based on the students' opinion, some vocabularies were difficult to be understood and remembered. Because of this reason, the researcher chose Electrical Avionic students to be the participants. To decrease their boredom, the researcher offered Plickers as one of fun activities to be applied in English learning activity.

THEORETICAL REVIEW

Aqahtani (2015) describes vocabulary mastery is a continuous process that somebody has to understand, recall, pronounce correctly, read and use the term in sentences. Students have to recognize, remember, pronounce and spell the words correctly. However, Allen and Vallete (1972) claimed that by integrating the appropriate teaching techniques, learning vocabulary can be effective. In this study, the technique in learning vocabulary was done by implementing Plickers. Moreover, the researcher specified the vocabulary into technical term vocabulary because the students found the difficulty on that field. Catalan (2003) states that in vocabulary learning strategy, there are many steps should be taken by the learners. In this study, the researcher set 3 steps vocabulary learning strategy. Those steps are the first three steps of Revised Bloom Taxonomy namely remembering, understanding, and applying. Students are expected to remember the new words, understand and apply them in the sentences. The researcher only took the first three steps of the Revised Bloom Taxonomy because of time limitation.

Vocabulary is a part of the system languages. Hornby (2000:144) describes vocabulary as: 1) all the terms which are known and used by people; 2) all the words in a certain language; 3) words for speaking; 4) the collection of words in relation with their meanings. In a particular language, vocabulary is a collection of words used by people and has meaning. Therefore, there are a number of words in a language which creates a meaningful language. Lehr, Osborn, and Hiebert (in Kamil and Hiebert, 2010: 2-3) describe vocabulary as the awareness of words and its meanings in both spoken and written language, it is an effective and receptive language. In general, the use of vocabulary refers to "the variety of words needed by the students to learn and understand the challenging text." Nunan (1999: 101) states that vocabulary is more than a list of target language.

The large range of subjects is vocabulary (Thornbury, 2002:14). According to him, learning vocabulary is essential because people can enrich their language awareness. Students should acquire a number of vocabularies when reading an English text to improve their reading comprehension. In line with Thornbury's theory, Stahl (2005) describes vocabulary as the words' understanding to imply meanings and the way how the words fit into the world. Vocabulary awareness cannot be completely learned over the course of a lifetime but it is something that grows and deepens.

In addition, Renandya (2002: 255) suggests that vocabulary becomes the significant term of language proficiency which provides the learners achievement in English skills, namely speaking, listening, reading and writing. He adds that learners often achieve less than their potential without a comprehensive vocabulary and strategies to acquire new vocabularies. Learners often find difficulty in understanding a text. They are unable to grasp the meanings from unfamiliar words. This condition causes uncertainty in interpreting the meanings.

Harmer (1991: 158) sums up the word understanding as knowing the meaning, using the words, and comprehending the composition of words and its grammar. It means learning vocabulary is not only learning new words, but also to using the words properly. A word's meaning is defined by the context how it is created and by its relationship to other words. For instance, vegetables have a general meaning, whereas carrots are more common. Word meaning is also designed by metaphors and idioms, for example, the word "hiss" refers to the noise of the snake and the threat to others by someone. A word goes with each other in collocation, such as migraine, earache, etc. Therefore, style and register are implemented by differentiating the language used in a formal and informal setting, such as hello (formal) and hi (informal).

Seeing words in grammatical contexts, the words formation can also create meaning. As in imperfect and perfect, inappropriate and appropriate, it can be examined how the suffixes and prefixes work (im-, or in-). Finally, word grammar is used to classify the use of words based on grammatical patterns like noun, verb, adjective, adverb, etc. Vocabulary is the basic interaction from these meanings needed by the people to understand and communicate the ideas precisely. It can be concluded that learners must master the language's vocabularies in order to be able to use the language roughly. People will be able to express their thoughts, ask information, and engage in the discussion after mastering a significant number of words.

Cameron (2001: 75) defines vocabulary size is measured by the nearest one thousand in "language families", it is the combination of simple words and all their inflected and derived form. In addition, Waring and Nation (in Cameron 2001: 75) notes that the size of English lexicon as a whole language was measured at 54,000 word families (base word plus clear derivations) and 20,000 for a university graduate. Studies indicate that a child as a second language learner adds about 1000 word families per year. The 2000 most common words account for 80-90 percent of texts, while 3,000-5,000 words are required for reasonable understanding, which accounts for about 95 percent of the words that have been found. Students need to learn at least 3000 words as language learners before they can speak and read texts with a great deal of comprehension. They know vocabulary or understand the language. If they learn vocabulary, they cannot effectively study English subject. For example, in the final examination of English subject, most Indonesian learners have a bad achievement. Thus, in expanding the English vocabulary, they experience little growth.

Vocabulary is the central of interaction. People cannot engage in a conversation if they do not understand the context of the key words used by others. An individual must be able to produce lexical objects to convey their meanings in order to express ideas or ask information. Therefore, engaging in a discussion is very hard for someone when he or she has only a little vocabulary. Thornbury (2002: 14) says a large collection of objects is vocabulary. He adds that it is essential to learn vocabulary because it improves people's word awareness. It means that the learner's progress in learning a language depends not only on the size of the vocabulary mastery, but also on the construction of vocabulary.

In fact, Cameron (2001: 72) suggests that developing vocabulary mastery is essential for the primary level of a foreign language learner. Vocabulary is significant to be used as a discourse. Similarly, Hawken (2010) suggests that vocabulary building requires both recognizing words ' meanings and learning to decipher phrases. Students can use vocabulary building to enhance their vocabulary mastery. Vocabulary mastery is critical for reading extensively. Students are unable to read successfully if they do not expand their vocabulary. Having a good understanding of vocabulary helps them to have good language interaction. It is because they are conscious of

the ideas and attitudes expressed by the words. Therefore, people who have successfully mastered a language must broaden their vocabulary mastery.

Bromley (2004: 3-4) notes that vocabulary has several significant roles in teaching-learning process to demonstrate its important as follows:

1) *Promoting fluency.* Students who recognize and understand a lot of words can read faster and easier than those with lower vocabulary mastery. Fluent readers are reading at a faster speed, processing more material and having better comprehension than the less fluent readers.

2) *Boosting comprehension.* The knowledge of vocabulary strongly influences the reading comprehension. Word definitions are found to make up 74% of understanding on an element of study.

3) *Improving achievement.* A broad vocabulary is a large source of abstract information that encourages academic learning. Students with large vocabulary mastery rank lower than those with small vocabulary mastery on the test performance.

4) *Enhancing thinking and communication.* Words are methods to interpret, conclude, assess and explain meanings. A broad vocabulary enables people to communicate in accurate, strong, convincing and fascinating ways.

Knowing that mastering vocabulary is essential, learners should pay greater attention to vocabulary instruction. Designing a productive teaching vocabulary, the instructor must have strong, effective and efficient process. If people learn vocabulary well, they will be able to produce fluent conversation, enhance comprehension, improve performance, and develop their communication and thought.

Vygotsky in Feez (2002: 26) defines learning as collaboration between teacher and student where teacher play a role as the author and supporting learning. In respond to the previous statement, Kimble and Garmezy in Brown (2001: 7) propose a result of strengthened practice which can create a relatively permanent change in a behavioral trend. Thus, experience can result a permanent change.

Similar to acquiring vocabulary, vocabulary learning is the process to differentiate the mother tongue's closest meaning to the target language's advance meaning. Brown in Cameron (2001) describes five important steps in learning vocabulary based on learner research strategies. Those five essential steps are having sources for encountering new words; getting a clear image of the new words from; learning words' meaning; connecting a strong memory between the forms and the words' meaning; using the words in the sentences.

Furthermore, Schmitt (1997) also proposes vocabulary learning strategies, namely finding a new word in a dictionary and guessing a word from context. Decarrico (2001) adds that words should not be learned together with the understanding through memorization. In addition, learning new words is a cumulative process of words collaboration which is being enriched and established. Nation (1990) as cited by Cameron (2001: 84) also explains that "look" and "remember" are the effective ways to learn vocabulary. Consequently, he suggests that a new word in a text book unit must be met at least five or six times before it has any chance of being learned.

METHOD
Research Design

This study investigated the students' vocabulary mastery improvement by implementing Plickers and how Plickers facilitated the students to achieve learning objectives. To achieve the objectives of the study, this research was based on classroom action research. According to Gwynn (2012), classroom action research is a research method to find out the best strategy to improve students' learning. In this study, classroom action

....

research was used in order to optimize students' improvement in English vocabulary mastery.

To validate this study, the researcher adopted the data instruments from Kurniawan's (2015) action research. The first instrument was interview. It is used to investigate the main problem students faced and identify the opinion and recommendation to use Plickers. The second instrument was journal log. It was a column to respond the students' activities. The third was observation sheet which helped the researcher to improve the teaching learning. The last was questionnaire to explore the students' problem in learning process and evaluate the students' feeling about Plickers. These four instruments were conducted to reflect the positive and negative respond on Plickers. However, marks before treatment, performance in the workshop visit and written test after the treatment were analyzed to determine whether there were any differences between them.

According to Gwynn (2012), classroom action research is a very effective and appropriate strategy to improve the teaching and learning process. To make the study well organized, the researcher adopted the steps from Kemmis and McTaggart in 1988 in Burns (2010) as follows

Figure 1. Cyclical Action Research model
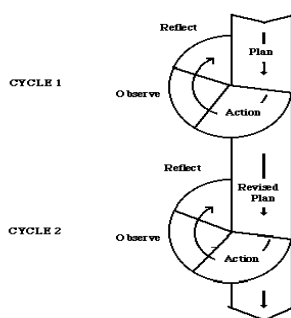
Participants

This research involved 24 students of Electrical Avionic Study Program at STT Adisutjipto Yogyakarta. This college is one of the former men's private collages under the Air Force Foundation. The main feature is that some aerospace-based learning subjects, including an electrical avionics study program,

are given to students. The study involved 24 students. There are 22 male students and 2 female students. They are not literate because of the rules. They are not well facilitated with internet connection. The research was conducted in the second semester of 2016/2017 academic year. The students 'characteristics are almost the same. In this study, the researcher became the lecturer and observer. Furthermore, by improving their vocabulary, the students are expected to be able to achieve the classroom goal such as remembering, understanding and applying the technical vocabulary term when they read the module and have a conversation in the classroom.

Ethical Considerations

The research permission and the use of written tests were initially granted by the Head of the Electrical Avionic Study Program, who is responsible for all learning activities. However, in recognition of the participants' rights, all students were informed in the classroom and asked whether or not they were willing to participate in this study. Fortunately, all 24 students agreed to take part in this study.

This study did not use any written informed consent that would usually be collected to demonstrate that participants were fully informed of the experiment. In contrast, it was informed orally in the classroom. In order to protect the confidentiality of the participants, the actual names of the participants have been changed to pseudonyms. It was found that, as the name of the college and the name of the study program was revealed, certain people might be able to guess the names of the students. Only the researcher can access the data collection as well as the written tests.

FINDINGS AND DISCUSSION

In the first cycle, the researcher observed the real situation happened in Electrical Avionic class. The observation and interview were conducted in order to find out the students' problem in the English language learning activities. Referring to the interview result, the most frequent responses on a

....

vocabulary mastery problem were shown in table 1.

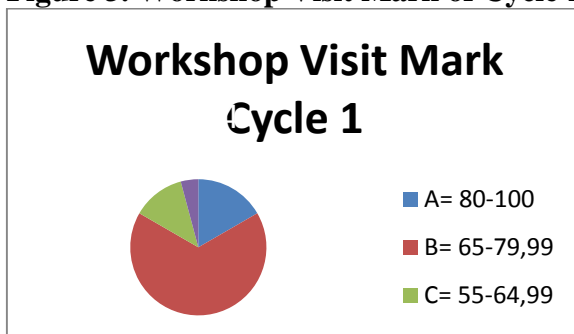**Table 1. Most of frequent responses on vocabulary mastery**

No.	Responses
1	The students feel shy and unconfident to ask the meaning of technical terms.
2	The technical terms hinder the students to communicate.
3	Fun and interactive media are needed to facilitate the vocabulary mastery.

After conducting the interview, the researcher planned and designed an action to make an improvement on vocabulary mastery. In the action step, the researcher applied the proposed learning media which was Plickers. The students learned technical term about part of an airplane in Plickers. They had "True False" questions and multiple choice questions facilitated with some pictures. After conducting Plickers class, the students were invited to visit a workshop in order to evaluate the part of an airplane topic. Moreover, the researcher conducted written evaluation in the classroom. The score before treatment, workshop visit, and written evaluation were analyzed to determine whether there were any differences. The results were seen as follows
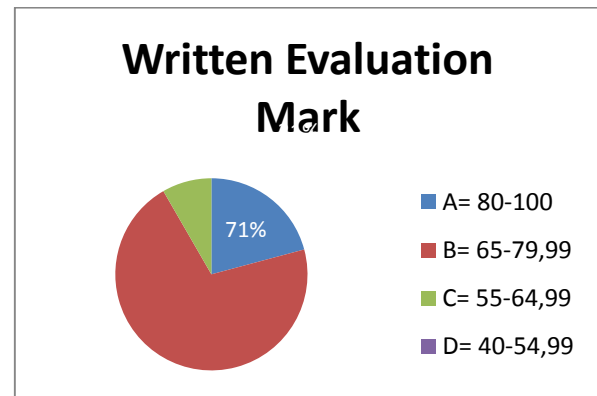
Figure 2. Students' Mark before Treatment

Students' Mark before Treatment

A= 80-100 B= 65-79,99
C= 55-64,99 D= 40-54,99
E= 0-39,99
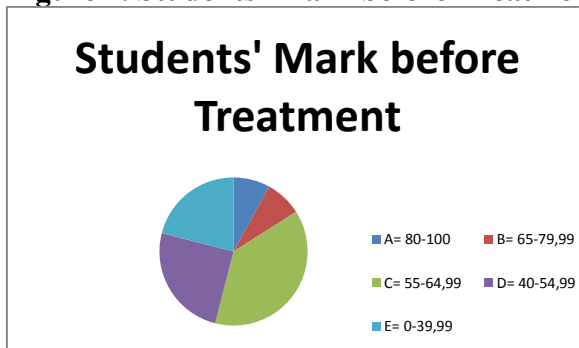
Figure 3. Workshop Visit Mark of Cycle 1

Workshop Visit Mark Cycle 1

A= 80-100
B= 65-79,99
C= 55-64,99

Figure 4. Written Evaluation Mark of Cycle 1

Written Evaluation Mark

71%

A= 80-100
B= 65-79,99
C= 55-64,99
D= 40-54,99

While conducting Plickers in the class, the researcher evaluated the learning activity. During the action, journal log was distributed. The students wrote their comments and experience using Plickers. Most frequent responses on the journal log were presented here

Table 2. Journal Log of Cycle 1

No.	Responses
1	The students feel enthusiastic using Plickers although sometimes they are confused with some icons from the application.
2	The students enjoy because they can memorize vocabularies in a fun way, some of them said that it is like having a game.
3	The students feel shy and unconfident because they have to think fast.

The questionnaire was also distributed to identify the students' feeling using Plickers. The results of the questionnaire in cycle 1 as follows

Table 3. Questionnaire of Cycle 1

No.	Question	Yes %	No %
1	I used online learning media in my previous study.	70	30
2	I used Plickers in my previous study.	0	100
3	I got clear instruction and explanation in Plickers as my online learning media.	82	18

4	I got clear instruction before I got Plickers class.	90	10
5	I feel comfort using Plickers as the online learning.	72	28
6	I can develop more vocabulary mastery by having Plickers class.	90	10
7	I can practice more vocabulary tasks in Plickers class.	89	11
8	I feel more confident practicing vocabulary tasks.	78	22
9	I feel excited with the interactive feedback from the tasks.	88	12
10	I feel excited using Plickers in developing technical terms mastery.	91	9

To validate the result, the researcher conducted informal interview to some Electrical Avionic lecturers. It was done to evaluate the students' vocabulary improvement. In the reflection step, the overall steps were recalled to give feedback of evaluation to execute design in Cycle 2. It was reflected that the students enjoyed and improved their vocabulary mastery although some problems still appeared to familiarize the application and new teaching method. Moreover, some of students still had lack of vocabulary knowledge in doing the tasks given. Feedback of evaluation in cycle 1 was needed to make better improvement to be applied in Cycle 2.

In Cycle 2, the researcher did not conduct interview section because the problems had been seen from the reflection in Cycle 1. Thus, the revised plan was done to bring the improvement in Cycle 2. Students had topic about Tools in Cycle 2. Same as the steps in the Cycle 1, the students did the tasks using Plickers. The journal log was distributed after conducting Plickers. The most frequent responses were shown below

Table 4. Journal Log of Cycle 2

| No.	Responses
1	The students feel enthusiastic using Plickers and have been familiarized with the icons in the application.
2	The students enjoy because they can memorize vocabularies in a fun way, some of them said that it is like having a game.
3	The students feel more confident to communicate with technical term vocabulary.

To validate the result, the researcher observed the learning activity. Moreover, post evaluation was conducted twice to measure whether Cycle 2 brought better improvement or not. They were workshop visit and written evaluation. The researcher offered tools taught in Plickers class, the researcher also offered questions and took a score. Moreover, written evaluation conducted in the classroom was about tools with different type of question. The results can be seen as follows

Figure 5. Workshop Visit Mark of Cycle 2

Workshop Visit Mark of Cycle 2

- A= 80-100 — 67%
- B= 65-79,99 — 29%
- C= 55-64,99 — 4%
- D= 40-54,99
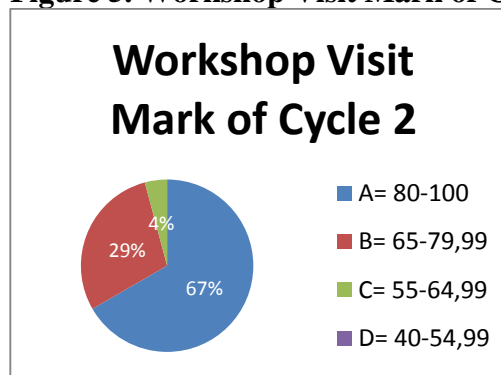
Figure 6. Written Evaluation Mark of Cycle 2
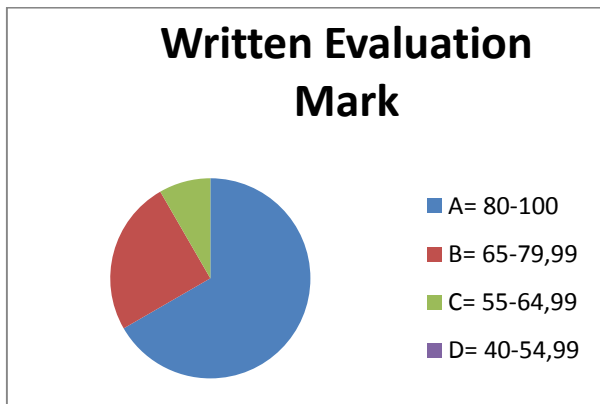
In Cycle 2, the questionnaire was also distributed to make sure the identification of the students' feeling using Plickers. The results of the questionnaire in Cycle 2 were as follows

Table 5. Questionnaire of Cycle 2

No.	Question	Yes %	No %
1	I used online learning media in my previous study.	100	0
2	I used Plickers in my previous study.	100	0
3	I got clear instruction and explanation in Plickers as my online learning media.	92	8
4	I got clear instruction before I got Plickers class.	94	6
5	I feel comfort using Plickers as the online learning.	80	20
6	I can develop more vocabulary mastery by having Plickers class.	90	10
7	I can practice more vocabulary tasks in Plickers class.	89	11
8	I feel more confident practicing vocabulary tasks.	96	4
9	I feel excited with the interactive feedback from the tasks.	92	8
10	I feel excited using Plickers in developing technical terms mastery.	91	9

In order to support the data from other instruments, the researcher had informal interview to 3 Electrical Avionic lecturers. It was done to make the research reliable and valid. The last phase in Cycle 2 was reflection. It was the reflection on the learning material given in Plickers class and whether the new learning media could be applied in the classroom. Deakin University (1982) states that reflection is the critical evaluations which focus on what the researcher have done and applied new situation toward learning process.

It was apparent from the finding that Plickers made a significant impact on the students' vocabulary mastery. Of all differences shown in figure 7, there was significant improvement from students' initial mastery. Firstly, the researcher did not give any treatments for the students. The researcher directly gave them a task then the results showed that only 8% of the students get A (80 – 100), 8% of them gets B (65-79,99) and 84% students get lower than 65. Therefore, most of the students have lack of vocabulary mastery. The second finding was from workshop visit and written evaluation after the students did Plickers class in Cycle 1. It was found that there was improvement because 17% of the students from workshop visit and 21% of the students from written evaluation got A. Moreover, 67% of the students from workshop visit and 71% of the students from written evaluation got B. Surprisingly, only 4% of students from workshop visit test got D (40-54,99) and no one got lower than 40. In addition, there was no one who got lower than 55 in written evaluation of Cycle 1.

Figure 7. The comparison of all data
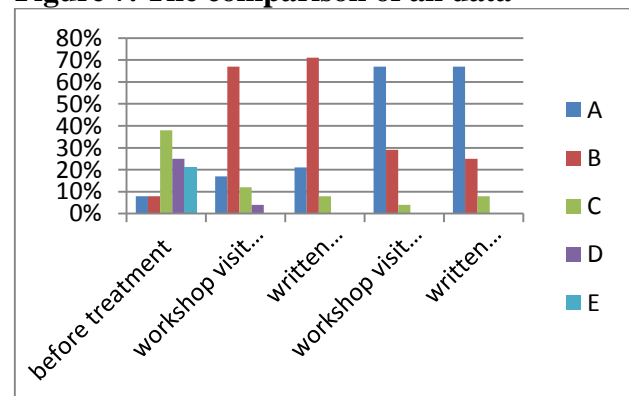
Although the results showed improvement, the researcher wanted to validate the results by analyzing the journal log, observation, questionnaire and interview. Furthermore, it aimed to identify the students' feeling using Plickers. The findings were in line with the students' score improvement. In journal log of Cycle 1, the students gave the response that they felt enthusiastic following the Plickers class. However, some of them were still confused with the icons from the application. It was normal since Plickers was new learning media for them. On the other hand, they enjoyed and memorized new vocabulary easily. It was because they felt fun and there was no burden, most of them said that Plickers class was like a game. Some of them were shy and unconfident answering the question because they have to answer in time. The journal log result was in line with the researcher observation. It seemed that the students feel comfortable with the learning activity. To achieve the reliability, the researcher also distributed questionnaire. The findings showed that they got clear explanation before doing the Plickers learning media. Thus, they enjoyed the learning and had vocabulary mastery improvement. Moreover, they were exited joining Plickers learning media. According to data analysis in Cycle 1, the goal has not been achieved. It was because the researcher set 3 steps of Revised Bloom Taxonomy vocabulary learning strategy, namely remembering, understanding and applying. In level 1, remembering, the students were expected to learn previous material by recalling facts, terms, and basic concepts. In level 2, understanding, the students were expected to understand facts and idea through summarizing text given by the lecturers. In level 3, applying, the students solved problems to new situations by applying acquired knowledge and technique such as visiting the workshop/laboratory. Thus, the students were expected to remember the new words, understand and apply them. In fact, the result from Cycle 1 only achieved 2 steps,

remembering and understanding. The researcher conducted informal interview to 3 Electrical Avionic lecturers. They said that they can read the module, remember the term and understand the idea of the topic. Thus, it was only 2 steps of Revised Bloom Taxonomy implanted in this study.

Moreover, the results showed that there were students' vocabulary mastery improvements. In Cycle 2, the researcher also got the data from students' workshop visit and written evaluation. Comparing the findings in Cycle 1 and the vocabulary mastery improvement, no one got lower than 55 (C/D). Moreover, students who got A can achieve 67% for both evaluations. The 29% of students from workshop visit of Cycle 2 got B and 25% students from written evaluation of Cycle 2 got B. It clearly showed that the vocabulary mastery improved after following Plickers class. In addition, the journal log showed that they have familiarized with Plickers application. They did not feel nervous and shy anymore. They were enjoy and enthusiastic in Plickers class. Initially, in journal log of Cycle 1, they were confused with the icons and unconfident to answer the tasks. The observation of Cycle 2 showed that they felt more relax and confident using Plickers. The questionnaire's result was also in line with the other results. After Plickers class in Cycle 2 has been done, the researcher conducted interview to 3 lecturers to know the students' improvement. Surprisingly, the lecturers said that the students were actively participating in the classroom and they looked confident to deliver their opinion about technical term vocabulary. It convinced that Plickers facilitated students to improve vocabulary mastery and achieved 3 steps of Revised Bloom Taxonomy, namely remembering, understanding and applying.

CONCLUSION

This study set out to investigate the improvement of students' vocabulary mastery using Plickers and to identify the students'

opinions about the new learning media. The classroom action research was carried out on 24 students of Electrical Avionic study program. After an initial data before treatment task, the class was engaged in a Plickers class. Workshop visit score and written evaluation score from Cycle 1 and 2 were administered to measure their mastery of new words after completing the treatment. In addition, questionnaire, journal log, observation and interview were conducted to identify their opinions on Plickers class.

The findings showed that there was a large gain on the vocabulary mastery from the tests. Data from the instruments showed that most of the students favored the Plickers. Overall, the research concluded that teaching vocabulary needs an intensity of practice of newly learned words. Moreover, fun teaching method could engage the students' motivation and confidence.

REFERENCES

[1] Allen, E.D. & Valette, R.M. 1972. Classroom Techniques: Foreign languages and english as a second language. New York: Harcourt Brace Jovanovich, Inc.

[2] Bromley, K. 2004. The language and literacy Spectrum. New York: the New York State Reading Association.

[3] Brown, H. D. 2001. Teaching by principles an interactive approach to language pedagogy (2nd Ed). San Francisco State University.

[4] Burns, A. 2010. Collaborative Action Research for English Language Teachers: London. Cambridge University Press.

[5] Cameron, D. 2001. Teaching language to young learners. Cambridge: Cambridge University Press.

[6] Catalan, J.M.R. 2003. Sex differences in L2 vocabulary learning strategies. International Journal of Applied Linguistics, 13(1), 54–77.

[7] Chapelle, C.A., & Jamieson, J. (Eds.). 2008. Tips for teaching with CALL: Practical approaches to computer assisted language learning. New York: Pearson Education, Inc.

[8] Deakin University. 1982. The action research reader Victoria. Australia: Deakin University Press.

[9] Decarrico, J. S. 2001. Vocabulary learning and teaching. Teaching English as A Second for Foreign Language. 3rd edition (M. Celce. Murcia ed). Boston, MA: Heinle and Heinle

[10] Feez, S. 2002. Heritage and innovation in second language education. In A. M.Johns (Ed.), Genre in the classroom: Multiple perspective. Mahwah: L.Erlbaum. pp. 43-72.

[11] Gwynn, M. 2012. Improving teaching through classroom action research. (Online), http://cte.udel.edu/sites/cte.udel.edu/files/u7/v14n7.htm. accessed on May 20th,2014

[12] Harmer, J. 1991. The practice of english language teaching (New Edition). New York: Longman.

[13] Hawken, J. 2010. An Evidence-based Toolkits for Effective Reading and Writing Teacher. Canadian Language and Literacy Research Network. http://foundationsforliteracy.ca/pdf/Read WriteKit08.pdf.

[14] Hiebert, E., & Kamil, M. 2010. Teaching and learning vocabulary: Bringing research to practice. New York: Routledge.

[15] Hornby, A.S. 2000. Oxford Advanced Learners of Current English. New York: Oxford University Press.

[16] Kementrian Pendidikan Nasional Republik Indonesia. 2012. Kajian tentang implikasi dan strategi implementasi KKNI. Retrieved March 21st, 2017, from http://penyelarasan.kemdiknas.go.id/uploa ds/file/Buku%20Qualification%20Frame work%20DIKTI.pdf

[17] Kemmis & M.T. 1990. The action research planner. (Online), http://www.m-edukasi.web:id/2012/04/desain-ptk-mdel-Kemmis-mctaggart.html.

[18] Kemmis, S., & Mctaggart, R. 1988. The action research planner. Melbourne: Deakin University Press.

[19] Kessler, G. 2006. Assessing CALL teacher training: what are we doing and what could we do better? In Hubbard, P. & Levy, M (Eds.). Teacher education in CALL. Amsterdam: John Benjamins Publishing Company.

[20] Krathwohl, D.R. 2002. A revision of bloom's taxonomy. (PDF) in theory into Practice. V41. Ohio State University.

[21] Kurniawan, A. A. 2015. The use of edmodo to facilitate students' critical thinking of 8 G class of SMPN 2 Yogyakarta. Universitas Sanata Dharma.

[22] Lehr, F., Osborn, J., & Hiebert, E. 2010. Focus on vocabulary. Honolulu, HI: Pacific Resources for Education and Learning.

[23] Mogbel, M.S.S., & Rao, L.V.P. 2013. Enhancing EFL teaching and learning through technology. International Journal of Social Science Tomorrow, 2(2), pp. 1-9.

[24] Nuh, M. 2013. Peraturan menteri pendidikan dan kebudayaan republik Indonesia nomor 65 tahun 2013 tentang standard proses pendidikan dasar dan menengah. Retrieved February 07th, 2016, from http://bsnp-indonesia.org/id/wp-content/uploads/2009/06/03.-A.-Salinan-Permendikbud-No.-65-th-2013-ttg-Standar-Proses.pdf

[25] Nunan. D. 1999. Second language teaching and learning. Boston: Heinle and Heinle.

[26] Richards, J. C. & Renandya, W.A. 2002. Methodology in language teaching. New York: Cambridge University Press.

[27] Ross, S.M., Morrison, G.R., & Lowther, D.L. 2010. Educational technology research past and present: Balancing rigor and relevance to impact school learning. Contemporary Educational Technology, 1(1), 17-35.

[28] Schmitt, N. 1997. Vocabulary l e a r n i n g Strategies. In Schmitt, N., and M. J. McCarthy (Eds.) (1997). Vocabulary: Description, Acquisition and Pedagogy. Cambridge: Cambridge University Press, 199–227.

[29] Stahl, S.A. 2005. Four problems with teaching word meanings (and what to do to make vocabulary an integral part of instruction). In E.H. Hiebert and M.L. Kamil (eds.), Teaching and learning vocabulary: Bringing research to practice. Mahwah, NJ: Erlbaum.

[30] Thornbury, S. 2002. How to teach vocabulary. England: Person Education Limited.

[31] Wallace, A. 2014. Social learning platforms and the flipped classroom. International Journal of Information and Education Technology, 4(4), 293-296