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Workshop Activity Module In E-Learning for Maximum Vocabulary Exposure in An EFL Classroom

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Abstract

Vocabulary instruction has received serious attention among English language teaching (ELT) researchers for decades. The objective of this research was to find out whether peer assessment can facilitate vocabulary retention. The peer assessment in the current research was delivered through a workshop activity module as an extension of Moodle platform, a most used open-source LMS (Learning Management System). This study was a quantitative study with an experimental design. The data were collected from 59 adult EFL learners participating in the study. The study used a repeated measure design, and tests were administered after each type of instruction, where traditional vocabulary instruction preceded peer assessment instruction. The scores were analysed using the Independent Samples T-test. The analysis results showed that the scores were significantly different. The scores obtained for vocabulary use after peer assessment instruction with peer review were higher compared to those with traditional vocabulary instruction. Therefore, it can be concluded that peer assessment in Moodle workshop activity module can facilitate sufficient vocabulary exposure for better retention. The pedagogical implications of the research are discussed in the article.

Keywords: adult students; e-learning; language instruction; Moodle; workshop

Introduction

Vocabulary has been found to correlate with all language skills across all language proficiency levels (Enayat & Derakhshan, 2021; Ricketts et al., 2007). Therefore, vocabulary learning should have been the main focus of language instruction because it is the core of a language (Laufer & Nation, 2012). In English reading comprehension, vocabulary mastery contributes to other reading skills such as the main idea, detailed information, inference, and reference (Elfiondri et al., 2020). However, vocabulary acquisition among English as a Foreign Language (EFL) learners is very slow. A previous survey by Mustafa (2019) revealed that the vocabulary size of senior high school graduates was

very unsatisfactory after six years in two-level high schools. This inadequate vocabulary size is a result of the nature of difficulty in vocabulary acquisition. Difficulties in learning vocabulary also exist among pre-service English teachers, as revealed by Afzal (2019). According to Bjork and Kroll (2015, p. 241), teachers should create challenging activities in teaching vocabulary so that the students can retain the vocabulary, resulting in vocabulary acquisition.

Many of the current practices of vocabulary instruction are dominated by direct vocabulary building instruction, which is 12 times less effective than free reading (McQuillan, 2019). The effect of the free reading on vocabulary acquisition is maximum because it is most likely that readers receive extensive exposure to the same vocabulary in different contexts. Knowing a word and using it are the integrated purpose of vocabulary learning (Gu, 2003), and they involve explicit and implicit learning and memory (Ellis, 1997). Therefore, extensive exposure to the target vocabulary is required. In addition to exposure, the situation, or the context when the vocabulary is learned or encountered also affects vocabulary retention. A study revealed that learning vocabulary in a condition that required students to work hard was more effective than in a normal situation (Schneider et al., 2002), and the same effect was achieved when an interesting method was implemented by teachers, such as online games (Katemba, 2019; Smith et al., 2013).

The use of technology such as e-learning has been claimed to be more effective for language teaching than the traditional paper version (Namaziandost et al., 2021). One of the most widely used e-learning platforms is Moodle (Bradford et al., 2007, p. 302), which has a workshop activity module. With this module, learners can submit their work, and the work can be single-blind assessed by their classmates. Therefore, exposure to target vocabulary can be maximized. In addition, motivation is crucial for language acquisition (Azar & Tanggaraju, 2020) and research has confirmed that language learning using technology boosts students' motivation and thus enhances students' interest in learning and their participation in completing tasks (Pop & Slev, 2012). However, this effect is a predictive effect based on previous relevant, but unrelated research results. The actual effect of such learning activities has not been empirically tested under a controlled experiment. Therefore, this experimental research was intended to find out the effectiveness of such workshop activity in a blended learning classroom based on empirical data.

Literature Review

Vocabulary Acquisition and Vocabulary Instruction

Vocabulary is the main component of a language. Languages differ in the vocabulary sizes they have (Fromkin et al., 2000, pp. 73–74). Given the large size of vocabulary in English, native children take approximately five years to acquire most of the non-technical vocabulary in the language, and the vocabulary acquisition continues but at a slower pace (Gobet, 2015, p. 230). Among native speakers, vocabulary acquisition is a non-complex process on the surface although complex processes happen in the brain (Pu et al., 2016). However, this process differs significantly between first language (L1) speakers and foreign language learners (Alosaimi, 2021; Nation, 2003).

What separates L1 acquisition from foreign language counterparts is that L1 can only be acquired if spoken language input through interaction with others is available (Saville-Troike, 2012, p. 20). In acquiring words, L1 children make an inference of the word's possible meaning from the context of conversations, and they confirm their prediction using reactions from the adult interlocutors when they utter it (Clark, 2016, p. 168). According to Yule (2020, p. 205), the result of first language acquisition is apparent starting at the age of between 12 and 18 months when children start to produce tangible single-unit utterances. In the context of L1 acquisition, no direct instruction seems to be necessary, and the acquisition is very fast compared to those of foreign languages (de Ruiter & Theakston, 2017, p. 59). It is hypothesized that this remarkable speed of learning is facilitated by brain development, which links to the critical period (Burridge & Stebbins, 2019, p. 553).

Unlike L1, which is not acquired through instruction, a foreign language involves learning. Learning involves "a conscious process of accumulating knowledge through analysis of features of language" including vocabulary (Yule, 2020, p. 220). In addition, foreign language acquisition depends on many variables, one of which is the teaching methods employed by language teachers (Mackey, 2014, p. 471). Teaching methods that can create incidental learning have been found to result in better learning achievement than more direct teaching methods (Madarsara, 2015; Yang, 2021). In addition, instructions which can facilitate extensive exposure to the target language are preferable because such instructions can give better incidental vocabulary acquisition and retention (Teng, 2019). Therefore, many studies have focused on finding ways to maximize language exposure (Akbarian et al., 2020; Jones, 2016; Leona et al., 2021; Peñaloza et al., 2019). Some of those studies found that technology can be used to maximize language exposure in the teaching and learning process.

Technology in Vocabulary Instruction

Technology has been particularly used in language teaching. With the use of technology in teaching vocabulary, it is possible to manipulate input, and as suggested by Barcroft (2016, p. 22), incorporate both incidental and intended vocabulary learning in instruction. As expected, this area has attracted countless publications (Hermagustiana & Rusmawaty, 2018; Hussain, 2018; Shi, 2017; Walker & Kettler, 2020). The results of those studies showed that vocabulary instruction was more effective when ICT was used, compared to traditional instruction, even when simple technological tools such as WhatsApp and computer-based flashcards were used. With the continuing development of technology, technology integration has been extended to such portable devices as smartphones so that students can access their learning material on the go. This enhanced exposure has significantly improved students' vocabulary through semi-incidental learning (Agca & Özdemir, 2013). In addition, Lin and Lin (2019) reviewed 33 articles published between 2005 and 2018 and found that these studies found a positive effect of vocabulary learning with technology, in this case, mobile-assisted applications. In addition, web-based vocabulary learning has also been encouraged for language teaching. A comparison between this type of delivery and traditional instruction showed that web-based language learning was superior in terms of vocabulary retention (Hajebi et al., 2018; Öztürk & Okumuş, 2022).

Moodle as an E-learning Platform

E-learning is another technological tool intended solely for teaching and learning, with features reflected in the development of educational technology. One of the most popularly used e-learning platforms is Moodle (Escobar-Rodriguez & Monge-Lozano, 2012, p. 1086). It is well accepted by teachers (Costa et al., 2016) and students (Teo et al., 2019). It is open-source software that is installed on a compatible internet server. Therefore, educational institutions using Moodle have complete access to the software, and this allows flexibility that can be adjusted to the institution's policy. In addition, specific roles are based on their actual roles, and an additional role can also be assigned in addition to their actual roles, such as teacher and student, but these roles are system roles, they can be modified, and more roles can be added as custom roles by Site Administrators (Büchner, 2016, p. 150).

Another feature that makes Moodle suitable for both distance learning and blended learning modes is the availability of complete activity modules (Ziyad, 2020). There are also a growing number of add-ons that can be installed to add more custom modules (Büchner, 2016, p. 215). The predesigned activity modules available in Moodle version 3.8 include assignment, chat, choice, database, feedback, forum, glossary, lesson, quiz, SCORM, survey, wiki, and workshop (for detailed descriptions, see Chourishi, 2015; Rice, 2011, pp. 165–277). The current study focuses on the workshop activity module, which is used for peer assessment.

The Present Study

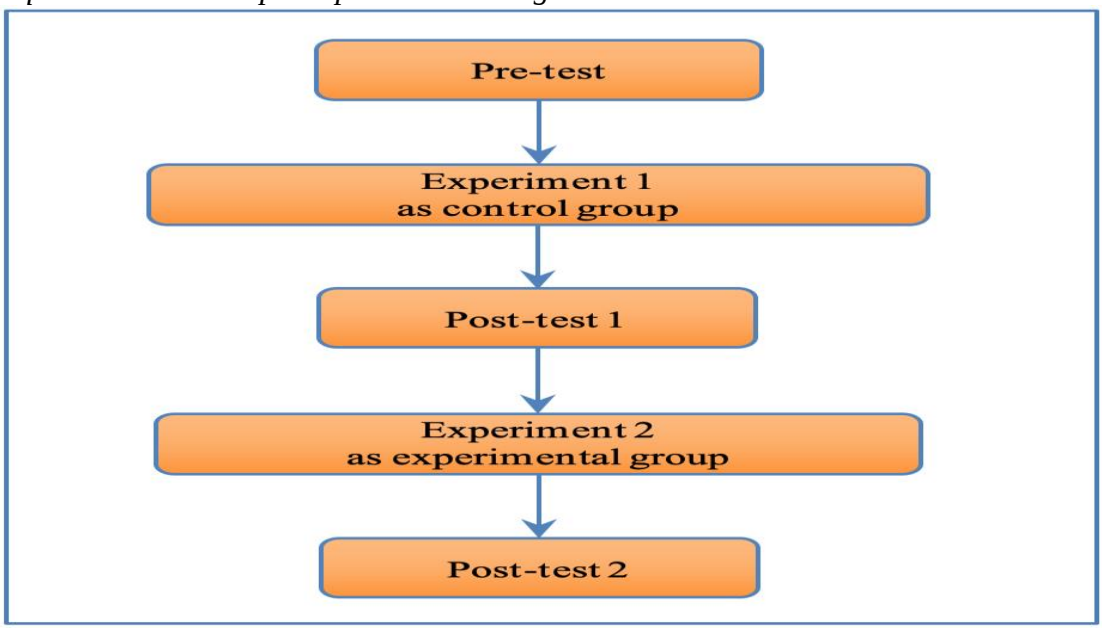
There have been some previous studies related to vocabulary instruction using technology. A study conducted by Gay (2021) has also shown that vocabulary learning strategies could be taught using technology to improve their vocabulary knowledge. A more advanced vocabulary learning Android-based application, i.e. Wordhyve, which utilized images, translation, and context has also been developed to facilitate incidental vocabulary learning (Hasnine & Wu, 2021). A review of mobile applications used to learn English concludes that such applications are effective for vocabulary learning only when they were used under teacher supervision (Klimova, 2021). The effect of virtual reality games on vocabulary acquisition has also been found significant (Alfadil, 2020). Watching podcasts did not only improve listening skills, but also increased vocabulary size, and its effect was higher when students collaborated in learning (Saeedakhtar et al., 2021). Another study by Hsieh et al. (2021) also highlighted the superiority of collaboration in learning vocabulary. However, those previous studies have not focused on learning collaboration involving peer evaluation, and therefore the present study utilized Moodle workshop activity module, which enables this type of collaborative learning, to investigate how it affected vocabulary achievement. To achieve this purpose, the study was to answer the research question: Was there any significant difference between the scores that the participants obtained after traditional vocabulary instruction and those after learning vocabulary with peer evaluation using Moodle workshop activity module?

Methods

Research Design

This research was a quantitative research study with an experimental design. Therefore, the purpose of this research was to generalize the results to elementary and pre-intermediate adult EFL learners. The generalization of the research result is the purpose of a quantitative research study (Roever & Phakiti, 2018, p. 2). The type of experimental design used was equivalent time sample design, that is using the same group for the experimental and control group (Best & Kahn, 2006, p. 188). The design is best described in the following diagram.

Figure 1
Equivalent time sample experimental design



The selected experimental design, as presented in Figure 1, is a rarely used design for an experiment in language pedagogy. However, the author selected this design because, according to Ary et al. (2010, p. 315), this design can eliminate problems of differences between groups (homogeneity problem), and fewer participants are required. In an ideal practice, a pre-test is used as in Figure 1; however, we did not administer any pre-test because the objective was to compare whether the scores obtained from experiment 1 were different from those of experiment 2. A pre-test is only used if the purpose is, among others, to determine if the scores before and after the treatment improve (Neuman, 2014, p. 291). In this research, the target words chosen for the test were confirmed new for students before the instruction. The tests were intended to find the percentage of new words retained by the learners after the specified treatments.

Participants

The participants involved in this research were junior lecturers at one of the universities in the Province of Aceh, the westernmost province of Indonesia. The participants were students in a 250-hour English training conducted by the university.

The program is a regular program for all junior lecturers to prepare them to continue their studies in a doctoral program after two years of service. Thus, their participation in this training was compulsory and their attendance was monitored by the university. The number of participants involved in this research was 35 elementary and 24 pre-intermediate adult EFL learners, and the informed consent was obtained from all the participants and their scores on the test were treated with confidentiality. The participants consist of 26 males (44%) and 33 females (56%) between 25 and 36 years of age. This research was conducted in the vocabulary class taught by the same instructor in both two elementary classes and one pre-intermediate class. The level was decided based on a placement test using TOEFL (Test of English as a Foreign Language), where 33 first participants who got the lowest scores were considered to have an elementary level of English, and the next 21 participants were at pre-intermediate level.

Instruments

The data were collected using target vocabulary tests. All target vocabulary was included in the test. The test was delivered online through Moodle e-learning platform. The types of tests include matching words to their definitions in English or Bahasa Indonesia (L1), matching words to their synonyms or antonyms, matching words to pictures, matching words to their negative association, and completing phrases and sentences. The time allowed to complete these online tests was adjected to the number and types of questions. A detailed description of the instrument is provided in the appendix.

The reliability levels of the tests were calculated using Cronbach's alpha, and the results are presented in Table 1. For accuracy in calculation, only participants who answered all questions were included in this internal consistency analysis. Some questions could be dropped if it resulted in higher consistency of the whole test.

Table 1
Details of the instruments

Test	Alpha	Questions dropped	Remaining questions
Post-test 1 (for elementary group)	0.859	None	45
Post-test 2 (for elementary group)	0.849	None	42
Post-test 1 (for pre-intermediate group)	0.853	5 questions (from 0.846 to 0.853)	42
Post-test 2 (for pre-intermediate group)	0.814	10 questions (from 0.658 to 0.814)	35

Table 1 shows that the tests were very reliable, with a high level of internal consistency, i.e. between 0.81 and 0.86. The tests prepared for pre-intermedia classes had a lower consistency level compared to the elementary counterpart. Therefore, some questions needed to be dropped to achieve the maximum level of internal consistency.

Experiment

The experiments in this research were divided into two phases, where 2 meetings were in each phase. The first phase was for the control treatment and the second for the experiment treatment. The details of the treatment are explained in the following

subsections. The elementary group was taught using the fourth edition of English Vocabulary in Use Pre-intermediate and Intermediate by Redman (2017) and the pre-intermediate group was based on English Vocabulary in Use Upper-intermediate by McCarthy and O'Dell (2017).

Traditional vocabulary instruction

In the first three meetings, vocabulary was taught using traditional instruction. The materials present the target vocabulary in context, and the target words are written in boldface. A separate definition is provided for each target word on the same page. Thus, in the instruction, the teacher read the text (in which the target words are embedded) and translated the text into the students' L1. More explanation was often given for the target words when necessary. The participants were encouraged to take notes, but the teacher did not make it obligatory. After all target words were covered, the participants completed the exercises provided in the book. The questions for the exercises vary, but they are mostly completion exercises. The participants were encouraged to check a dictionary or ask classmates or teachers when they did not know the meaning of a word that was not the target word. Finally, the teacher checked the participants' work and provided justification, and gave an explanation when necessary.

Peer-review instruction with Moodle workshop activity module

In the next four meetings, the teacher delivered the material traditionally as in the previous meetings. However, the participants were not asked to complete the exercises provided in the book, but they were assigned to write essays related to the themes in the coursebook. In the first essay, the participants were asked to describe one of their class-mates in terms of appearance and personality, and in the second essay, they wrote the difference between education in rural and urban areas. Finally, the participants wrote about the difference between city and country lives. The workshop activity module in Moodle was used starting from this step. The complete procedure of peer-review using Moodle workshop activity is provided in the following.

Submission. In preparing the submission, the participants needed to write an essay with a minimum of 500 words on the topics determined by the teacher, who chose the topics based on the target words. The participants were required to use as many target words as possible in the essay. The participants were given approximately 75 minutes to write the essay, and they were allowed to use any help in composing the essay.

Allocation. After all the participants submitted their essays, the teacher assigned two peer reviewers to grade each submitted essay. Moodle workshop activity allows random allocation, which is very helpful for large classes as in this research. Participants who did not submit their essays were excluded from the allocation. After that, the workshop phase was switched into the assessment phase, in which the participants would no longer be able to submit or edit the submission. This step was always conducted in the next meeting following the submission.

Assessment. In grading the essays to which they were assigned, the students would provide the number of unique target words used in the essay. The system calculated the percentage of target words because the number of all expected target words was inserted into the grade calculation formula. The grader knew the identity of the participants whose

essays they are grading; however, the graded students did not know the graders. They were given 20-30 minutes to grade the essays.

Evaluation. In evaluation, teachers decided whether the grade was calculated very strictly or very laxly. The grades were calculated by the system by comparing them to the best assessment. In this research, the teacher always set the grades to be very strict. The participants received two scores, i.e. 80% for their work and 20% for the quality of their assessment of others, i.e. whether the grades given were similar or very different from those given by other graders.

Data Analysis

The first step in data analysis was the data normality test using the Shapiro-Wilk test. The data are considered normally distributed if the p-value is greater than the significance level. The significance level used for all inferential statistical analyses in this research was 0.05. Because the initial calculation showed that scores in post-test 2 were not normally distributed, the data were transformed using Tukey's Ladder of Powers, or known as Tukey's transformation. The results of the normality test are presented in Table 2, which shows that all data were normally distributed (p-value > 0.05); therefore, parametric statistics were used for further data analysis.

Table 2
Results of normality test

Test	Statistics (W)	p-value	Conclusion
Post-test 1	0.9871	0.7864	Normally distributed
Post-test 2	0.9747	0.2543	Normally distributed

The other step was a significance test to find out whether the first test (post-test 1) and the second test (post-test 2) were statistically different at the significance level of 0.05. Because the data distribution allowed parametric analysis, Independent Sample T-Test was used for this purpose.

Results

Descriptive Statistics

Inferential statistics were used to analyse the data. However, descriptive statistics were also used to visualize the data. The following is the summary of the data based on the descriptive statistical analysis. The treatment for missing data due to participant absence during the experiment is also presented in Table 3.

Table 3
Descriptive statistics of the data

Test (treatment for missing data)	***n***	**Min**	**Q1**	**Med**	**Q3**	**Max**	**Mean**	**sd**
Post-test 1 (deleted)	57	19.048	48.889	61.905	73.81	95.556	60.228	18.286
Post-test 2 (deleted)	46	40.476	67.143	77.857	85.714	97.143	75.259	13.808
Post-test 1 (replaced)	59	19.048	48.889	60.228	73.81	95.556	60.228	17.968
Post-test 2 (replaced)	59	40.476	69.048	75.259	83.095	97.143	75.259	12.162

Table 3 shows that the structure of data did not show many changes after the missing data were replaced (with mean), which is one of the recommended treatments for missing data to avoid reduced statistical power (Curley et al., 2019). There are some differences in the 25th percentile (Q1), median, and 95th percentile (Q3), but the changes were very small. Meanwhile, the standard deviations were smaller after the missing data were replaced with the mean.

Inferential Statistics

The objective of this research was to find out whether there was a significant difference between the scores that the participants obtained after traditional vocabulary instruction and those after learning activities were conducted using Moodle workshop activity module. Therefore, both test scores were compared using Independent Sample T-Test, and the result is presented in Table 4.

Table 4
Result of Independent Samples T-Test

Test	Mean	sd	df	t-value	95%-CI		p-value
Post-test 1	60.2284	3.164	100	-4.751	-21.31	-8.754	0.000
Post-test 2	75.2588						

The hypothesis to be tested in Table 4 was that "there was no significant difference between the scores of post-tests 1 and those of post-test 2." The hypothesis is rejected at the significance level of 0.05. Table 6 shows that the p-value was lower than 0.000; therefore, there was statistical evidence that the scores that the participants obtained after traditional vocabulary instruction and those after learning activities were conducted using Moodle workshop activity module were significantly different. Based on the mean, it can be concluded that the scores obtained in post-test 2 were higher than those in post-test 1.

Discussion

This empirical study was aimed at seeking significant evidence on the effectiveness of Moodle workshop activity module in terms of students' achievement. The analyses with inferential statistics show that the scores obtained by the participants after they received traditional vocabulary instruction were lower compared to those after receiving instruction with Moodle workshop activity module. Better vocabulary retention when in-

struction involves peer assessment of target vocabulary in essays, where vocabulary exposure is enhanced both in number and quality is theoretically expected, and we now have empirical evidence to support it. First of all, there is a consensus that motivation plays a crucial role in learning (Wang et al., 2008). Therefore, many research studies have been conducted to find how motivation correlates to learning (Law et al., 2019; Law & Breznik, 2017; Shaikholeslami & Khayyer, 2006). In the field of vocabulary learning, the use of technology has been proven to motivate students (Agca & Özdemir, 2013, p. 784). Students found it interesting to do vocabulary exercises in blended learning (Tosun, 2015). Technology also allows manipulating learning activities into games, which are always very motivating for students (Andreani & Ying, 2019). Even serious learning activities when delivered as computer games can make students motivated (Zhonggen, 2018, p. 223).

In addition to improving motivation, Moodle workshop activity module was designed specifically for peer assessment. The peer assessment process in this experiment might have provided optimum exposure in quality and quantity. In terms of the amount of exposure, students were first introduced to vocabulary and its meaning. Then, students wrote an essay where they were required to use as many target words as possible. In this step, they would read the target words multiple times. The next step is peer-review; where the students read two of their peers' work to determine how many target words were used in the essay. Thus, they would read the target words several times from the materials to confirm the words. The estimated amount of exposure is presented in Table 5.

Table 5
Descriptive comparison between the first and second tests

Activities	Category	Exposure times
Instruction		2
Writing essay		3
Peer assessment	Peer 1	3
	Peer 2	3
Total		11

Based on Table 5, each student read each word at least 11 times, which is more than expected in a single lesson. Students consider that vocabulary instruction is effective when it involves repetitions (Köse et al., 2016). According to research conducted by Waring and Takaki (2003, p. 135), acquisition requires at least 8 encounters. According to van Zeeland and Schmitt (2013, p. 622), a learner needs to encounter a word more than 15 times in listening and to acquire the words, which is doubled the estimated occurrences in this study. These results suggest that learning vocabulary through peer-review using Moodle workshop activity increased the chance of acquiring more words with fewer exposure times.

Finally, the quality of exposure refers to how important the word is considered and the effort that the students make to deal with the word. Vocabulary encountered in reading and listening is the potential for a low quality of exposure because students might ignore some vocabulary. Therefore, students might need more than 20 encounters to be able to recognize a word in reading and know its meaning (Waring & Takaki, 2003, p. 151). Vidal (2011, p. 247) found that the quality of exposure in listening is lower than that in reading. The quality of exposure improves when students look up the word in a dictionary

because, as proposed by Chen (2012, p. 239), which can increase their retention of the vocabulary. In this research, the students read each word and recalled their meaning such as by reading notes, asking peers, or seeking the teacher's assistance to appropriately use them in their writing. Students also read each word carefully during the peer assessment process because they needed to grade their peer works.

The result of this study has provided some significant implications for vocabulary teaching in EFL contexts. In schools or universities which provide facilities to use Moodle, teachers can apply this type of vocabulary instruction, i.e., peer assessment, using workshop activities. Should other LMS be used, teachers can use a similar feature available in the LMS. Other e-learning platforms which allow peer assessment include Edmodo and Google Classroom. Both systems are plug-and-play platforms, which do not require any installation. For a bigger project, teachers can use Open Journal System (OJS), which also allows double-blind assessment. However, many educational institutions do not have such a facility, or the teachers are not prepared to use e-learning, or the classroom setting simply does not allow it. Technology indeed enhances motivation, but it is the peer assessment activity that provides adequate exposure for vocabulary. Therefore, peer assessment can also be implemented using social media applications such as WhatsApp, which is recently the most preferred digital platform among professors in Indonesia (Amin & Sundari, 2020), or even using pen and paper. After students complete their essays, the teacher can randomize two classmates to assess each essay. To allow more than one assessor, the teacher can make copies of students' work before assigning assessors.

Conclusion

The objective of this study was to find out whether the scores of students taught using the workshop activity module in Moodle were significantly different from the scores of those taught using traditional vocabulary instruction. The results show that the percentage of vocabulary retained improved significantly after the participants received vocabulary instruction using Moodle workshop activity module, which facilitates peer assessment. This significant improvement was predicted as a result of better vocabulary exposure in terms of quality and number. This research result offers a good practice in vocabulary instruction based on the belief that vocabulary is best learned incidentally. Peer evaluation involves reading an essay written by peers to check whether they have used the target vocabulary correctly, which accidentally creates an opportunity for extensive vocabulary exposure. Although an LMS was used in this research, the same effect can also be achieved if LMS is not feasible as long as multiple times of exposure can be efficiently created. However, further studies are encouraged to investigate the effectiveness of this alternative practice.

The purpose of the quantitative analyses in this study was to generalize the research results to a wider context in vocabulary instruction. However, the generalizability of the results is subject to certain limitations. First, the absence of a pre-test for target words before the instruction makes the research findings less convincing. However, during the treatment, the students showed similar knowledge of the target words in all topics before the instructions. In addition, the tests were designed as a classroom assessment. The absence of pilot testing can be treated as a limitation of this study. Although the internal consistency of the test was quite high, i.e., between 81 and 86, some questions needed to

be dropped from the analysis to achieve those consistency levels. Had we had a chance to pilot the test, a revision could have been made to achieve even higher reliability, and no question would have been dropped. Therefore, this creates a potential for further studies.

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