Investigating The Effectiveness of Using WhatsApp Messenger in Vocabulary Learning Among the Indonesian Learners

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ABSTRACT: The utilization of mobile technology has given birth to a new form of learning called mobile learning, which can facilitate students in learning the English vocabulary words. Vocabulary learning through mobile phone allows learners to have spaced repetition on vocabulary items. Whereas the penetration of WhatsApp Application in Indonesia keeps climbing, little research has explored the application of WhatsApp in vocabulary learning. The purposes of the study were (a) to examine whether WhatsApp collaborative vocabulary learning is more effective than the non-collaborative one (b) to investigate the advantages and disadvantages of vocabulary learning via WhatsApp based on the collaborative and non-collaborative learning methods and to examine which one is more effective. There were 50 students from two classes of English from Universitas Krisnadwipayana in Indonesia that were assigned to two groups: The collaborative learning group (the experimental group) and the non-collaborative learning group (the control group). They had to learn 75 words during 25 days of treatment. After the treatment, both group had to take a post-test. As a final step, both groups had to write a written reflection on the advantages and disadvantages of learning vocabulary through the WhatsApp based on the learning method that they used. As a result, from two-tailed independent samples T test, it was found that the experimental group outperformed the control group. Then, from the written reflection, it was indicated that the experimental group showed more positive attitudes toward the collaborative vocabulary learning via WhatsApp Messenger while those in the control group showed more neutral attitudes toward the non-collaborative learning. Based on those facts, it could be concluded that the collaborative vocabulary learning via WhatsApp Messenger was more effective than the non-collaborative one.

KEYWORDS: Vocabulary learning, collaborative learning, WhatsApp Messenger.

INTRODUCTION

English as a Foreign Language (EFL) in Indonesia has been facing the challenge of lacking exposure to English. For the majority of the students, English classes are the only chance and space to practice and use English. Because of the class time constraint, vocabulary reinforcement and study are frequently the responsibility of the student outside the classroom (Grace 1998). Thus, there is an urgent need for English teachers in Indonesia to find an effective self-study approach for college students to enrich their vocabulary. When learning a new language, vocabulary is likely the most important element to acquire first because without sufficient number of vocabulary, it is hard to express the ideas. Teachers, however, often merely leave this responsibility to the students and conduct most of the vocabulary learning activities outside the classroom. Experienced teachers of English as a Foreign Language know very well the importance of vocabulary and expect their students to master thousands of words that speakers and writers of English use. Fortunately, the need for vocabulary is one point on which teachers and students agree (Allen, 1983).

However, for many years there have been inadequate attention on vocabulary learning strategies, which means there have been inadequate help from the teacher for their students in learning new vocabularies. Since grammar and pronunciation are two items emphasized in language learning, teachers are also told that they should teach vocabulary until learners get accustomed to use the grammar and the pronunciation. Cook (2008) said in his book that 'when you want to say something in a second language, it is the words that you feel you struggle for rather than the grammar or pronunciation'. For this reason, more people realize that although it is important to know how words work together with others (grammar), the ability to choose the proper words (vocabulary) is also essential.

Allen (1983) wrote in his book, 'Through research the scholars are finding that lexical problems frequently interfere with communication; communication breaks down when people do not use the right words' (p.183). Teachers realize that if learners did not have enough vocabulary words, it would be difficult for them to express their ideas and to communicate with others. McCarthy(1990) also stressed in his work, 'No matter how well the student learns grammar, no matter how successfully the sounds

of L2 are mastered, without words to express a wide range of meanings, communication in an L2 just cannot happen in any meaningful way' (p. 8).

An independent learning gives students more opportunity to get information from various sources and makes them realize that their teacher is not the only source of knowledge. Some language experts go along with this idea, such as Sokmen (1997), arguing that it is not possible for students to learn all vocabulary they need in the classroom (p. 225). They need more sources to get more information in order to improve their vocabulary. Channell (1988) agreed that learners should be active in finding new sources themselves and not depend only on the teacher. Therefore, they need certain media to help them learn vocabulary independently as they will help students explore their knowledge and enhance their skills. Zhang and Song (2009) had the same opinion related to learning media to support the students' learning. They agreed that students need media to increase their efficiency, especially in situations where self-regulated learners lack the ability to learn well in an autonomous manner. In other words, learning vocabulary outside the classroom should involve learning media.

Although media is essential for vocabulary learning, there are some requirements they have to fulfill to be eligible for vocabulary learning activities outside the classroom. First, the media should be able to motivate them to enrich their vocabulary, meaning that they should be attractive and interesting for the students. Secondly, they should be easy to use and can give the students opportunity to learn anytime they want. If these two requirements are met, the media can be used to help students improve their vocabulary. The use of gadgets such as mobile phone and computer has been investigated by a lot of studies on vocabulary learning. The studies covered the use of computer and mobile phone in facilitating the vocabulary learning (e.g., Cavus & Ibrahim, 2009; Cobb, & Nicolae, 2005; Hulstijn, 2000; Jones, 2003, 2006; Jones & Plass, 2003; Kennedy & Levy, 2008; Levy & Kennedy, 2005). There are a lot of facts suggesting that m-learning (learning assisted by mobile technologies) has a great potential in providing EFL learners with large exposure to the target content as learners can do self-learning anytime and anywhere, with the assistance of mobile technology (Chinnery 2006; McNicol 2004; Naismith et al.2005; Norbrook & Scott 2003; Roschelleet al. 2005; Thornton & Houser 2003, 2004, 2005). The advantages of mobile phone technologies are well known especially for its "anywhere and anytime" learning, the effectiveness of outside class learning, and the "always ON" access of the device. Mobile phone is also efficient for spontaneous and fun just-in-time learning activities. These aspects of mobile learning encourage a high-level learning as the users are able to apply the information right away.

Collaborative Learning
Collaborative learning refers to a learning process which involves an interaction between learners in order to reach a common goal. The interaction serves as the media for idea and knowledge construction. The interaction plays a vital role in collaborative learning since it is the source of exchanging information between learners, clarifying or modifying ideas, as the basis of knowledge enhancement.

Social learning theory by Vygotsky (1978) supports collaborative learning by stating that through interactions with others, individuals can progress from their actual to their potential development level. The zone of proximal development (ZPD) is the distance that lies between students' current and potential levels of development. When students discuss and interact together, they may guide, support, and correct each other as needed and, thereby, share their knowledge and linguistic and cognitive resources to help each other progress through the ZPD (Gutiérrez, Baquedano-López, Alvarez, & Chiu, 1999; Oliver, Omari, & Herrington, 1998; Richard-Amato, 1996; Rowell, 2002; Vygotsky, 1978). Finally, collaborative L2 learning is oriented toward negotiation and traversing the ZPD (Oxford, 1997).

There have been many researchers examining the effects of collaborative learning both on learning in general and on L2 language acquisition (e.g., Barnes & Todd, 1977; Bejarano, 1987; Gunderson & Johnson, 1980; McGroarty, 1989; Rowell, 2002; Sharan, 1990; Vandergrift, 1997). In an overview of research involving collaborative learning McGroarty (1989) proposed that group work may increase the learners' creativity in terms of using their L1 to develop their L2 verbal communication skills and comprehensible output, help clarify meaning, build content knowledge, and support active learning processes. McGroarty and others (e.g., Neves, 1984) then determined that such learning provides a way to use learners' L1 to facilitate their L2 mastery as the frequency of talk between peers, even if in the first language, which can directly enhance students' L2 comprehension. Barnes and Todd (1977) examined conversations between students working in small groups in which hesitant and sometimes confusing talk prompted abrupt changes in the ongoing dialogue. This reshaping of the conversation eventually led to the development of new ideas and better understanding of the content. Sharan (1990) and Bejarano (1987) compared group work to whole class learning and reported that group learning led to better results in student motivation, student achievement, language achievement in terms of grammar and vocabulary learning, and more

Collaborative strategies, though crucial for effective classroom learning in general (Devillar & Faltis, 1991), as well as for L2 acquisition (e.g., Enright & McCloskey, 1988; Fathman & Kessler, 1993), are not without pitfalls. Some scholars have indicated that the nature of the task or the software is pivotal for determining the depth of learning when working collaboratively on a computer; when poorly designed or poorly thought-out group activities or materials are employed, learning is less likely (Mohan,

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1992; Mydlarski, 1987; Piper, 1986). Renié and Chanier (1995) suggested that if the cognitive differences between peers assigned to groups are too great, harmful effects on the learning process can occur, in particular if the emphasis is on the correct response without consideration of the collaborative learning experience. Hoyles, Healy, and Pozzi (1994) examined student groups as they undertook math tasks at a computer. Collaborative computer work was successful only if the groups had well-structured experiences with the material. However, if a group was not balanced but, rather, dominated by directors or navigators, success was possible only if the students already had prior knowledge on the material. In short, the success depended on a balance of student interdependence and autonomy.

Vocabulary Learning trough Mobile Phone
Since today's students have enormous access to digital technology display characteristics such as digital fluency and familiarity with new technologies never before imagined, they are digital natives (Prensky, 2001). With the development of technology and the emergence of digital era, foreign language teachers find it necessary to think about new effective ways to create a better foreign language teaching and learning supported by multimedia technologies.

Technology has changed the way-students communicate, learn, and socialize with others; improved their skills of presentation and exploitation of the knowledge (Reis, Bonacin, & Martins, 2009). Thus, reliable high quality audio and video delivery to user-friendly mobile devices can provide valuable and enjoyable language input for learners. Due to the spesific features of multimedia in L2 development, mobile devices may open up new vistas for language learning (Godwin-Jones, 2008). Therefore, mobile assisted language learning (MALL) has become increasingly popular in the foreign language teaching and learning context.

Mobile Assisted Langugage Learning (MALL), which is the exciting art of using mobile technology to improve learning experience in language learning, is different from Computer Assisted Language Learning (CALL). It uses personal and portable devices that create new ways of learning. Laurillard (2007) pointed out that a common mobile learning activity could build more opportunities for digitally-facilitated activities and for ownership and control over what learners do. In general, MALL is expected to use multimedia technologies such as mobile phones, MP3/MP4 players, PDAs, and palmtop computers.

There are still few studies found related to the use of mobile phone in vocabulary learning, if it is compared to the use of CMC (e.g., Cavus & Ibrahim, 2009; Levy & Kennedy, 2005; Kennedy & Levy, 2008; Lu, 2008; Song, 2008; Stockwell, 2007; Stockwell,2010; Thornton & Houser, 2005). However, studies investigating the use of mobile phones for vocabulary learning have started to appear in the literature, and the nature of the activities and the focuses of the research have now varied. Browne and Culligan (2008), for example, provided and overview of an environment where learners complete activities on a computer, and then they can access vocabulary flash cards they need to work on which are generated by the system on their mobile phones. In the learning process, a description is given on how the activities are beneficial, specifically that targeted items are provided for learners to study at a time and place that suit them. However, there is no detailed information on how the system was actually used by the learners.

Vocabulary learning with mobile phones allows learners to be exposed with spaced repetition of vocabulary items, which is believed to be more effective than massed repetition (Nation, 2001). Such findings have been proven by Bloom and Schuell's empirical study (1981) of two groups of students learning French vocabulary words. The students were randomly placed to two treatment conditions: the experimental group with spaced practice and the control group with massed practice. The post test result showed that there was no significant difference between the two groups. However, the delayed test four days after the practice showed that the spaced group outperformed the massed group. It showed that this difference came from the fact that the experimental group had the opportunity of "practicing both the vocabulary words themselves...and their recall from long term memory" (Bloom & Shuell, 1981, p. 247) while the control group could "only have the opportunity to recall information from short-term memory during learning" (p.247).

The findings were in line with the vocabulary learning studies using mobile phones. Thornton and Houser (2005) made a comparative study on the effectiveness of vocabulary learning through email and via mobile phones. The study revealed that the mobile phone group achieved more vocabulary gains than both the email-based group and the paper-based group. They concluded that the use of mobile phones as the medium can "capture their interest, and pushing study opportunities at students via mobile e-mail is effective in helping them acquire new vocabulary" (p.226).

Certainly, mobile phones 'are particularly useful computers that fit in a student's pocket, are always with students, and are nearly always on' (Prensky 2005). The portability and immediacy allow students to learn in their preferred time and place. Another appeal to the busy students is the bite-sized lessons provided by most mobile-phone learning programs such as StudyCell (McNicol 2004). Learners feel that the chunks of those lessons are more manageable than the lengthy and usually too detailed lessons on paper. Last but not least, the 'pushing messages' (Thornton & Houser 2005) to individual learners' mobile phones offer cumulative lessons which maximize the exposure to the contents (Nation 2001). Over time, this efficient exposure enhances the information processing activities, makes the activation and recognition automatic, and leads to greater retention (Hulstijn 2001). In contrast, the traditional paper material, which usually includes a long presentation of vocabulary lessons, has no such advantages. The paper

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material is unable to deliver pushing messages like mobile phones. Its lengthy presentation is unmanageable and unappealing to students. The benefit of its portability and immediacy may not be generated.

Mobile phone technology has the potential to increase learners' efficiency, especially in situations where self-regulated learners lack the ability to learn well in an autonomous manner (Zhang & Song, 2009). One of the plausible explanations of the above phenomenon stems from Channell's (1988) theory on learners' active role in the process of vocabulary acquisition. In particular, she maintained that "learners should be encouraged to make their own lexical associations (between a learner's first and second language knowledge) when they are actively learning new vocabulary. (However, at present we do not know which kind of associations are the most useful in aiding retention)" (p. 94). When they are actively engaged in making conscious links, learners tend to give their focal attention to both form and meaning, which is beleived to give rise to language aqcuisition (Kormos, 2006;Schmidt, 2001).

WhatsApp Messenger

WhatsApp Messenger is an internet-based instant messenger and videotelephony application that allows messaging between users. Messages sent via WhatsApp Messenger are sent over the internet. The service communicates over the phone's internet connection using the mobile phone network. A wireless LAN ("Wi-Fi") network connected to the internet may also be used to send messages. Exchanging message is possible to a single person or via dedicated discussion or chat groups, which allow multiple users to communicate in a single session. In addition to offering text-based instant messages, WhatsApp Messenger also allows users to send pictures, voicenotes (audio recordings), files, location on map and a wide selection of emoticons and it can even make videocalls over the WiFi or mobile network.

Some studies related to the use of WhatsApp Messenger to facilitate English language learning were conducted and they revealed some positive results. Kheryadi (2017) states that WhatsApp is effective and useful for language learning. The students feel enthusiastic as the learning tool appears to be interesting to them. Furthermore, Hamad (2017) found that students learn trough each others' mistakes when learning trough WhatsApp group. That is why students feel more motivated to learn and by feeling that why it is easier for them to learn new vocabulary items.

Among the messenger applications, WhatsApp is the most popular in Indonesia. According to a survey, the number of WhatsApp users in Indonesia is the third largest in the world. That is why this research uses the App in order to investigate the data collection. This study raises the following research questions:
1. Is WhatsApp collaborative vocabulary learning more effective than the WhatsApp non-collaborative vocabulary learning?
2. What are the advantages and disadvantages of vocabulary learning via WhatsApp based on the collaborative and non-collaborative learning methods? Which one is more effective?

METHOD

The research was conducted within a month period in May 2023. The process covered pre-test, the vocabulary learning treatment, post-test, and written report writing. Each pre- and post- test needed 25 minutes to complete while the treatment took 25 days. During the 25 days, both the control and experimental group had to study 75 vocabulary words in a daily basis learning trough the WhatsApp Messenger. Finally, one week was the duration given to all the participants in both groups to complete the research writing.

Two classes of students (N=50) participated in the study. They were students of the Management Studies of Universitas Krisnadwipayana, which is located in Indonesia. The students were all self-motivated to improve their vocabulary due to the fact that they all had to get score of 500 in Test of English as a Foreign Language (TOEFL) as one of the graduation requirements. About the total learning duration, the participants had learnt English for about 13 years, started from the first grade of elementary school. All of the participants used the WhatsApp Messengers in their daily communication. The participants were placed into two treatment conditions when they embarked on vocabulary learning. Specifically, 25 students (the experimental group) studied the vocabulary items in a daily basis through WhatsApp Messenger by applying collaborative learning, and the other 25 students (the control group) worked on the same vocabulary items through the WhatsApp Messenger without applying the collaborative learning. Although all of them had WhatsApp Messenger on their phones but they never experienced learning English vocabulary through WhatsApp Messenger before. Regarding their English proficiency, the participants were between intermediate and advanced level. The level was based on their entrance exam scores in their college. This information became an important consideration for the researcher to find proper materials for them to study.

A TOEFL Vocabulary Test

The purpose of this test was to determine the subjects' current state of vocabulary knowledge before the experiment (pre-test) was launched. In order to identify participants' initial vocabulary level, a vocabulary section of a TOEFL simulation test was employed. Before taking the test, the participants were asked whether they had previously taken it to make sure they had never seen the

questions before. The section was composed of 15 multiple-choice sentences, in which each of them has one word underlined and the participants were asked to choose the word in the four options below it that had the same meaning (see Appendix A). The vocabulary words were selected from the Baron's TOEFL simulation test and classified as the frequently used words the English proficiency test. The results of the test were used to identify whether differences are found between the two groups' initial vocabulary level.

Post Intervention Vocabulary Test

The purpose of this test was to determine whether the subjects had the same level of vocabulary before an intervention was given, and whether vocabulary mastery would improve after the intervention was implemented. The vocabulary items were taken from the same source for the TOEFL vocabulary test. The words (N=75) were extracted from the TOEFL test preparation material the participants were assigned to learn. This vocabulary list covered part of speech, English meaning, and sentence examples of the words. This test was given to the two groups with different learning methods via WhatsApp Messenger

Written Reflection

Within a one-week period after the post-test, the participants in both groups were asked to give comments about their learning experience in terms of how learning could be better enhanced. The comments included the advantages and disadvantages as well as the motivations they got during the learning process. Some guided questions were made to prevent the comments from going out of context. Later on, this could also be useful for the researcher to make comparisons between the control and the experimental group.

Research Procedures

A total of fifty students were divided into two groups: experimental and control group after the researcher previously identified their English proficiency scores by looking at their university entrance scores. From the pilot study, it could be concluded that most of the participants were in the range of intermediate to advanced level. Those in the experimental group were the students with WhatsApp Messenger who applied the collaborative vocabulary learning as the treatment. The rest/ the control group were those with WhatsApp Messenger who applied the non-collaborative learning. Both groups then had to take a pre-test which consisted of fifteen multiple choice vocabulary questions from the TOEFL simulation. Before the test, it was ensured that the participants had not taken the same test before.

The next step was the treatment phase. This phase was conducted within 25 days. Two different treatments were given to the two groups in terms of learning 75 words with the WhatsApp Messenger. In that case, the participants in both groups had to learn three vocabulary words each day. The distribution was based on the subjects' preferred times of message delivery agreed prior to this experiment.

The experimental group learned the words at one time a day on a daily basis and they had to practice collaborative learning in studying the English vocabulary words trough WhatsApp Messenger. The collaborative learning was conducted trough a discussion activity among the participants. The researcher sent the vocabulary words within contexts (in sentences) so that participants had to do a discussion to get the meaning of the words and the part of speech by themselves. In this case, active participation of the participants and their interaction played a vital role in the vocabulary learning process.

Different with the experimental group, the vocabulary words were distributed to the control group twice a day via WhatsApp Messenger on a daily basis. For the control group, the information they received consisted of the word, its part of speech, its meaning and a sentence example containing the word. Since they already received all the information to learn they did not actively participate in the learning process, as those in the experimental group. In this case, they were given a freedom to manage their own learning toward the information they received each day.

After the treatment phase was completed by the two groups, they had to take a post-test. Then, the participants in both groups were also asked to submit a written reflection on their experience of learning the English vocabulary words trough the WhatsApp based on their learning method. The figure below shows the summary of the research process. All the phases were conducted in May 2023.

Data Collection

Since the study was a mix of quantitative and qualitative studies, the data were both numerical and descriptive data. The quantitative data were taken from the pre- and post- TOEFL vocabulary tests. From the pre-test, the participants' scores showing their basic vocabulary mastery were recorded as the first data. From the post-test, the scores reflecting their vocabulary mastery after the treatment were used as the second data. For the qualitative part, the data were the participants' written reports on the advantages and disadvantages of learning vocabulary through WhatsApp Messenger, especially related to the learning method they practiced via WhatsApp Messenger. The qualitative data were collected in a week period after the post-test.

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Data Analysis

In analyzing the data, a two-tailed independent-sample t-test was used. This instrument analysis was chosen because there were two groups that had to be compared in this study. The t-test assessed whether the means of two groups' scores were statistically different from each other. This analysis was appropriate whenever it needed to compare the means of two groups' scores, especially to analyze a post-test with only two randomized – group experimental design. In analyzing the qualitative data, the participants' responses were classified into some categories based on the guided questions. The responses from the control and experimental group were then compared to know which group had more positive or negative attitudes toward the questions. After the comparison, a conclusion on how learnings were better enhanced was made.

RESULTS AND DISCUSSION

This chapter presents the study results from the quantitative and qualitative data that were analyzed. The first part presents the result of the vocabulary score achievement of the experimental and control groups after having 25 days of treatment. In the next part, the written reflection report is presented.

Is WhatsApp Messenger collaborative vocabulary learning more effective than the WhatsApp non collaborative vocabulary learning?

In table 1 the number of vocabulary before and after the treatments was presented. In the pre-test it was shown that CG had relatively higher score than EG. However, the difference was not significant due to the measurement of a two-tailed independent T test ($t(50)= .64$, $p>0.5$). After the treatment, the number of post-test scores showed a progress in the performance of the two groups. However, the EG showed relatively higher performance than CG. It was according to the two-tailed independent-samples T test as there was a significant difference between the two groups ($t(50)= .00$, $p<0.5$). The results indicated that the EG learned more effectively than the CG.

Table 1. Performance of the two groups before and after treatments

Test	EG		CG	
	Mean	SD	Test	EG
Pretest	54.64	10.06	55.96	9.97
Posttest	73.76	9.26	63.64	8.05

EG= Experimental Group, CG= Control Group

To sum up, there was no significant difference between the control and the experimental group before the treatment was carried out, which showed that all participants might be in the same level of vocabulary mastery. However, after a month of treatment, the participants of the experimental group showed relatively better performance than those in the control group, indicated by a significant score difference between the two groups. It revealed that the EG had learned more effectively than the CG. In other words, it can be said that the collaborative vocabulary learning through WhatsApp messenger was more effective than the non-collaborative one. The explanation of the finding can be found by observing some comments made by the participants of both groups in the following parts.

What are the advantages and disadvantages of vocabulary learning via WhatsApp Messenger based on the collaborative and non-collaborative learning methods? Which one is more effective?

In order to make the learning process more interesting and effective, it is important to find an innovative way to support and facilitate the learning process itself. Mobile technology is very close to the students' life and can be used as a learning media to increase their motivation. In this research the technology was represented by the used of WhatsApp Messenger in which some of the participants felt that learning through WhatsApp has motivated and encouraged them to learn.

"Learning vocabulary in WhatsApp makes me feel more motivated than in ordinary vocabulary learning." (Jona)

"Using WhatsApp Messenger to learn the English words has helped me to feel more encouraged since it may replace the ordinary way of learning the words such as using dictionary or vocabulary books." (Ajeng)

Mobile phone is a communication device that nowadays has become people's best friend in their daily life. It is an always-ON device that can give the users something more than just an ordinary communication activity. In this research the participants could use their phones to access new English vocabularies through the WhatsApp Messenger. In addition to that, the participants also benefited from the vocabulary learning activity with the WhatsApp to kill the time.

"I can have more opportunity to learn everywhere and every time since my phone is always ON in my pocket. It also helps me to kill the time with meaningful activity." (Reza)

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"Since I learned the vocabulary trough WhatsApp, I have never got bored to spend my time. I could use my spare time to have a look at the new vocabulary I got. It's so fun!" (Fadli)

During the research, learning vocabulary through the WhatsApp Messenger had also given a comfortable feeling to the participants. They did not feel any pressure in doing the learning since they had an independence to manage the intensity of the learning themselves. Besides, they could even do another activity like chatting with friends in WhatsApp while reading the vocabulary.

"Learning vocabulary trough WhatsApp gives me a sense of independent learning since I can manage my own time to learn the words. It's enjoyable!" (Rani)

"I enjoy learning vocabulary via WhatsApp because when I read the vocabulary, I can also reply my friends' messages." (Happy)

As stated before, the popularity of WhatsApp Messenger among Indonesian people is an unquestionable fact. Some people have made it a part of their lifestyle. Therefore, using WhatsApp for vocabulary learning activity becomes an interesting activity, as told by one of the participants.

"It's interesting to learn via WhatsApp Messenger since it's very popular and widely used among students in Indonesia." (Meita)

"Most of my friends use WhatsApp to communicate to each other. This condition is good when we have to learn the English words because we can discuss the difficult words via WhatsApp with our friends." (Lita)

The present study examined whether WhatsApp collaborative vocabulary learning is more effective than the WhatsApp non-collaborative vocabulary learning. It also investigated the advantages and disadvantages of vocabulary learning via WhatsApp based on the collaborative and non-collaborative learning methods and to examine which one is more effective. This chapter discusses the findings of those issues which are divided into two sections; WhatsApp collaborative vocabulary learning and WhatsApp non-collaborative vocabulary learning. Each section contains the discussion of the quantitative and qualitative results. Finally, pedagogical implication, limitation of the study and conclusion are presented to give a guidance for the future studies on the same area.

WhatsApp collaborative vocabulay learning

Referring to the result of the independent T-test, the experimental group had greater vocabulary gains than the control group. The superiority of the experimental group was a result of a month of treatment of the collaborative vocabulary learning via WhatsApp Messenger. It implied that there might be a positive correlation between the discussion as the main activity of collaborative learning and the vocabulary gains. By having a discussion the participants could actively participate in the process of finding the meaning of the words. They worked as a group who tried to help eacg other to solve a learning problem. As reflected in the result, the participants who worked collaboratively could significantly improve their achievement compared to those who did not. It was also supported by the qualitative results of the written reflection. Participants enjoyed the discussion as a media to interact, support and help each other. This fact was in line with Sharan (1990) and Bejarano (1987) who stated that group learning led to better results in student motivation, student achievement, language achievement in terms of grammar and vocabulary learning, and more positive social relations between peers. Then participants also thought that the discussion activity that they did collaboratively had given them a challenge to learn. The learning became more meaningful and understanding for them since they had to discover the knowledge by themselves. It was more challenging than just having all the information ready to learn like what the control group received. This kind of learning might enhance their comprehensible input as the idea of comprehensible input suggests that learners acquire language best by experiencing material that is just beyond their current level of expertise (Krashen, 1982). Thus, the more comprehensible input learners receive, the more opportunities they have to learn (Fathman & Kessler, 1993). This finding was supported by previous study Szostek (1994) which noted that group work among the students contributed to enhance comprehensible input and thus better understanding of the material to which they were exposed.

The used of WhatsApp Messenger as the learning media also took place in the success of the application of collaborative learning done by the experimental group. Most of the participants showed their positive attitudes toward the used of the learning media for it helped to raise their motivation as well as capture their interest in learning. It was the same as what Thornton and Houser (2005) suggested in the previous study. They concluded that the use of mobile phones as the medium can "capture their interest, and pushing study opportunities which is effective in helping them acquire new vocabulary" (p.226).

WhatsApp non-collaborative vocabulary learning

Different with the experimental group who worked collaboratively to get the knowledge, participants in the control group had to learn individually. However, they received all the information to learn each day without having to make analysis and prediction. The vocabulary words were sent to them complete with their meanings, part of speech and sentence examples containing the words. Getting this condition, participants in control group showed relatively worse performance than those in experimental one. It was proven by their post-test scores which was below the experimental group. It might be because they only got receptive knowledge from the activity without making any productive output. The activity turned to be less challenging and meaningful for it might just be the same as the traditional way of learning the vocabulary words with 'memorizing' as the main activity.

The prediction was supported by the finding from participants, written reflection on non-collaborative vocabulary learning trough WhatsApp Messenger. The condition that they simply got the words and their meanings without having enough contexts to help them understanding the words was not beneficial. It was just the same thing as their daily vocabulary learning with their vocabulary books or dictionary. It was hard for them to invent a new strategy from the learning process.

The only thing the participants felt motivating about the learning was the used of WhatsApp Messenger as the learning media. With its popularity and its widely used among the participants, WhatsApp could be an effective learning media for them. However, it would be another way around if it was combined by an unsuitable learning method. The combination of the non-collaborative learning method and the used of WhatsApp Messenger in this present study was less effective than the combination of the collaborative one.

CONCLUSION

The purposes of this study were: (1) to examine whether WhatsApp collaborative vocabulary learning is more effective than the WhatsApp non-collaborative vocabulary learning; (2) to investigate the advantages and disadvantages of vocabulary learning via WhatsApp based on the collaborative and non-collaborative learning methods and to examine which one is more effective.

The findings suggested that the WhatsApp collaborative learning group/ the experimental group outperformed the WhatsApp non-collaborative vocabulary group/ the control group. This fact indicated that the WhatsApp collaborative learning was more effective to facilitate participants' vocabulary learning than the non-collaborative one. It was also revealed that participants in the experimental group showed more positive attitudes toward the learning method (WhatsApp collaborative vocabulary learning) that they used compared to the attitudes of the control group toward their learning method (WhatsApp non-collaborative vocabulary learning). For the experimental group, the vocabulary learning activity was challenging yet meaningful. The discussion had raised their motivation and encouraged their curiousity to learn. For the control group, the vocabulary learning activity was less challenging and less meaningful. It could not help them to find a new innovative strategy to learn the vocabulary easily. Those facts emphasized the previous finding that the WhatsApp collaborative vocabulary learning was more effective than the WhatsApp non-collaborative vocabulary learning.

In conclusion, there are some pedagogical implications and limitations to guide the next studies on the vocabulary learning with mobile phone. Educators should highlighted the use of mobile phone as a learning media which does not guarantee the success of the vocabulary learning. Learning method and strategy place more imprtant role in the learning process. A good combinantion of interesting media with a suitable an innovative learning method may result in the succes of vocabulary learning. Furthermore, involving technology in language learning should raise more anticipation on unexpected technical problems which may hinder the learning process itself. Finally, it is suggested that next studies may involve bigger number of participants as well as longer treatment periods and more words to learn. More attention to the qualitative aspect may also bring a more critical information toward the studies in this area.

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