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QUICK RESPONSE CODES IN IMPROVING STUDENTS' VOCABULARY MASTERY

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Abstract: This study was aimed to investigate whether the implementation of Quick Response Codes was useful for the students in improving their English vocabulary. This study employed a Classroom Action Research (CAR) design in which the researcher worked collaboratively with an observer in the class. The CAR consisted of two cycles with the steps of planning, acting, observing and reflecting in each cycle. The data were gathered through several procedures, i.e. observation, interview, and tests. The result of this study showed that there was an increase in the students' fulfillment of minimum mastery criterion from 0% before the treatment to 14.28 % after cycle 1 and 77.14% after cycle 2. Accordingly, the criterion of success was achieved. The results of the observation revealed that the students actively participated in the learning process by using the Quick Response Codes in the vocabulary learning and it supported their engagement in the class.

Key words: CAR, quick response codes, vocabulary mastery

INTRODUCTION

Technology is a crucial element in the process of teaching and learning (Robin, 2009; Golonka, 2012; Sad & Goktas, 2013). The technology which later was known as instructional media has a wide coverage. One example is the use of mobile phone in the teaching and learning process (Kukulska-Hulme, 2006; Mtega, Bernard, Msungu, & Sanare, 2012; Moghaddas & Bashirnezhad, 2016). However, most of educators still do not use mobile phones in the teaching and learning process, specifically in language classrooms (Moghaddas & Bashirnezhad, 2016).

As a part of instructional media in language classrooms, the use of mobile phones is often considered negative because its existence has shown so many disadvantages,particularly for the learners in some aspects in their life(Sonevel, 2011; Mustafid, 2015; Sundari, 2015; Gowthami & Kumar, 2016). Studies have shown the negative

effects ofmobile phone in education (Manumpil, Ismanto, & Onibala, 2015; Kogoya, 2015). Its existence gives negative effects on time-off and brings disruption to the school environment. It also brings possible dangers posted on students. There are so many other reasons that can be stated related to the negative effect of a mobile phone. For instance, in Indonesia the use of mobile phones in the classroom is often considered disturbing to the learning process (Barakati, 2013; Manumpil, Ismanto, & Onibala, 2015; Kogoya, 2015).

On the contrary, mobile phones have a positive side that can be utilized by students in the classroom (Myles, 2013; Hennessy, 2017). For example, mobile phones can be used as a medium of communication, a tool for guiding students, a tool to calculate, a digital dictionary, a tool to take pictures of learning materials,a time keeper, a small book replacement for keeping records, and as a storage media for schoolwork files. Recently, mobile phone can be equated with a small computer in which it can check emails, perform on-line searches, and record podcasts. As most schools in remote areasare unable to provide computers for each student, mobile phones become one of the alternative tools in the teaching and learning process.

The use of mobile phone can actually be effective for learning (Aamri & Suleiman, 2011; Kim et.al., 2013). Thus, it can be deduced that mobile phones are not always negative because it can be used in the teaching and learning process as explained above. Therefore, this study focused on the benefits of Quick Response Codesas one of the applications on mobile phones.

Quick Response Codes in education have been widely used overseas (Rikala & Kankaanrata, 2014). However in Indonesia, the use of Quick Response Codes is still limited. The reasons underlying it are because teachers do not understand the use of Quick Response Code as one of the instructional media, including how to apply Quick Response Code and how to evaluate the learning outcomes with it.

Regarding the positive results of previous studies, this present study was focused on the use of Quick Response Codes in improving students' vocabulary mastery. This study was conducted by administering Classroom Action Research. The result of this study was expected to be useful for English teachers to overcome difficulties in improving vocabulary achievement among the learners of English and to provide additional information about Classroom Action Research. Moreover, this study was expected to encourage the students in improving their English vocabulary. Quick Response Codes can play a role as an instructional media which is able to help them in improving their vocabulary.

LITERATURE REVIEW

Quick Response Codes

Improvements in mobile device have made them suitable for educational use, as one of the applications which closely related with mobile device, Quick Response Codes can be applied in EFL classroom (Law & So, 2010; Lee, Lee, &Kwon, 2011; Hau et.al., 2011; Rikala & Kankaanrata, 2012; Ulfa, 2013). A Quick Response Code is a matrix barcode readable by smart phones and mobile phones with cameras (Law & So, 2010; Rikala & Kankaanrata, 2012). On most phones, one must download a free app (an application) in order to read the Quick Response Codes, although some phones have one preinstalled. The Quick Response Codes typically appear as a small white square with black geometric shapes, though colored and even branded Quick Response Codesare now being used. The information encoded in a

Quick Response Codes can be a URL, a phone number, an SMS message, a V-card, or any text (Law & So, 2010; Lee, Lee, &Kwon, 2011; Hau et al., 2011; Rikala & Kankaanrata, 2012).

The Quick Response Codes are very resistant to damage with high-levels of error correction possible, meaning that they can still function correctly when disfigured or marked. A unique feature of these codes is that their size is relatively flexible and not entirely dependent on the amount of data stored within the code. The two Quick Response Codes shown below include exactly the same amount of data. They both include the message. This illustrates that the Quick Response Codes hold a novelty factor, due to the relative newness of such a sight combined with the inability of many mobile phones to scan such a barcode without fee-based additional software (Law & So, 2010).

Quick Response Codes are flexible in sizing and easy to create. There are numerous free web-based generators such as www.myqrstuff.com or http://qrcode.kaywa.com which offer the user a range of simple options, This simplicity will make teachers and students able to create and use Quick Response Codes even if they do not have very high technological knowledge (Rivers, 2009; Law & So, 2010). Based on its popularity, the Quick Response Codes recently make an ideal time to utilize its potential within an educational environment (Law & So, 2010). The explanation stated also means that active learning and self-discovery will be supported by the use of Quick Response Codes in the educational situation. Moreover, it also enhances the learner's interest (Leigh, 2004). This statement is in line with Prosser (1999) who argues that engaging students and making them actively participate, rather than being passive listeners has been shown to increase learning output. Those explanations show that Quick Response Codes can be used as the appropriate instructional media in educational environments, especially in EFL classroom. In practice, the utilization of Quick Response Code is various depending on subject area and grade level (Law & So, 2010; Abdol et al., 2012; Ulfa, 2013; Sharma, 2013). It can be concluded that the utilization of Quick Response Code in learning activities can be organized such a way depending on the needs.

Many authors write different stages in implementing the utilization of Quick Response Codes in learning activities. Some studies on Quick Response Codes, Rivers (2009), Walker (2010), Lee, Lee, & Kwon (2011), Mikulski (2011), Rikala & Kankaanrata (2012), Sharma (2013), and Ulfa (2013)in the context of language teaching and learning were also applied in different steps or stages in implementing the utilization of Quick Response Codes. Nevertheless, most of them include creating Quick Response Codes, creating free mobile website with automatically generated code, shortening of URL and automatic Quick Response Codes generation, and reading Quick Response Codes (Law & So, 2010; Sharma, 2013).

Specifically, as stated by Rikala & Kankaanrata (2012 p.2), there are five main categories to utilize Quick Response Codes in an educational context such as treasure hunt (Law & So, 2010), outdoor activities (Lee, Lee, & Kwon, 2011; Law& So, 2010), paper-basedtasks(Law & So, 2010), learner-generated content (Mikulski, 2011) and working instruction (Walker, 2010).

In the treasure hunt, learners have the opportunity to prove their community and to analyze problems that are relevant to what they find. Collaboration or competition can be done in this kind of activity among the learners and it also useful to back up individual study. At the same time, a math trail activity is applied by Law & So (2010) and it is useful in exploring students ability in solving the problem that they find. In certain spots or locations,

the learners answered some questions by writing down their answer and scanning a code. As stated by Law & So (2010), students felt that those activities were interesting and they were eager to know about the new approaches which were different from their routine exercises. In outdoor activities, learners can explore life science subjects such as flora or fauna.

A Quick Response Code may be used to give students clue when analyzing the species or supplying additional information related to them. The code may, for instance, consist of a link to certain resources that guide the students to pick up information related to living conditions of the species. (Lee, Lee, & Kwon, 2011). Teachers would be able to create customized guidebooks for personal field study and learners would effectively learn since the information containing the code is related to in hand material. In paper-based tasks, Quick Response Codes may consist of links to digital or even a multimedia resources such as video clips or audio materials that couldbe useful in listening exercises. By doing so (Law & So, 2010) also stated that Quick Response Code is a very expedotopis and flexible way for the learners to acquire the resources ubiquitously. In learner-generated content, students can create materials or even reports online, and hand over their work through the Quick Response Codes. This approach could be very useful to support learner-centred learning. In working instruction, clear directions or procedures are given by the teacher to finish their duty or task. In this point, the independent learning is possible to be done by this approach.

Students' Engagement

Due to the important aspect of engagement in the learning process, and since the use of technology in classroom will motivate and engage students throughout a lesson (Kearsley & Shneiderman, 1998), this study tried to relate the role of one of the example of Mobile Assisted Language Learning, in this case Quick Response Codes, in shaping students' engagement. Based on this point of view, the following explanation will describe engagement in detail.

The definition of engagement is becoming more specific over time. In Finn's (1989) model, engagement consists of behavioral (participation in class and school) and affective components (identification, belonging, valuing learning). Similar definitions have also been presented by (Newman, 1992; Marks, 2000) more recently; engagement has been defined as having three subtypes (1) Behavioral (e.g. positive conduct, effort, participation); (2) cognitive (e.g. self- instruction, learning objectives, investment in learning); and (3) emotional or affective (e.g. interest, belonging, and positive attitude about learning). While engagement was viewed as reflecting a person's active involvement in a task or activity (Reeve, Jang, Carrell, Jeon, & Barch, 2004), engagement has now developed to include specific sub-divisions of (1) cognitive engagement; (2) emotional engagement; (3) psychological engagement.In addition, (Russell, Ainley, & Frydenberg, 2005)described engagement as a power in action, the correlation between person and activity. Furthermore, (Ball & Perry, 2011) classified engagement as students' involvement with actions and conditions likely to construct high quality learning.

Cognitive engagement is related to students' eagerness in relation to their work, skills, and strategies to complete their work (Davis, Summers, & Miller, 2012). Cognitive engagement is also considered as a distinction between how students perform on tasks and how they comprehend learning materials (Appleton, Christenson, Kim, & Reschly, 2006). Regarding psychological concern, (Newman, 1992) defined cognitive engagement as

student's psychological venture in and attempt aimed at studying, comprehending, or mastering the knowledge, proficiency, or expertise that academic work is planned to elevate.

Regarding behavioral engagement, Fredricks, Blumenfeld, & Paris (2004) emphasized that this element is mainly defined in three ways. Firstly, it leads to positive manner such as following rules and sticking classroom norms. Secondly, some experts consider that this kind of engagement covers students' exertion, perseverance, participation, and compliance with school structures (Skinner & Belmont, 1993; Davis, Summers, & Miller, 2012). Thirdly, (Skinner & Belmont, 1993; Davis, Summers, & Miller, 2012) have a tendency to say that behavioral engagement is related to students' partaking with school-related activities (see Finn, 1993). Those three ways obviously point out that students' behavioral engagement encompasses numerous viewpoints, but has one specific objective: students' positive attitude of following schooling regulations.

Emotional engagement is closely related with the assortment of students' emotion. It represents students' feelings of interest, happiness, nervousness, and annoyance during accomplishment-related activities (Skinner & Belmont,1993). On the other hand, (Sciarra & Seirup, 2008) described emotional engagement in its relation with a sense of belonging and concern about school. According to (Goodnow, 1992), a sense of belonging arises when students feel that they are admitted, supported, and involved by other people in the social setting of a school. Sense of belonging is one of the important components of psychology because the sense of belonging could be said to have a positive or indirect impact on academic accomplishment and motivation (Goodnow, 1993; Kember, Lee, & Li, 2001). It is clearly noticed that the previous researchers considered similar concerns about students' engagement, which mostly concluded that emotional engagement is related to students' feeling.

Vocabulary Mastery

One of the language aspects which has to be learned is vocabulary. Vocabulary learning is an important part in the learning process because in order to be able to speak, write, and listen, students have to know the vocabulary first(Cameron, 2011). It can be concluded that in the process of vocabulary learning, the students have to recognize and know the meaning of words and they have to understand it so that they will be able to use it in a new context.

Mastering a large number of vocabularies is very crucial for foreign language students. Without mastering it, of course, they will face some trouble in developing the four language skills. As stated by (Hatch & Brown, 1995 in Setiawan, 2010), the term of "vocabulary" refers to a list or set of words for a specific language that individual speakers of the language use. Since vocabulary is a list, the only system entailed is that of alphabetical order.The choice in methods and techniquesused in teaching vocabulary are crucial factors. It needs the process of learning in context to obtain the meaning of words as stated by (Ally ,1983). Vocabulary is an essential component of second language proficiency; one of the most important goals of language learning is to know the meanings of the words. It is needed in order to communicate successfully in the second language. Therefore, success in learning English involves vocabulary acquisition. A large vocabulary can not ensure the student's competence in learning English, but the inadequacy of vocabulary will hamper their chances of success in learning English. The importance of mastering vocabulary in learning is also

stated by (Nunnan, 1998). He states that the development of a rich vocabulary is an important element in a second language acquisition. From the aforementioned definition, it can be concluded that vocabulary is the total numbers of words within a list or set in a specific language that a person uses or knows.

METHOD

This study was conducted by using classroom action research that attempted to explore the use of Quick Response Codes in improving students' English Vocabulary. The action research in this study followed a model proposed by Kemmis and McTaggart in which each cycle composed of four phases: planning, action, observation, and reflection. In answering the research question, two cycles were conducted. In the first cycle, it was started with a planning phase, which contains plans for some detail steps that would be employed in the acting step. After that, the implementation of the planning, which was considered as the acting step, was carried out. The observation phase was conducted by conducting a collaboration between the researcher and an observer, as long as the phase was conducted, the observation was aimed to observe the whole activity which occurred all through the research. Afterward, the effects of the treatment were reflected, described, and evaluated to develop the steps that will be done in the second cycle. The spiral of the cycles was repeated until the acceptable result had been accomplished and stopped until the point in time was sufficient (Kemmis and McTaggart, 1988, as cited in Burns, 2010).

To answer the research question, a mix method, quantitative and qualitative design has been applied in the present study. Quantitative data (quantifiable data) and qualitative data (words) were collected and analyzed to find out the answers to the current research problem. Quantitative method was applied because the data was gathered through some tests that involved numerical data. Meanwhile, Qualitative method was also applied because the next data gathering instruments used were interviews and observation. The data obtained in the interview and the observation sessions were not in numerical data, but in the forms of words.

This study carried out the eleventh year students in a state Vocational High School in Cimahi, West Java. This research site was chosen for the reason that the researcher is one of the English teachers there. The participants of this research were thirty-five Vocational High School students (both male and female) of grade eleven (class XI TKJA). In this study, several instruments were employed in collecting the data; namely classroom observation, interview, test, a criterion of success.

The observation which conducted in this study was focused on the real situation, the way the teacher used Quick Response Codes, finding each cycle strengths and weaknesses in improving students' vocabulary by using Quick Response Codes, and students' response toward the teaching and learning process of procedural text in this Classroom Action Research.

The observer filled an observation checklist which was set from the theory of Instructional Media (Dale, 1969; Sulaiman, 1985; Kinyanjui, 1997; Talabi, 2001; Scanlan, 2003;Adekola, 2008;Nyame-Kwarteng, 2006); the theory of Quick Response Codes (Prosser, 1999; Leigh, 2004; Rivers, 2009; Law & So, 2010; Lee, Lee, & Kwon, 2011; Rikala & Kankaanrata, 2012; Sharma, 2013) and the theory of students' involvement (Astin,1984;

Skinner & Belmont, 1993; Schlechty,1994; Bomia,1997;Chapman, 2003;Fredrick, Blumenfeld, & Paris, 2004).

The second data collection technique used in this study was an interview. Semi structured interview was used to find out the accuracy of the reaction that researchers has gained through the observation. The series of questions were designed to elicit a specific answer from a respondent, and then the information acquired was compared and contrasted (Fraenkel & Wallen, 1993). In this study, the observer and the students were interviewed to find out their point of view regarding the useof Quick Response Codes in improving students' vocabulary and shaping students' involvement in the teaching and learning process.

The next data collection technique used was test. Two kinds of tests were given in each cycle, namely pre-test and post-test. The pre-test was given in Cycle 1 before the teaching process began, while the post-test was carried out at the end of every cycle from Cycle 1 to Cycle 2. The vocabulary tests were given to the students to find out their vocabulary mastery. In order to grasp the progress of students' vocabulary achievement, the pre-test score and the post-test score were compared. By comparing the result of students' results test, it was expected that it could provide a comprehensible description whether or not the use of Quick Response Codes can facilitate the students in improving their vocabulary.

Classroom Action Research (CAR) is stated successful if it can pass the criteria which have been predetermined, and fail if it cannot go beyond the standard which has been defined. In this study, the treatment would be considered successful if the students' test scores in the vocabulary test are improving significantat least 80% of the students respond positively toward the use of Quick Response Codes in improving their vocabulary and the learning activities in each cycle show students' engagement. The engagement criterion which becomes the focus of this study was the cognitive engagement. This engagement is shown by their psychological venture in their attempt in studying, comprehending, or mastering the knowledge, proficiency, or expertise that academic work is planned to elevate.

If the criterions of success are achieved, it means that the next action of the Classroom Action Research (CAR) would be stopped, but if this condition has not been achieved yet, the alternative action would be conducted in the next cycle.

The data analysis for this qualitative study basically consists of preparing and organizing the data for analysis, then reducing the data into themes through a process of coding and condensing the code, and finally representing the data in figures, tables or discussion (Cresswell, 2009). Data analysis in this study were conducted over the course of the teaching cycles, and after the teaching cycles. Meanwhile, the ongoing analysis was conducted for data that were collected using observation sheets and field notes of classroom observations, and the document artifacts provided valuable material for evaluation and revision of the Classroom Action Research as suggested by Burns (2010); Alwasilah (2011); Fraenkel, Wallen, & Hyun (2012).

FINDINGS AND DISCUSSION

With regard to the research question, it was found that the use of Quick Response Codes in teaching English vocabulary in the classroom had facilitated students to improve their English vocabulary.

The research implementation of Quick Response Codes in improving students' vocabulary mastery was divided into two cycles. The following description explains each cycle in detail. For the first and the second cycle, the researcher taught the same basic competence which is stated in the syllabus in English subject for the eleven grades. The basic competence chosen was "Procedural Text". Every cycle in this research composed of a series of phases: identifying the problem, planning the action, implementing the action, observing or monitoring the action, reflecting the result of the observation and revising the plan. The research result description is explained in detail, as follows:

Description of the First Cycle

In the planning phase, there were several things that researchers did such as determining the basic competence, designing a lesson plan with the observer, creating the activities which apply the Quick Response Codes in vocabulary learning, preparing the materials, preparing the instrument (post-test 1 and observational note) and deciding the achievement criteria with the observer. The prepared lesson plan was then applied during the action phase by the researcher. In the first meeting, the Quick Response Codes as an instructional media in learning English was explained to the students. After that, the students were asked to download it in their smart phone and the explanation of how to use it in the vocabulary learning was givn. Finally, the students worked in some groups in improving their vocabulary by scanning some Quick Response Codes.

The research data were collected through observation, tests, comparing Pre-test and Post-test, and interview. The analysis showed the strengths and weaknesses of the activity. It was sustained by the observer observation report and the result of students' test.

The Result of Observation

During the observation in cycle 1, the students showed their enthusiasm in using Quick Response Codes in vocabulary learning. However, becuase the Quick Response Codes are limited, it took time for students to scan the codes in a big team and some members of group did not fully participate in learning activity. In order to facilitate the students in memorizing the new vocabulary which they found after scanning the codes, the teacher asked them to write it down.

The Results of Post-Test 1

In order to compute the efficiency of using Quick Response Codes in improving students' vocabulary, a vocabulary test was given to the learners. The vocabulary test was assigned to find out whether there was any improvement of their vocabulary achievement. The vocabulary test was in a form of multiple choices which consisted of 25 items. Subsequently, by using the SPSS 22.00 version, the result of post-test 1 was examined. The following table presents the result of post-test 1.

Table 7 the statistical results of students' vocabulary test in post-test 1

Mean	54.86
Std. Deviation	16.317

Table 7 illustrates some improvements. The class Mean score on the test had improved to 54.86 and even the maximum score descended became 80. On the other hand, the result of the vocabulary test showed that there were five students who passed the MMC in this test. This can be observed from the post-test result frequency of cycle 1 in the following table. The amount of the students' percentage that passed the Minimum Mastery Criterion was calculated by the researcher by employing the following formula:

$$P = \frac{F}{N} \times 100\%$$

$$P = \frac{5}{35} \times 100\%$$

$$P = 14.28\ \%$$

Comparing Pre-test and Post-test 1

In order to determine the significance level of the improvement, all of the test results have to be compared by employing paired t-test technique. Before employing the paired sample t-test, normality test needs to be applied to decide whether the data analysis used was normally distributed or not. When the data are normally distributed, it can be compared by using parametric statistics, for example paired sample t-test. If the data are not normally distributed, then a non-parametric test has to be employed to compare the means i.e. Wilcoxon test.

By using SPSS 22.00 version, the normality test was conducted in this research. The result of normality test for pre-test and post-test 1 is displayed in table 8.

Table 8 the data of normality tests

	Shapiro-Wilk		
	Statistic	Df	Sig.
Pretest	.970	35	.446
Post_test1	.942	35	.065

Based on the significance score in the Shapiro-Wilk column, it was found that the scores were greater than 0.05. It means that both of the data were normally distributed. It can be assumed that the data can be compared by using samples t-test technique. The hypothesis of paired samples t-test is as follows.

H_0: $\mu = 0$ (there is no difference between the pre-test and post-test 1)

H1: $\mu \neq 0$ (there is a difference between the pre-test and post-test 1)

Table 9 and 10 present the result of the paired samples t-test by means of SPSS 22.00.

Table 9 Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	44.66	35	15.418	2.606
	Post_test1	54.86	35	16.317	2.758

Based on table 9, pre-test 1 mean value was 44.66 and the post-test 1 mean value was 54.86. As a result, it can be concluded that there was an improvement from the pre-test to post-test. It can be inferred that the use of Quick Response Codes affected on the learning result.

Table 10 Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	Df	Sig. (2-tailed)
Pair 1	Pretest - Post_test1	-10.200	12.854	2.173	-14.615	-5.785	-4.695	34	.000

Based on table 10, the value of the sig. (2-tailed) value is 0.000 which is lower than 0.05. According to the value, it can be concluded that H_0 (there is no difference between the pre-test and post-test 1) is rejected which also means that there is a significant distinction between the result of pre-test and post-test 1. Besides, the value of t observe is -4.695. It is greater than the value of t tables 2.020 with the probability of significant improvement from pre-test to post-test 1. It means that there is a significant effect on the use of Quick Response Codes in teaching vocabulary.

This finding is supported by the data from the interview which indicate that the teaching of vocabulary by using Quick Response Codes has been successful in improving the students' vocabulary mastery. All interviewees appeared to get benefit from the program. They said that Quick Response Codes have helped them to improve their vocabulary mastery, as presented by Student 1's comment.

Excerpt 1:

> In my opinion, I think by using Quick Response Codes in vocabulary learning I felt that It helped me to memorize a new word. In addition it also support me to recall the words that I learned previously.

This comment indicates that the student got benefit from the program. It can be seen from his response toward the use of Quick Response Codes in vocabulary learning. Nevertheless, the improvement was still unsatisfactory because the percentage of the students who passed the Minimum Mastery Criterion was only 14.28. It was still far below the target of the success criterion. The result of post-test 1 had directed the researcher and the observer to set up the improvement by conducting the action in cycle 2.

Reflecting

The last stage of cycle 1 is to reflect the result of the action. The researcher and the observer discussed the result of the action. The discussion was focused on the strengths and weaknesses of the first cycle activity

As the strength point in the first cycle, the learners showed their enthusiasm by being actively involved in the learning activities in which Quick Response Codes were used. However, it was quite difficult to arrange an activity in improving students' vocabulary by using Quick

Response Codes. Contrary to their eagerness, the students' engagement in scanning the codes was still at a low level, and their vocabulary test scores were even dissatisfactory.

On the other side, the data of the students' vocabulary scores in post-test 1 revealed that most of them had not reached the MMC yet since the computation showed that only 14.28% of them got the score above the MMC. Therefore, it can be concluded that the revision should be conducted in the next cycle since the implementation of Quick Response Codes had not shown a satisfactory outcome yet.

Description of the Second Cycle

In the planning step, the observer and the researcher worked together in arranging a plan for the next action dealing with the activities, the steps, and also the criteria of success in using Quick Response Codes in the vocabulary learning. In this step, a plan was made for the Classroom Action Research based on students' difficulty in using Quick Response Codes in improving their vocabulary. In this case, the material and tasks were determined on the lesson plan designed.

In general, there were several important revisions on the second cycle steps i.e. the form of activity in using the codes in improving students' vocabulary and a number of codes that would be used and scanned in the learning process. In collecting the data through observation, the observation sheet was also prepared by the researcher in order to discover whether all of the activities were in line with the arranged lesson plan or not. Additionally, the vocabulary test (post-test 2) was also arranged to investigate the improvement of the students' scores from pre-test to post-test 2.

The action in this cycle was started with the observation step. In this step, the researcher as the teacher started the lesson by explaining the learning objectives related with the procedural text. Then the activity continued by asking the students to watch and observe some videos about procedural text.

After that some papers which contained Quick Response Codes were attached around the classroom, the teacher explained the detail rules before conducting the treasure hunt in the vocabulary learning. Before the treasure hunt started, the students were divided into small groups which consisted of 3 persons, so that each member would have the same opportunity to use and scan the Quick Response Codes. In this step, a number of codes were in great quantities so that those codes which had been attached to the class could be scanned easily.

In conducting the treasure hunt, some worksheets were given to them. The worksheet would be filled by them after scanning each Quick Response Code. The codes contained new vocabularies and a link to a text in order to build up their comprehension about the procedural text. This activity is in line with the text based learning which is stated as one of the learning approach in 2013 Curriculum. In this step they had to complete the worksheet in a limited time. They had to compete and this activity triggered them to get involved in each activity so that the learning activity turned to be fun, interesting, and challenging for them.

In the questioning step, the students discussed the answer which they gotby scanning the codes. In the experimenting phase, a brainstorming activity was conducted in order to review the vocabulary which had been learned in this meeting. As the last step,the associating

step and communicating step, each member in each group read the list of vocabulary that had been found by them through the codes.

In the end, as the evaluation phase, a post-test was given to the students in order to measure the effect of using the Quick Response Codes in improving their vocabulary mastery.

The Result of Observation

As it was done in the previous cycle, the researcher and the observer examined the teaching and learning practice throughout the observational notes. It was revealed that the learning setting was better after implementing the Quick Response Codes in the vocabulary learning, although there were fewer of the learners who did not get involved in the learning activity. The activities which had been designed supported the learning engagement, and the students showed a better learning atmosphere where they worked actively in completing the worksheet in a treasure hunt game. In such condition, they also could easily get a learning exposure related to the vocabulary enrichment by scanning some Quick Response Codes which contained some new words in the procedural text.

In this phase, the students were also asked to jot down some new vocabularies which they found after scanning some Quick Response Codes. On the contrary, it was not conducted by most of them in the first cycle. For this reason, it was assumed as one of the major reasons which contributed to the unsatisfying outcome of the prior cycle.

The Result of Post-test in Cycle 2

Afterward, as in the subsequent step, the data collected from the second post-test was computed. The result of post-test 2 will be illustrated in the following table which explained the average of the learners' scores was increased to 66.86.

Table 11 Statistics of post-test 2

Mean	66.86
Std. Deviation	17.702

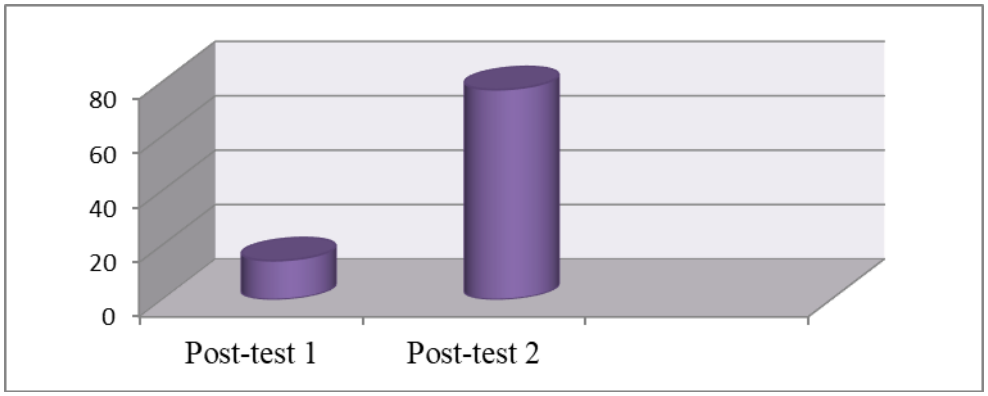

Figure 12 Students' vocabulary test score improvement in the 2nd post-test

Figure 12 also represented the data of the students who passed the Minimum Mastery Criterion (MMC). It was found that there were 27 students who got 75 or above

75. The table which described students' frequency score in post-test 2 could be found in Appendix 8.

Then, the amount of students' percentage that passed the Minimum Mastery Criterion (MMC)was calculated by using the following formula:

$$P = \frac{F}{N} \times 100\%$$

$$P = \frac{27}{35} \times 100\%$$

$$P = 77.14\%$$

The result designated that the learners who got the same as or over the Minimum Mastery Criterion (75%) had been attained.

Comparing Post-Test 1 and Post-Test 2

In order to obtain the level of significance of students' score improvement, all of the findings of the test must be compared by using paired sample t-test method. Nevertheless, normality test must be conducted before the paired sample t-test to find out whether the data analysis used was normally distributed or not. When the data are normally distributed, then parametric statistic can be employed. On the other hand, if the data are not normally distributed, then non-parametric statistic might be chosen to analyze it.

In this research, the normality test was employed by using the Kolmogorov-Smirnov Formula at SPSS 22.00 version. The result of the normality test of post-test 1 and post-test 2 is displayed in Table 12.

Table 12Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Post_Test1	.105	35	.200*	.942	35	.065
Post_Test2	.449	35	.000	.641	35	.000

According to table 12, it is presumed that the result of post-test 1(0.065) > (0.05) (the significance level), it means that the result of post-test was normally distributed. On the other hand, the result of post-test 2 was (0.000) < (0.005) (the significance level). It can be summarized that the result was not normally distributed.

Consequently, the test results of post-test 1 and post-test 2 should be contrasted by employing non-parametric test. The following is the null hypothesis statement of this test: H_0: d = 0 (there is no distinction between post-test 1 and post-test 2)

The result of the normality tests between the results of post-test 1 and post-test 2 is shown in table 13:

Table 13 Test Statistics

	posttest2 - posttest1
Z	-3.405[b]

	Asymp. Sig. (2-tailed)	.001

According to Table 13, it is shown that the two-sided test p-value for the Asymptotic 2-tailed test is .001.$H_0$was rejected because *asymp.sig* = .001 < α = 0.05 (the significance level) which means that there was a significant difference between the value of post-test 1 to post-test 2. As a matter of fact, it can be summarized that there was a significant progress from post-test 1 to post-test 2. For that reason, it can be stated that there was a significant impact of the use of Quick Response Codes in improving students' vocabulary.

The Result of Observer's Interview

In order to find out the response of the collaborator teacher, an interview was conducted toward her as a way to elicit the data related the use of Quick Response Codes. The interview was held as a way to find out whether it helped the learners to enrich their vocabulary and the learning involvement.

In this case, the questions were divided into three categories. The first category discussed the general condition in class during applying the action. It was found that students' learning condition were better than before. In this stage, they seemed interested in the lesson; enjoyed being involved in each activity, and followed the lesson. Moreover, most of them felt it was easier to remember vocabulary by using Quick Response Codes as an instructional media in the learning process. Those conditions were described by the observer as follow:

Excerpt 2:

> I observed the condition of vocabulary learning activities by using The Quick Response Codes was better than before. They seemed even more interested in using QR code, enjoyed the learning process, and moreover using its rich QR code to remember vocabulary was much easier

From the excerpt above, it was clear that by using Quick Response Codes in vocabulary learning that students' learning condition improved and they were interested in learning new vocabulary by scanning and using Quick Response Codes. With regard to students' participation, in the interview the observer said:

Excerpt 3:

> Their participation was good, on this occasion all students were seen to be actively involved, so the learning resources were also unlimited. Student engagement was better in learning vocabulary especially by using QR code

This excerpt showed that students' participation was good because they actively got involved in the whole learning activity. They got a chance to learn English without limitation of the occasion, time, or location (Arikan, 2015). Additionally, it was also found that the benefit of Quick Response Codes in an Educational Context was demonstrated by them in their learning activity. They developed their content knowledge and engaged highly(Rivers, 2009; Law & So, 2010; Rikala & Kankaanrata, 2012; Sharma,2013).

The second criterion is closely related with the problem and its solution in using the Quick Response Codes. It was confirmed by observer's statement in the interview.

Excerpt 4:

> Some students still did not pay full attention. But it's only few of them.... actually it is not easy though, but as a minimal effort, the teacher may remind them, and apply the reward and punishment again! Or you may warn them again

From the excerpt, it can be also concluded thatthere were some students who did not pay attention to the explanation in using the codes in the vocabulary learning. The problem was discussed with the observer to find out the other alternative or solution to solve the problem. She said that the students had to be warned by the teacher, and if it was possible, reward, and punishments should be given by the teacher.

The last criterion is about the interviewee's opinion of using Quick Response Code for teaching vocabulary. It is said that it supports creative activities and breakout the traditional classroom. It also makes the learners enthusiastic, enjoy the learning activities, develop their social and collaborative skills, develop their autonomy and self-directed learning skills, supports green classroom, and cultivates their creative ability (see Rivers, 2009; Law & So, 2010; Lee, Lee, & Kwon, 2011; Sharma, 2013; Rikala, 2014). It was also proven from observer's statement in the interview.

Excerpt 5:

> As a teacher, we are demanded to be creative in creating learning media or learning resources. Now with the use of QR code and by scanning them I think it is environmentally friendly, and the source of learning is also not only fixated on the teacher or book.

From the aforementioned descriptions, it can be summarized that the observer gave a positive opinion towards the implementation of Quick Response Codes. The result of the interview was in line with the result of observation and test result.

Reflecting

This action research was conducted to find out students' improvement after conducted the vocabulary learning by using Quick Response Codes. After obtaining the result of the observation note and post-test 2, the reflection stage was carried out by the researcher and the collaborator. It was agreed that the research results had been shown in the improvement of students' vocabulary mastery and the improvement from the students' participation. First, the result of the tests (pre-test and post-test) in the first cycle and second cycle showed improvement of the students' vocabulary mastery.

The improvement could be seen from the raising of students' mean in their vocabulary score. The results of the analysis of the post-test 2 showed that 77.14% of the students' got the score above the Minimum Mastery Criterion. The increase of the students' average scores-test result from the pre-test to the post-test of the cycle 2 was very significant. The pre-test score average which of 44.66 increased to 66.86 in the cycle 2 post-test. Furthermore, a number of the students who have scores above MMC also elevated from 0% (0) of students in the pre-test to 14.28% (5) of the students in the cycle 1 post-test, and 77.14% (27) of the students in the cycle 2 post-test.

CONCLUSION

This research was about the use of Quick Response Codes to improve the students' vocabulary mastery. There are two research questions that underpinned this research.The first question was intended to find out whether the use of Quick Response Codes has an effect on the students' vocabulary mastery. While the second question aimed to investigate how the use of Quick Response Codes as an instructional media shaped the learning engagement.

The result of this research suggested that the use of Quick Response Codes improves the students' vocabulary mastery. It can be noticed from following details. To begin with the

learners' accomplishment, their average scores drastically enhanced from the pre-test to the cycle 2. In addition, a number of the learners who acquired the scores above the MMC also improved from 0.09% (one student) in the pre-test become 14.28% (five students) in the cycle 1 post-test and 77.14 % (27 students) in the cycle 2 post-test.

Even though this research may be limited to small scale participants, there are some recommendations for teachers who want to implement Quick Response Codes in their classroom. It is important to create a series of interesting activities which suits the learner's needs and interest. It is recommended that the teachers choose the themes that are recognizable for the learners and have been discussed with them previously in view of the fact that it is useful to increase their motivation and interest in learning English. Moreover, It is suggested to select the vocabularies carefully so that it can suit the learners' proficiency level.

For further research, it is better to administer more detailed questions in order to find out an expected understanding in comprehending the research findings. Since the 2013 Curriculum in a vocational school mostly uses the Genre-Based Approach, it is also recommended to explore how to apply a Quick Response Codes through this kind of approach.

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