

CHAPTER III

RESEARCH METHODOLOGY

Chapter three provides the methodology in conducting the research and description of research procedure in order to find out the answer from research questions stated in Chapter I. This chapter presents eight main parts of the investigation: Formulation of problems, research design, Participants and methods of selection, access to the research, research procedure, techniques of collecting data, data analysis, and pilot analysis

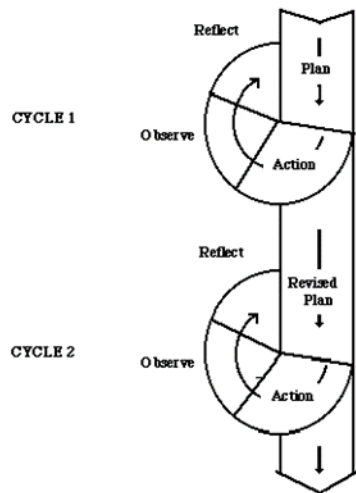
3.1. Formulation of Problems

This research was intended to identify the effects of implementation of gamification towards students' vocabulary mastery in second-grade junior high school students at one of public school in Bandung. In addition, the research is aimed at analyzing their responses towards gamification in order to acquire new vocabularies.

3.2. Research Design

The research was conducted by using action research. Kemmis & McTaggart (1992) explained that *a classroom action research* is proceeding in spiral steps, each of which consists of several phases, then the results of the actions united into a cycle. The action research begins with identifying a concrete problem. Therefore, this research purposed to solve the problems in improving students' vocabulary mastery to the second-grade students of SMP Negeri 16 Bandung by using gamification.

In this action research, the teaching and learning process were divided into cycles where each cycle consisted of three sessions which took 90 minutes for each session. In every session consisted of four interconnected steps namely: Planning (P), Action (A), Observation (O) and Reflection (R). The result of the reflection or post-test in cycle I were used as valuable result to accordingly revised planning in cycle II. Therefore, cycle II, which was started with revised planning, was anticipated to be much more effective than cycle I. The degree of effectiveness of the use of gamification to improve students' vocabulary mastery was figured out by comparing the mean scores of the reflections in cycle I and II.



As this research is purposed to discover the use of Gamification help students to improve their vocabulary mastery and to reveal the students' responses toward gamification in language learning. Questionnaire session also required to get students' responses toward the use of Gamification in vocabulary learning. Considering the reasons above, the action research is suitable to be applied in this research.

3.3. Participants and Methods of Selection

The research was conducted at one of Junior High School (SMP) in Bandung in order to find out the effect of the use of gamification in vocabulary learning. The participant is second-grade students. The research took place in VIII-F. The class consisted of 33 students, 16 of them were boys and 17 of them were girls.

3.4. Access to the Research

The research was conducted at one of Junior High School (SMP) in Bandung. There are at least two reasons for choosing the school to be the setting of the research. First, the school is accessible to the researcher, the researcher has been a pre-service teacher at the school, at least the researcher knows the situation of the school and the character of the students. Second, the distance is a convenience, since the school is not too far from the researcher's place, so the data collection process can be done easily.

3.5. Research Procedure

The procedures of this research were gathered by several steps that can be described as follows:

3.5.1. Initial Reflection

Action research was started with administering initial reflection in order to know students' difficulties in learning vocabulary. The researcher conducted a pre-test or initial reflection in order to find out students' prior knowledge on vocabulary mastery and the problem in learning process. The result of pre-test or initial reflection was used as starting points for the undertaking action research.

3.5.2. Planning

Before the present action research, the research had to make instructional planning for the whole session. The researcher planned the certain activities by doing these following steps.

1. Selecting the certain materials which should be appropriately used in teaching vocabulary by using gamification in the classroom.
2. Designing teaching scenarios. The lesson plans were used in the cycle I and cycle II. The materials were adopted from school teaching syllabus. The researcher designed the classroom activities in order to improve students' vocabulary mastery.
3. Constructing reflection or post-test at the end of each session. The forms of post-tests for each session were by arranging and matching the words. The reflection was used to measure the improvement of students' vocabulary mastery.
4. Constructing the questionnaire that would be given at the end of cycle II. The questionnaire was used to measure students' responses towards the use of gamification in the classroom.

3.5.3. Action

Action refers to what the researcher did in the classroom and how to manage the teaching-learning process. In addition, the implementation of the previously planned teaching scenario was the main activity in this research. In action research, it is important to collect data in systematic ways. The classroom activity was divided into three main parts namely: pre-activities, whilst-activities, and post-activities which were discussed as follows: The teaching vocabulary process was started with pre-activities. The pre-activity was intended to prior students' prior knowledge in vocabulary mastery. During the pre-activities, the research asked general topic that

related to the materials. These pre-activities were about 10 minutes for each session. Whilst-activities introduced about the vocabulary based on the topic using gamification. In post-activities, the researcher administered reflection or post-test in the end of each session. Post-test was intended to measure progressing ability in vocabulary, while the reflection was intended to measure the improvement of students' vocabulary mastery.

3.5.4. Observation

The observation was conducted to see the use of gamification could improve students' vocabulary mastery. I was meant to see the change of behavior, motivation and attitude, on part of students in learning and exercising vocabulary through gamification. In the end of cycle II, the chosen students would be conducted the questionnaire.

3.5.5. Reflection

By the end of each session, the research conducted a reflection. The present action research was divided into two cycles which each cycle consisted of two successive sessions. Each reflection was conducted at the end of each cycle. The students' answers of the reflection were corrected and scored and their errors were discussed in the following cycle. The result of post-test in the cycle which showed the effectiveness of the use of gamification were used as a basic point to plan and carry out the action in cycle II. In this way, the result of teaching vocabulary in cycle II was expected to be much better than the previous one.

Below is the schedule for vocabulary learning process through the use of gamification. The following Table 3.1 shows the research timetable conducted in this research.

Table 3.1
The Research Timetable

No	Activities	Meeting(s)					
		1	2	3	4	5	6
1	Introduction and Pre-Test	V					
2	Classroom Action 1		V				
3	Classroom Action 2			V			
4	Classroom Action 3				V		
5	Classroom Action 4					V	
6	Post-Test and Questionnaire						V

3.6. Techniques of Data Collection

To gather the data, the researcher used two instruments to find out the effect of the vocabulary learning process and students' responses toward the use of Gamification in junior high school. The instruments were observation and questionnaire.

3.6.1. Classroom Observation

In this research, classroom observation was conducted as one of the instruments to collect the data. Hamied & Malik (2014) point out that during the fieldwork, the behavior, actions, and communication patterns were observed and write in more detail.

Since this research used observation guide during the process of observation, this kind instrument was categorized into *systematic observation*. This statement is

also supported by Arikunto (2002) who mentioned that *systematic observation* involves observation guide which consists of list activities that were observed and acts as a portrait of behaviors, actions, and communication patterns from the objects of the research.

The researcher observed all of the activities carried out by the participants during the learning activity. The instruments of the observation which was used in this research are field notes and photos from the students' activity. The length of the lesson per meeting takes 90 minutes per meeting, while the observation takes 60 minutes per meeting. In gathering the data, the data were gathered by conducting pre-test and post-test in the end of the session of cycle I and II, and questionnaire in the end of cycle II.

3.6.2. Questionnaire

The research was used a close-ended questionnaire for collecting the data. The close-ended questionnaire was useful to deliver data that was identified with the issue of the research (Creswell, 2008). A questionnaire is one of the research instrument to collect data. Wilson and McLean (1994, cited in Cohen et.al, 2007) stated that,

The questionnaire is a widely used and useful instrument for collecting survey information, providing structured, often numerical, being able to be administered without the presence of the researcher and often being comparatively straightforward to analyze.

The aims of this technique were to their responses towards the use of gamification on vocabulary learning in the classroom.

The questionnaire was distributed to the students after they have already finished all of the vocabulary teaching session. In this research, close-ended questionnaire in form of Likert scale was used for gathering the information. The questionnaire was in Bahasa Indonesia in order to ease the students to express their opinions certainly and to avoid misunderstand regarding the questionnaire. The

aspects covered by the questionnaire were students' responses the use of gamification, students' choice related to gamification and paper worksheet and students' ability after the use of gamification and students' responses to the elements of gamification.

To discover the students' responses there were four ranges of Likert scale that covers four dissimilar categories; the students were allowed to choose one of the range numbers for each statement that was suitable with their thoughts. Sugiyono (2009) noted that Likerts scale was used to measure people opinions, responses and their attitudes related to the social phenomenon.

Table 3.2

Sample of questionnaire

No	Statements	Sangat Setuju	Setuju	Tidak Setuju	Sangat Tidak Setuju
1	Belajar <i>vocabulary</i> menggunakan <i>gamification</i> lebih menarik daripada menggunakan lembar kerja.				
2	Belajar menggunakan <i>gamification</i> memotivasi saya untuk belajar <i>vocabulary</i> baru.				
3	Saya menyukai pembelajaran <i>vocabulary</i> menggunakan <i>gamification</i> .				
4	Mempraktekkan <i>vocabulary</i> menggunakan <i>gamification</i> lebih baik daripada menggunakan lembar kerja.				
5	Saya mendapatkan pembelajaran <i>vocabulary</i> yang menyenangkan menggunakan <i>gamification</i> .				
6	Aktivitas-aktivitas di <i>gamification</i> menyenangkan.				
7	<i>Gamification</i> membantu saya untuk meningkatkan pemahaman <i>vocabulary</i> saya dalam Bahasa Inggris.				
8	Saya mampu mengingat <i>vocabulary</i> lebih baik dengan menggunakan <i>gamification</i> .				
9	Saya merasa percaya diri dengan <i>vocabulary</i> yang saya miliki setelah menggunakan <i>gamification</i> .				
10	Sistem poin membantu saya dalam meningkatkan pemahaman saya <i>vocabulary</i> saya dalam Bahasa Inggris.				
11	Sistem poin memotivasi saya untuk mempelajari <i>vocabulary</i> baru.				
12	Sistem level membantu saya dalam meningkatkan pemahaman <i>vocabulary</i> saya dalam Bahasa Inggris..				

13	Sistem level memotivasi saya untuk mempelajari <i>vocabulary</i> baru.				
14	Penggunaan klasemen membantu saya dalam meningkatkan pemahaman <i>vocabulary</i> saya dalam Bahasa Inggris.				
15	Penggunaan klasemen memotivasi saya untuk mempelajari <i>vocabulary</i> baru.				
16	Sistem tantangan membantu saya dalam meningkatkan pemahaman <i>vocabulary</i> saya dalam Bahasa Inggris.				
17	Sistem tantangan memotivasi saya untuk mempelajari <i>vocabulary</i> baru.				
18	Penggunaan avatar membantu saya dalam meningkatkan pemahaman <i>vocabulary</i> saya dalam Bahasa Inggris.				
19	Penggunaan avatar memotivasi saya untuk mempelajari <i>vocabulary</i> baru.				
20	Atmosfir kompetisi dengan teman kelas saya memotivasi saya untuk belajar <i>vocabulary</i> lebih baik.				
21	Atmosfir kompetisi membantu meningkatkan pemahaman <i>vocabulary</i> saya dalam Bahasa Inggris.				

3.7. Data Analysis

In this research, observation was elaborated descriptively while questionnaire data will be elaborated statistically since it provided the calculation result from students' answers.

3.7.1. The Analysis of Classroom Observation

The teaching and learning were conducted six times, starting from 11 October 2016 until 27 October 2016. The data collected were analyzed by using *descriptive qualitative* data analysis. In this research, qualitative data analysis method is more appropriately applied to action research than method (Gay, Airasian, & Mills, 2005). This statement is supported by Alwasilah (2011). Alwasilah (2011) points out that

basically one of action research characteristics is qualitative. Therefore, qualitative data analysis was employed in this research.

The data, which was collected through pre-test and post-test, are analyzed by the following formula below:

$$\bar{X} = \frac{\sum x}{N}$$

Notes:

\bar{X} : The average score

$\sum x$: The total score

N : Number of students

3.7.2. The Analysis of Questionnaire

The questionnaires were employed to reveal students' responses to the use of gamification in improving students' vocabulary mastery. The results of questionnaires displayed students' attitude and responses to the use of gamification in the classroom.

This research was used the close-ended questionnaire in form of Likert scale. It was given after the last meeting. There are four ranges of Likert scale to find out about the students' perception which covers four different categories. The responses to the questionnaire were categorized into four different scores as in the following.

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Table 3.3
Categories of the responses

Categories	Strongly agree	Agree	Disagree	Strongly disagree
Scores	4	3	2	1

The research also used the percentile formula to analyze the questionnaire data. Then, the data were interpreted based on the frequency of students' answer. Based on Hatch and Farhady (1982, p. 46), the percentile formula is formulated as follows:

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

P = Percentile

F = Frequency of students' answer

N = Respondent

3.8. Pilot Analysis

A pilot analysis was carried out before the real research began. The pilot analysis conducted in the same junior high school used for the real research. This pilot analysis aimed to get the overview of the research subject and the selection of the most appropriate participants for the research. It has a purpose to examine the validity of the content used in the questionnaire in order to be accepted by candidates, teachers, education authorities or employers (Hughes, 2003). The data gained in this pilot analysis were collected through the use of gamification with ten students and the trials of the questionnaire and the test.

3.9. Concluding Remark

This chapter has elaborated the formulation of problems, research design, site and participants, research procedure, data collection techniques which consisted of classroom observation, and questionnaire. This chapter also explained the data analysis which consisted of the analysis the classroom observation, and questionnaire. The next chapter discussed the findings and discussion of the research.

