

Can interactive mind mapping method improve students' vocabulary mastery?

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Abstract. This research investigates the use of interactive mind mapping method in teaching vocabulary for the secondary school students on SMPN 32 Semarang. The purposes of this research are: (1) to find out the students' vocabulary achievement before using the interactive mind mapping method; (2) to find out the students' vocabulary achievement after using the interactive mind mapping method; and (3) to find out the average increasing score between before and after the treatment through interactive mind mapping method. Pre-experimental research was chosen as the research method of this study. Test and questionnaire were the main instruments to collect the data. The population of this study were 285 students who were in the 7th graders. The sample of this research was the students on 7H with total 31 students. But in the process of taking the data, there were only 24 students who taking part from the beginning to the end of research. The result of this study showed that the average score of students' vocabulary mastery increased from 81.4 before using mind mapping method to 86.9 after using mind mapping method. The average increasing score was 5.5 (6.36%). It was suggested that (1) the students need to apply interactive mind mapping method on the way they learn vocabulary; (2) the teachers should use interactive mind mapping method in class to improve their students' vocabulary mastery; and (3) the result of this study can be use as one of the references to whom interested in the same topic.

Keywords: interactive mind mapping method, vocabulary mastery

INTRODUCTION

Teaching vocabulary as an important part of teaching language (in this case in teaching English) has a significant impact on students' language acquisition. It is because vocabulary mastery develops language skills, from speaking to writing. By mastering vocabulary means mastering these four language skills and their application in daily life. Students' vocabulary helps them communicate with others in almost all occasion.

Someone who has mastered more vocabulary is easier in building communication in both, written and spoken, rather than they who do not have enough vocabulary. The sender and receiver are in the same understanding on their communication. Even in some sessions, these two communicators can communicate with sign-language, using sign of a thing she/he wants to say, but it makes the communication delay for some seconds. This condition is also required in building communication in English. There will no "blank moment" just because one of the communicators does not understand with what another communication does not get the point of discussion.

Mastering vocabulary in learning English is a successful key to master English itself. By mastering a lot of vocabularies, a learner will easier to understand a context and it also emphasizes in the process of learning English to understand what is meant and understand the meaning better (Al Qahtani, 2015). Vocabulary mastery also means a collection of words that individual knows in language that includes a knowledge of its form (pronunciation and spelling), grammar, relation of words with other words, collocation, word formation, and the use of words based on context. (Hidayah, 2015)

Vocabulary is a basic sub-skill of English that must be taught and possessed by students. It is because vocabulary is the most important aspect to be mastered in English (Harmer in Safitri,

2020), main key to master a language acquisition and very important thing to do to improve English skills (Agustina et al, 2019), and define as a collection of foreign words that a person must understand (Herlina, 2015).

In general, knowing more English vocabulary means winning the “fighting” on conquering the world. It is one aspect of language that can improve comprehension, listening and speaking skills. Vocabulary is one of the basic aspects of language that must be studied. (Sipayung, 2018). More words a person knows, more he has got vocabulary knowledge, the greater his ability to express his thoughts comprehensively and efficiently (Nation & Chung, 2009). It was also an unstoppable learning process to help someone use language (Thornbury, 2002).

An expert, Montgomery (2007, in Tiani 2020) states 4 kinds of vocabularies: listening (refers to all the words that someone’s hear and understand through listening), speaking (is all words that are used when someone speaks), reading (is words that can be understood or recognized when reading text), writing vocabulary (all words that can be used and understood when writing).

The subject of this research was young learners. They were on the 7th grade with average age on 12 to 13 years old. In teaching them, special treatments must be given. Teachers should use 3 important sources of interest for children: pictures, stories, and games. Pictures should be created or designed in colourful, clear, and professionally drawn. Photographs or the children’s own drawing can be used too. (Yulianti, 2017)

Relate to the theory above, mind-mapping can be used as a medium to teach vocabulary. It is colourful, simple, and professionally drawn. Mind-map that allows visualization make the students are more motivated in learning e-business, and establish better integration of theoretical and empirical knowledge (Aleksić, et al, 2011), help the students learn how to learn meaningfully and become better learners (Novak and Cañas, 2006), provide an effective study technique when applied to written material (Farrad, et al, 2002), works on critical thinking (Rezapour-Nasrabad, 2019), build students’ progression in learning the core curriculum and elaborated upon it (Stokhof et al, 2020), to visualize the cognitive process of computational thinking, aiming to enhance students’ computational thinking skills (Guo, et al, 2024), and easily adopt MM strategies for effective learning (Fang and Chiu, 2025).

The students of SMPN 32 Semarang who were still low in vocabulary mastery needed to get special treatment to overcome the problems. Based on an interview with English teachers at SMPN 32 Semarang, it was generally found that students had difficulty in understanding the meaning and expressing thoughts, both through written and spoken activities due to students' limited vocabulary. This condition made the students difficult to learn English more and made them in-confidence too.

Based on the condition of the students, they need not only the written activity but also something that make them confidence to speak. So, the researchers used interactive mind-mapping that made the students built up their thought in making map of the English material today, then they should share their thought orally to their classmates. It relates to Patten et al. (2006, in Tavares, 2021) who explain that the development of interactive applications allows constant student interactions with the tool, providing dynamic learning, and exploring creativity. The interactive mind mapping is also the gap of this study, because from some previous studies found about the mind-map only. Objectives of this study are:

1. to find out the students’ vocabulary achievement before using the interactive mind mapping method;
2. to find out the students’ vocabulary achievement after using the interactive mind mapping method; and
3. to find out the average increasing score between before and after the treatment through interactive mind mapping method.

METHOD

This research used a pre-experimental design. According to Arikunto (2016), experimental study is a study which aimed to know there is or not the effect of the variable studied. The population was the 7th grader students of SMPN 32 Semarang from 7A to 7I in total 285 students. The researcher used purposive random sampling to get the sample, and it was chosen 7H with total 32 students. It was based on the suggestion from English teacher of the school because

average score of 7H was the best among other classes. Unfortunately, there were only 24 students who taken part of the research activity.

The researchers use single group pre-test and post-test designs, which include four phases, they are:

1. conducting a pretest to measure the dependent variable;
2. applying experimental treatment methods to the subject;
3. asking the students to share the result of their own mind mapping to other students and make interaction between them; and
4. doing a post-test, measure the dependent variable again.

The data then was collected and analyzed using quantitative data. Quantitative data were obtained from students' vocabulary test scores. The data analysis techniques were the following:

1. collecting and analyzing data from students' score on pre-test;
2. collecting and analyzing data from students' score on post-test;
3. counting average score of the score before and after the treatment.

Finding and Discussion

Finding

This study were conducted in two sessions: the first session was done in giving them the students pre-test and treatment; and the second session was done by giving them post-test. In this research, there were 24 students from 31 students in 7H group who taking part from the beginning to the last step of the study. The other 7 students were not attending the class fully, so they were not listed as the sample of the research. The focus of this study was on the students' ability in adding more vocabulary, written and or spoken way. Making the students like English, be more confidence in sharing their thought orally, and time-by-time they can collect more vocabularies than before. The students' vocabulary mastery score was taken from the result of the vocabulary test (multiple choice and linking-word). The researcher did not take any score on students' oral test. She just checking their bravery in sharing their ideas that was glued on a paper that then presented in white board.

Before starting the treatment, the students took a pre-test. The pre-test results indicated that the students' vocabulary is good, despite the fact that they sometimes find it challenging to understand the meaning of words in context. After getting the result of students' pre-test, the researcher gave treatment for the students by teaching them using mind-mapping method. She gave them some texts with different theme. They were asked to make mind-map based on the text using colourful note-pad. They also could create the shape of each part of their mind-map themselves.

To make a research gap, the researcher put interactive between students in groups by showing them their mind-mapping result to their classmate and discussed their mind-mapping result. The students felt happy, enjoy, and comfortable in participating the learning process. At the second session of the study, the researcher gave them post-test then collected and analyzed the result.

Here is the documentation of the research activity.



Figure 1. Giving Treatment



Figure 2. Making Mind-Mapping in groups



Figure 3. Practising Interactive Mind-Mapping

The students' activity in class together with the researchers were learning mind-mapping, and it was a moment when the students built interactive activity between the students in showing their mind-mapping concept on white board in groups. This interactive mind-mapping made the students were being pleasant in learning English's vocabulary. They felt more confident while glueing their mapping in front of their class-mates. This activity was not only learning vocabulary, but also learning and building self-confidence.

Here is the score of the sample on pre-test and post-test.

Table 1. Pre-Test and Post-Test Score

Num	Code of the Students	Score		Increase
		Pre-Test	Post-Test	
1	AMM	93.3	93.3	0
2	AFJ	80.0	93.3	13.3
3	AM	80.0	93.3	13.3
4	AIP	86.7	100.0	13.3
5	CCA	86.7	100.0	13.3
6	CAP	66.7	46.7	-20.0
7	DS	93.3	100.0	6.7
8	FZ	80.0	80.0	0
9	GAW	80.0	80.0	0
10	HDK	86.7	86.7	0
11	JPA	80.0	93.3	13.3
12	MSB	86.7	93.3	6.6
13	MRM	66.7	93.3	26.6
14	MDS	80.0	86.7	6.7
15	NNH	80.0	93.3	13.3
16	NI	66.7	80.0	13.3
17	ONS	73.3	66.7	-6.6
18	RKA	86.7	86.7	0

19	RP	86.7	86.7	0
20	RHK	80.0	80.0	0
21	TRA	86.7	93.3	6.6
22	VJAF	73.3	86.7	13.4
23	WSM	86.7	93.3	6.6
24	ZSK	86.7	80.0	-6.7
TOTAL		1,953.6	2,086.6	133
MEAN		81.4	86.9	5.5

The findings of the research based on the table 1 above were as follows.

1. The Students' Vocabulary Achievement Before Using Interactive Mind Mapping Method
Based on the result of Pre-Test done by the sample as mentioned on table 1 above, they got total score 1,953.6 and in average, the sample got 81.4 score at Pre-Test session. It was done before they got treatment in using interactive mind-mapping that design to increase students' vocabulary mastery.
2. The Students' Vocabulary Achievement After Using Interactive Mind Mapping Method
After the sample got treatment in increasing their vocabulary mastery, the average score on post-test were increase to 86.9. The total increasing score was 2,086.6 point.
3. The Average Increasing Score Between Before and After the Treatment Through Interactive Mind Mapping Method
From those two times taking data from test, the researchers counted the average score of increasing score from pre-test to post-test, and it was 5.5 points with total score 133.

Discussion

Based on the study finding, it showed that mean scores before used interactive mind mapping method and after used interactive mind mapping method was different. It can be seen from the students' result, for the pre-test result before used interactive mind mapping method and post-test result after used interactive mind mapping method is improved from 81.4 to 86.9. The data showed us that there was increasing on the achievement of students' tests before and after getting the treatment. It was 5.5 points.

The focus of us in this discussion is on two points: 1) total real samples, and 2) decreasing score on post-test for some samples. The first focus on the number of students who in real joined in the research process from 31 to 24 students, they were absent on the beginning of the research (at pre-test session), so the researchers and English teacher decided to not listed their name on the sample of research. It meant; they did not join in the post-test session.

The second focus of the research was about the decreasing score on post-test for some samples. The researchers were not discussed about the reason of it because the researchers were not investigating on the reason of this condition. The researchers just wanted to make a note for English teacher, headmaster of SMPN 32 Semarang, and the next researcher(s) who are interested in this topic about the use of mind-mapping to increase students' vocabulary mastery that even the average score on pre-test and post-test were increased, but here was a real data that some of their score were decreased. It needs special investigation to get the reason of this condition.

The researchers made research gap about this research by adding "interactive" activity during the process of research. All the previous study on research article discussing about mind-mapping with another method, no one stated that they were using Interactive on applying Mind-Mapping, so the researchers decided to add a session of sharing the samples' mind-mapping and interactively they discussed their result and seen others' mind-mapping result.

Conclusion

Based on the main purpose of this study, the researcher would like to give some find out as follow:

1. The average score of the samples before they got the treatment interactive mind-mapping was 81.4.

2. The average score of the samples after they got treatment interactive mind-mapping was 86.9.
3. The average increasing score before and after they got the treatment through interactive mind-mapping was 5.5.

Here are the suggestions from the author:

1. The students need to apply interactive mind mapping method on the way they learn vocabulary and also speaking;
2. The teachers should use interactive mind mapping method regularly in class to improve their students' vocabulary and speaking mastery; and
3. The result of this study can be use as one of the references to whom interested in the same topic.

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