

Using Question Generation and Mind Mapping Strategy toward Students' Reading of Descriptive Texts

Atikah¹, Ikhsanudin², Dwi Riyanti³

¹²³Universitas Tanjungpura, Pontianak

¹atikah0816@gmail.com, ²ikhsanudin@fkip.untan.ac.id, ³dwi.riyanti@fkip.untan.ac.id

Abstract

The purpose of this study was to find out the effect of a combination of question generation and mind mapping strategy toward reading comprehension of descriptive text. It was a quasi-experimental study at a private junior high school in Pontianak – Indonesia that involved one control group and one experimental group. This applied cluster random to take the sample. The treatments were given four times. The data was collected through the reading comprehension test given to the control and experimental group. The data were analyzed with a t-test. It was to analyze the significance of the treatment. The research result showed that the t value is bigger than the t table or t value > t table. In short, the t value was 6.214 while the t table was 1.9983, that the t value was bigger than the t table (6.214 > 1.9983) and the value of effect size was 1.49 meaning the combination between question generation and mind mapping strategy affected reading comprehension of descriptive text very strongly. Therefore, the combination of those strategies can be used to teach reading comprehension.

Keywords: *Reading Comprehension; Mind Mapping; Question Generation*

INTRODUCTION

Reading comprehension is an activity done to obtain the information and knowledge conveyed and stated in the text. Reading comprehension is an important thing for all students. It cannot be separated from a learning process. Reading activities can educate the students to be intellectual, spiritual, emotional, and self-confident combined with humility. It allows the students to gain as much life-enhancing knowledge as possible while strengthening their capacity for innovative, critical, and creative thought (Gebre, 2016). Through reading, kids develop their ability to think by retaining concepts and knowledge, comprehending, imagining, putting those concepts into practice, expressing themselves, and having a wide range of vocabulary (Hiebert & Kamil, 2005).

It cannot be easy to comprehend written stuff because it requires the application of perceptions and thought. Reading comprehension is a set of procedures that readers use to understand the text they are reading and draw meaning from it (McShane, 2005). In summary, reading is a complex process involving word recognition and collecting messages or information presented by the writer using words or written language. The students must also be able to understand what they are reading. Comprehension is the core of reading because written language aims to help people understand what is stated in the text rather than only by isolating individual words or sentences (Woolley, 2011&Duffy, 2009).

Reading comprehension is an activity involving reading that involves engaging with written language to assimilate and comprehend the information from the reading material (Snow, 2002). It is also described by the ability to decipher the underlying meanings of the texts they have read. As a result, "reading comprehension" refers to the abilities required to comprehend the information found in written materials. In order to effectively achieve the learning objectives, it is essential to teach students how to read comprehension (Ahmadi, Ismail, & Abdullah, 2013).

Teachers have challenges teaching reading comprehension of English text in Indonesia because it is a foreign language and many students of EFL have difficulties with English reading comprehension even after years of learning the English language. Then, the researcher investigated the eighth-grade students of SMP Nurul Islam Pontianak by giving the students a reading test while discussing with an English teacher. After the researcher and English teacher calculated their work, they concluded that the student's reading scores were very low. It means the students had a problem with reading comprehension. The problems faced by students in comprehending the reading text were finding the main idea, supporting detail, reference and the meaning of vocabulary.

The possible causes that made them have some problems in reading comprehension were the students disliked the English subject so they got demotivated and did not focus during the learning process of reading comprehension. In addition, the teacher did not perhaps apply a good strategy that made the students comfortable in learning English, especially learning reading comprehension.

Regarding those causes and problems mentioned before, the study used a strategy of combination to overcome this problem. In this study, the researcher combined question generation and mind mapping strategy during the learning and teaching process. Those strategies are believed to be effective teach reading comprehension. Rosenshine, Meister and Chapman (1996) claim that question generation strategy has significant positive effects on teaching reading comprehension. Dorkchandra (2013) found in his study that the question-generation strategy is an effective way to engage the readers in active reading. It can also enhance the student's performance and learning motivation in English (Yu, Chang, & Wu, 2015)

Question generation strategy helps students understand texts. While trying to grasp a text, students could develop their ability to ask and answer questions about circumstances, facts, and ideas. In addition, Male and Tias (2019) also claim that the mind mapping strategy is an appropriate strategy to increase the students' reading comprehension. In a previous study, Ramadhan, Regina and Salam (2015) claimed that the mind mapping strategy could develop the students' achievement, enthusiasm and understanding of reading comprehension through this strategy. It can change the students' attitudes towards reading comprehension from a negative one to a positive one (Male & Tias, 2019). In short, mind mapping is an effective strategy encouraging creative problem solving because the students can hold information in a format or structure that could make students' minds easy to remember and quick to understand.

Based on those theories, both question generation and mind mapping strategies are powerful to be applied in teaching reading comprehension. It means those strategies can change the student's attitude toward reading comprehension and make them active in class. In this study, the researcher combined those strategies in making mind mapping and turning text into several questions while teaching reading comprehension as her research gap because the researcher believes the combination between them can be an effective strategy to teach reading comprehension.

The combination of those strategies could work because the researcher guided and taught the students how to make mind mapping in order to understand a text given clearly and then she asked students to make questions from the main ideas of the text. The study tried to find out whether or not the combination of question generation and mind-mapping strategy can affect the teaching of reading comprehension of descriptive texts to the eighth-grade students of SMP Nurul Islam Pontianak in the academic year 2021-2022, if it does, what is the effect size.

RESEARCH DESIGN

A research methodology is a scientific approach to gathering data for a particular goal and application. Relevant courses are required to achieve the targeted aims and the necessary plans. The researcher uses experimental studies in this work. According to Cohen, Manion, and Morrison (2007), experimental research is the process of altering the value of one variable, referred to as the independent variable, and observing the impact of the change on a second variable, referred to as the dependent variable. An essential aspect of experimental research is that the researchers consciously control and manipulate the factors influencing the events they are interested in.

Despite having a control group, this design cannot fully influence the outside factors that impact how it is implemented. Researchers must use intact groups while conducting quasi-experiments, according to Creswell (2012). Assignment of participants to groups is included, although not at random. This is because the researcher cannot make the study's groups artificially. It is comparable to a randomized experimental design. Still, it differs from that design in that treatment groups are not assigned at random and complete control is not given in a quasi-experimental study (Ary, Jacobs, & Sorensen, 2010).

Both qualitative and quantitative research can make use of the research population. The employed population must meet specific requirements for a complete and distinct group of objects. It is a region of generalization made up of things or subjects with particular traits and properties. According to Creswell (2012), a population is a collection of people who share a feature that sets them apart from other groups.

A sample is a more restricted sample of the population, the group to whom the researcher would ultimately wish to generalize or apply the study's findings, as stated by Lodico et al. (2010). The researcher used cluster random sampling to collect the sample. Since the sample is typical of the population, it should reflect those features (Rasinger, 2008).

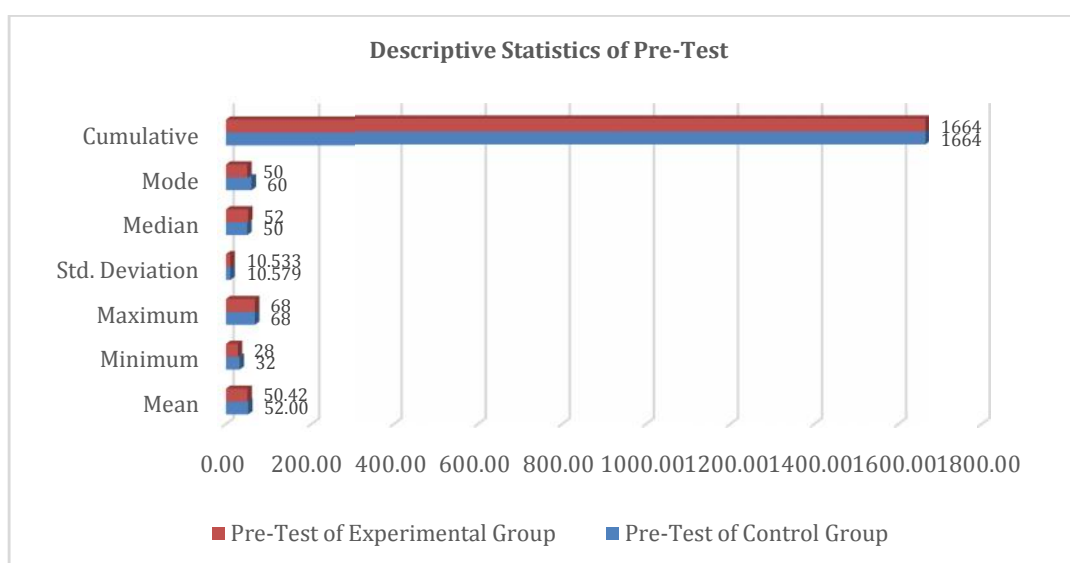
Because she could not construct a new class using simple random sampling, the researcher decided to sample the population using cluster random sampling. Four small papers were shaken, and each had the students' classes written on them. The researcher then took two small papers as samples for the study. She used one of the papers as the control group (8C) and another as the experimental group (8A), shaking four small papers each time.

The measurement technique is the method of data collecting that is employed. According to the degree to which a person or an item possesses an attribute, measurement entails giving significant numbers to those individuals or things (Blerkom, 2009). The researcher employs a test as the instrument for gathering data in this study. According to Frechtling (2002), a test should offer a mechanism to evaluate subjects' knowledge and ability to apply that knowledge to novel settings. This test was designed to gauge students' reading comprehension and required them to respond to and comprehend questions about descriptive texts.

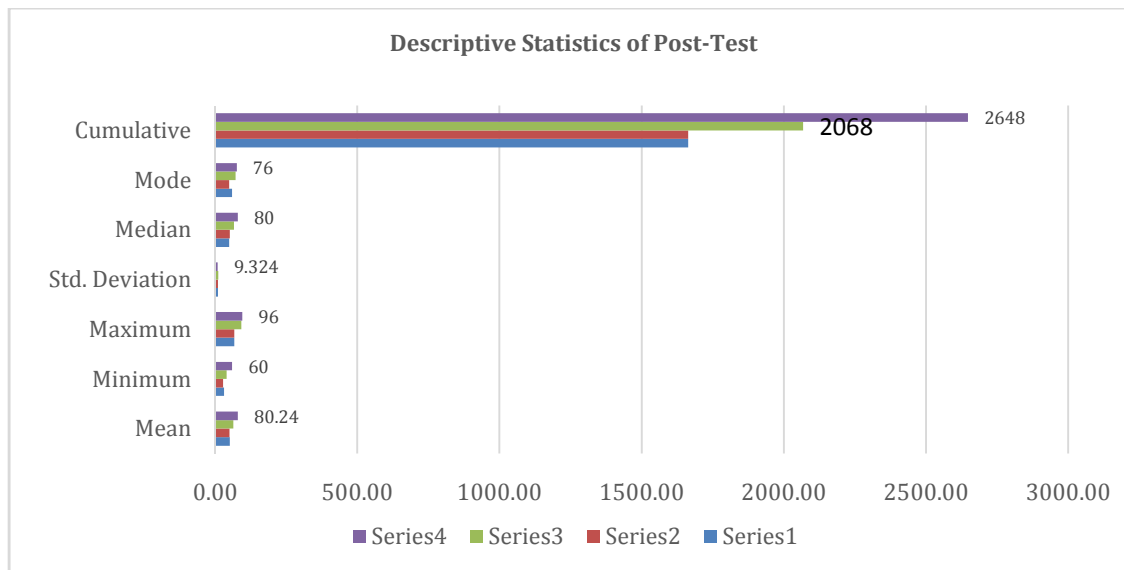
RESULTS AND DISCUSSION

Results

Based on the data, the control group's pre-test scores had a mean of 52. The minimum score was 32, and the maximum score was 68, the standard deviation was 10.58, the median was 50, the mode was 60, the cumulative score was 1664. The mean pre-test score for the experimental group was 50.42. The median pre-test score was 52. The mode pre-test score was 50. The standard deviation pre-test score was 10.533, the minimum pre-test score was 28, the maximum pre-test score was 68, and the cumulative pre-test score was 1664. When the standard deviation values of the control and experimental groups were compared, the experimental group's students' standard deviation was more significant (10.533) than the control group's students' standard deviation (10.058). Further information can be seen in this diagram



Additionally, the control group's mean post-test score was 64.63, its median score was 66, its mode score was 72, its standard deviation was 10.901, its lowest and highest scores were 40 and 92, respectively, and its cumulative score was 2068. The experimental group, on the other hand, received a mean score from the post-test of 80.24, a median score of 80, a mode score of 76, a standard deviation of 9.324, and a cumulative score of 2648. When the standard deviations of the control and experimental groups are compared, it is evident that the experimental group's students' standard deviation was lower (9.171) than that of the control group's students. It is also described below.



If the t value was higher than the t table or if the t value was more than the t table, the combination of question generation and mind mapping method toward reading comprehension of descriptive text can be determined to be effective. The table computation showed that the t value was 6.214 and the t table was 1.9983, indicating that the t value was higher than the t table ($6.214 > 1.9983$). The H_0 was rejected. It means the combination of question generation and mind mapping strategy affected the teaching of reading comprehension of descriptive text. Besides, the significant value of variances was 0.000, meaning it was lower than 0.05 ($0.000 < 0.05$), so H_0 was rejected. Therefore, it could be concluded that the combination of question generation and mind mapping strategy toward reading comprehension of descriptive text affected the instruction of descriptive text reading comprehension.

The value of effect size was 1.49. Compared to the above effect size scale interval, the researcher concluded that the combination of question generation and mind mapping strategy toward reading comprehension of descriptive text belonged to a very strong effect.

Discussion

Reading comprehension is a process in which the reader extracts meaning by understanding a series of sentences in a particular text. General knowledge is important in order to help the reader to understand a certain reading passage better. Through the practice of reading, students not only enrich their knowledge over particular topics but also learn other sub skill such as good grammatical sequences, punctuations, etc.

This study aims to increase junior high school students' reading comprehension by using a combination of question generation and mind mapping strategy toward reading comprehension of descriptive text. This was designed in quasi-experimental research. There are two independent groups called experimental groups, that are taught using a combination between question generation and mind mapping strategy toward reading comprehension of descriptive text. The second group was the control group, which was taught by using the think pair share strategy.

The researcher concluded that the combination of question generation and mind mapping strategy toward reading comprehension of descriptive text, which was used in the experimental group and the think pair share strategy used in the control group has many benefits for instructing reading comprehension.

According to the information in the data obtained by the researcher, the control group's mean scores displayed an average of 52, with a minimum score of 32 and a maximum score of 68. The standard deviation for these scores was 10.58, and the total score was 1664. As for the experimental group, the mean pre-test score was 50.42 with a standard deviation of 10.533, and the cumulative pre-test score also amounted to 1664. Furthermore, the control group achieved a post-test mean score of 64.63, with a median score of 66 and a mode score of 72. The standard deviation for these post-test scores was 10.901, and the cumulative post-test score amounted to 2068.

Based on the data, it can be concluded that the experimental group obtained a higher (80.24) than the control group's mean score of a post-test (64.63). It happened when students were taught with the combination of those strategies; they had to make maps to understand texts easily while generating questions about what they had read, and they also made them actively process text information. When they answer incorrectly, they must recheck their understanding of the information they found in the reading text. In addition, time allocation and teaching materials can be used more efficiently (Sabbah, 2020).

A combination of question-generation and mind-mapping strategies toward reading comprehension of descriptive text also promoted student-centered learning, the students were organized in small groups, which enabled them to be more active in discussing the descriptive text given by the teacher. Through question generation and mind mapping strategy, especially mind mapping strategy, it contributed a lot to the students who learn something by visualization. In their small group, students can share their ideas and mind-mapped them into colorful pictures.

In addition, since the students were in a small group, they had more courage to ask questions or try to offer their ideas to the group. Therefore, if a student has difficulties understanding a particular text during the teaching process, he or she can ask their classmates. As stated by Stokhof, De Vries, Bastiaens, and Martens (2020) "Mind mapping requires students to recall, organize, and visualize their cognitive structures, and although mind mapping seemed suitable for the target group as a visual tool, for some students, it still seemed to exceed their cognitive load."

On the other hand, the think pair share strategy requires the students to ask each other or to be active in the class. The weakness of this teaching strategy is that many students were not brave enough or shy to ask questions. This strategy creates many pairs so that the teacher finds it hard to control students' activities while applying the think pair share strategy.

In contrast, a combination of question generation and mind mapping strategy toward reading comprehension of descriptive text focused on the small group and provided a better atmosphere or condition for the students to interact with their classmates because it did not create many pairs or groups. The teacher could divide the students into several groups based on the number of students. The researcher noticed that the students felt more comfortable.

The combination of question generation and mind mapping strategy toward reading comprehension of descriptive text offers an effective teaching and learning process. In this context, it is used for teaching reading comprehension and it could improve students' thinking about and understanding of the text, promote active reading and processing, awareness of whether or not they comprehend what they are reading, help students recall important ideas about new content and motivate students because they are answering their own questions rather than those posed by the teacher and/or the text (Look, 2011).

The combination of question generation and mind mapping strategy toward reading comprehension does not have limits on the ideas and links that can be made, and there is no necessity to retain an ideal structure or format (Davies, 2010, p. 4). It could give the students the freedom to explore their learning styles and ideas so that they could learn reading comprehension of descriptive text very well. The students could work together in pairs while making important notes.

The key point is to create a comfortable situation for the students. This includes applying correct teaching strategy, which in this context is the combination of question generation and mind mapping strategy toward reading comprehension of descriptive text. When the researcher instructed the students with a combination of question generation and mind mapping strategy toward reading comprehension of descriptive text, of course at first the students needed time to adjust to the new atmosphere of teaching. Later on, the students showed interest in this teaching strategy, the researcher noticed that students who liked to learn through it received the best benefits from this teaching strategy. The combination of question generation and mind mapping strategy provides the students an opportunity to share their ideas and knowledge.

By applying a combination of question generation and mind mapping strategy toward reading comprehension of descriptive text, students were taken into a different classroom atmosphere or situation. Boredom was greatly reduced since the students were encouraged and given the same opportunity to participate in the learning process. The combination of question generation and mind mapping strategy toward reading comprehension of descriptive text also reduced the teachers' burden in teaching large classes since they can work together.

This strategy would in return reduce teachers' stress and help them to focus more organizing the class better. There is an unlimited possibility of new ideas, tips or strategies that were used by the students in tackling problems of reading comprehension. This is made possible by the application of a combination of question generation and mind mapping strategy toward reading comprehension of descriptive text could increase the student's reading comprehension of descriptive text. Apart from that, the researcher was also involved actively by guiding and controlling the students' discussion. This is important to prevent the students from being out of the topics in their discussions or even worse they discuss something that has no connection with the lesson.

One of the positive points of applying a combination of question generation and mind mapping strategy toward reading comprehension of descriptive text is that when the students have problems with understanding reading comprehension, they can ask their friends in the group. If a student cannot answer the question, there are still others who can help. This type of learning builds good teamwork and promoted a sense of friendship among the students. The students complemented each other in knowledge and other things. The researcher noticed different moods from the students after several sessions of combination between question generation and mind mapping strategy toward reading comprehension of descriptive text. The students seemed to be enthusiastic and pay more attention to the teacher's explanation.

Applying a combination of question generation and mind mapping strategy to teach reading comprehension of descriptive text is the first time but it could run very and some experts, Rosenshine, Meister and Chapman (1996), also claim question generation strategy has significant positive effects on teaching reading comprehension. It is an effective way to engage the readers in active reading. It can also enhance the student's performance and learning motivation in English (Yu, Chang, & Wu, 2015).

In educational settings, question-generating is a helpful strategy. Additionally, the mind mapping process is a successful method for improving students' reading comprehension and helps them understand the content. While focusing on comprehending a text, the students could develop their ability to ask and answer questions concerning scenarios, facts, and concepts (Male & Tias, 2019). Ramadhan, Regina and Salam (2015) claim that the mindmapping strategy could develop the students' achievement, enthusiasm and understanding of reading comprehension through this strategy. In short, a combination of question generation and mind mapping strategy toward teaching reading comprehension of descriptive text is an effective strategy to increase the reading comprehension of the students.

In a previous study, Sabbah (2020) in his study concluded that "the question-generation and the semantic mapping proved to be significantly effective in teaching". The combination of question generation and mind mapping strategy is effective to use in the teaching process (Stokhof, Vries, Bastiaens, & Martens, 2020). Additionally, the researcher concluded that the combination of question generation and mind mapping strategy toward reading comprehension of descriptive text has a very strong effect because the t value was higher than the t table or t value $>$ t table. This was based on data analysis and findings. The t value was higher than the t table, according to the above table, which shows that the t value was 6.214 and the t table was 1.9983.

From the perspective of significant value, a significant value 0.05 indicates that H_0 was rejected, but a significant value $>$ 0.05 indicates that H_0 was approved. Based on the aforementioned data, the H_0 was rejected because the significant value of the variances was 0.000, which was lower than 0.05 (0.000 0.05). In other words, the teaching of reading comprehension of the descriptive text to eighth-grade students was impacted by the combination of question generating and mind mapping strategy. The effect size value was also 1.49, indicating a very strong effect.

This teaching strategy promoted critical thinking and teamwork among the students. The combination of question generation and mind mapping strategy toward reading comprehension of descriptive text which is a student-centered learning model, encouraged the students to be more proactive in the classroom which is something very positive because it helped the students to build more confidence when interacting with their classmates.

CONCLUSION

Using a combination of question generation and mind mapping strategies to teach reading comprehension of descriptive texts is very effective. This approach enhances students' ability to grasp and analyze textual content by encouraging them to formulate thoughtful questions and create visual representations that aid in organizing and synthesizing information. By combining these two strategies, the teachers can empower learners to delve deeper into descriptive texts, fostering a more comprehensive and nuanced understanding of the material.

In summary, the combination of question generation and mind mapping strategies in instructing eighth-grade students on reading comprehension of descriptive texts proved highly effective. In addition, the researcher hopes that other researchers can take this research as a reference because this research can give brief knowledge to other researchers to conduct a similar research or teaching context. Moreover, the result of this research can be used as a starting point to conduct the next research, it can be focused on the learning process.

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