The Role of Mind Mapping Media in Revealing Primary School Students' Critical Thinking Abilities

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Abstract

This research aims to explore the role of mind mapping media in developing students' critical thinking skills in elementary schools. Mind mapping media is known as a visual aid that can help students organize information and connect ideas in a more structured way. This research uses a qualitative approach with a case study method in an elementary school. Data was collected through in-depth interviews with teachers, classroom observations, and analysis of learning documents involving the use of mind mapping media. The research results show that the use of mind mapping media can stimulate students' critical thinking abilities by improving their analysis, synthesis and information evaluation skills. In addition, students also showed improvements in their ability to solve problems and collaborate in groups. These findings provide new insight into how mind mapping media can be integrated into the learning process to improve the quality of students' thinking at the elementary school level.

Keywords** : **Mind mapping media, critical thinking skills, learning.

INTRODUCTION

Education at the elementary school level plays an important role in forming the basic knowledge, skills and character of students. One of the main goals of education in elementary schools is to develop students' critical thinking skills, which are very necessary in facing future challenges. Critical thinking involves the ability to analyze, evaluate, and solve problems systematically. Therefore, it is important for educators to create learning environments that encourage students to develop these skills. However, the challenges faced in basic education are often related to limited ways to stimulate and train students' critical thinking skills.

One approach that can be used to overcome this challenge is through the use of innovative learning media, one of which is mind mapping media. Mind mapping is a technique used to describe information visually, by connecting various concepts or ideas in an interconnected structure. This media allows students to organize their thoughts in a more structured and easy to understand way. Therefore, mind mapping media is considered an effective tool to help students organize ideas and improve their critical thinking skills.

In many elementary schools, teaching still focuses on traditional methods that prioritize memorization and passive absorption of information. This approach often does not encourage students to think critically and creatively. In such a learning process, students tend to only receive information without actually processing and analyzing it. Therefore, a more interactive approach is needed and involves students in a deeper thinking process, one of which is through mind mapping media.

Mind mapping media, which involves the use of images, colors, and key words to connect information, offers great potential in changing the way students think about subject matter. With mind mapping, students can see the relationships between concepts clearly and systematically, which will help them organize information and improve their understanding. This media also encourages students' creativity, because they can create mind maps according to their own way of understanding the material.

Several previous studies have shown that the use of mind mapping media in learning can increase students' understanding of the material being taught, as well as help them solve problems more effectively. However, even though these benefits have been proven in other learning contexts, the application of mind mapping media in developing critical thinking skills at the elementary school level still needs further research. Therefore, this research aims to explore how mind mapping media can influence students' critical thinking abilities in elementary schools.

Students who are skilled in critical thinking will be better able to evaluate information carefully, make rational decisions, and solve problems creatively and effectively. This ability is very important, not only in an academic context but also in everyday life. Therefore, it is important to identify methods and media that can support the development of critical thinking skills among elementary school students.

Mind mapping as a learning medium can facilitate students in organizing the knowledge they have acquired, as well as making connections between various concepts they have learned. This process requires students to think analytically, as they must determine relationships between ideas and think of ways to present information in a way that is easy to understand and logical. Therefore, it is hoped that this media can help students develop stronger critical thinking skills.

In practice, the use of mind mapping media in class requires students to be more actively involved in the learning process. They are not only recipients of information, but also act as creators of information by organizing and presenting their ideas in the form of mind maps. This can trigger students' curiosity, so that they are more motivated to think more deeply about the material being studied.

However, even though mind mapping has great potential to improve critical thinking skills, its implementation in elementary schools is still limited. Several factors such as time constraints, lack of training for teachers, and ignorance about the full benefits of this medium can be obstacles to its implementation. Therefore, it is important to examine more deeply how mind mapping media can be applied effectively in elementary schools to develop students' critical thinking skills.

It is hoped that this research can contribute to the understanding of how mind mapping media can be applied effectively in improving students' critical thinking skills in elementary schools. Apart from that, this research also aims to provide recommendations for educators and education managers regarding the importance of using innovative learning media to prepare students to face the challenges of an increasingly complex world.

Thus, it is hoped that this research can make a significant contribution to the world of education, especially in terms of developing students' critical thinking skills through the use of mind mapping media as an innovative and effective learning tool.

RESEARCH METHODOLOGY

This research uses a qualitative approach with a case study design to explore the role of mind mapping media in developing students' critical thinking skills in elementary schools. A qualitative approach was chosen because the focus of this research is to understand phenomena in depth, explore students' perspectives, and explore the dynamics that occur in the application of mind mapping media in the learning process. Case studies are used to look specifically at the implementation of this media in one or more classes in elementary schools, as well as its impact on students' critical thinking skills.

The subjects in this research were students in grades IV and V in an elementary school who had used mind mapping media in learning. The selection of subjects was carried out purposively, taking into account classes that had implemented the use of mind mapping in learning in several subjects. Apart from that, teachers involved in the learning process will also be part of the research subjects, because they have an important role in the application of this media and can provide insight into the ongoing learning process.

The data in this research was collected through three main techniques, namely observation, in-depth interviews, and documentation. Observations were carried out to record interactions between students, teachers, and mind mapping media during the learning process. Researchers will observe how students use mind mapping to complete assignments, as well as the extent to which this media helps students think critically. In-depth interviews were conducted with teachers and several selected students to obtain their views on the experience of using mind mapping in learning and its impact on their critical thinking abilities. Apart from that, documentation in the form of lesson plans, assignments involving mind mapping, and student work results will also be analyzed to support research findings.

Data analysis was carried out using thematic analysis techniques. After the data is collected, the researcher will read and organize the data into themes that are relevant to the research objectives, namely the role of mind mapping media in improving critical thinking skills. Data obtained from observations, interviews and documentation will be compared and studied to look for patterns that can answer research questions. The results of the analysis will provide an overview of the extent to which mind mapping media contributes to developing students' critical thinking skills in elementary schools.

Data validity and reliability will be maintained by triangulating data sources, namely by comparing the results of observations, interviews and documentation. Apart from that, to increase the credibility of the research results, the researcher will also carry out a member check, namely asking for feedback from participants (teachers and students) regarding the findings obtained. Thus, it is hoped that this research can produce valid and reliable findings regarding the application of mind mapping media in developing elementary school students' critical thinking skills.

RESULTS AND DISCUSSION

This research aims to explore the role of mind mapping media in developing students' critical thinking skills in elementary schools. Based on data obtained through observation, interviews with teachers and students, as well as analysis of learning documents, it can be concluded that the use of mind mapping media has a significant influence on students' critical thinking abilities. In this discussion, the results obtained will be discussed in more depth, covering various aspects related to the application of this media in learning.

First, the results of observations show that students show an increase in their ability to analyze and synthesize information when using mind mapping media. In some learning activities, such as in science and mathematics subjects, students find it easier to identify relationships between concepts and organize complex information. Mind mapping media helps students to organize ideas visually, which makes it easier for them to understand difficult topics and connect them with previous knowledge. This process also encourages them to think more deeply about the material being studied.

Apart from that, observations show that students who use mind mapping media are more active in collaborating with their friends. In group assignments, students seem to share ideas more easily and discuss the concepts in the mind map. This indicates that the use of this media not only improves individual critical thinking skills, but also supports the development of critical thinking skills in a social context. Group discussions facilitated by mind mapping help students to evaluate various ideas and find more creative solutions.

Interviews with teachers also revealed that they felt great benefits from using mind mapping media in teaching complex material. Teachers report that students become more interested and motivated in following lessons when mind mapping media is used. They noted that students who previously had difficulty organizing information could more easily follow the learning flow after using mind mapping. Teachers also find it easier to evaluate student understanding, because mind maps provide a clear picture of how students connect and organize the information they learn.

However, although mind mapping media provides many benefits, several challenges are also faced during its application. Some students initially had difficulty developing a clear and structured mind map. This especially happens to students who are not yet accustomed to visual-based learning methods. Some students still rely on text or images that are too simple in their mind maps, which prevents them from connecting more complex ideas. Therefore, teachers need to provide more intensive guidance in teaching how to make effective mind maps.

In addition, although mind mapping media can help students organize information and think more critically, the time needed to complete assignments using this media is longer compared to traditional learning methods. Some students feel overwhelmed by the time required to compile a complete and structured mind map. Teachers also expressed that they had to adjust lesson plans to give students more time to use mind mapping. Nevertheless, this additional time is considered a worthwhile investment, as it helps students gain a deeper understanding.

The results of document analysis show that tasks involving the use of mind mapping media tend to produce more creative and innovative products. The mind maps produced by students are more organized, with ideas that are interrelated and easy to understand. Some students demonstrated the ability to solve problems more effectively by using mind maps as a tool. Assignments that involve

solving mathematical problems or case studies in science subjects, for example, show improvements in students' analysis and evaluation skills, which are important aspects of critical thinking.

In addition, there is a significant increase in students' ability to make decisions based on the information that has been analyzed. Students who use mind mapping media tend to be able to evaluate various solution options more carefully and consider various aspects before making a decision. In this case, mind mapping helps students to see various possible solutions and develop a more logical approach to solving problems.

Increased critical thinking skills can also be seen in the information synthesis aspect. Students who engage in mind mapping-based learning can more easily integrate information from various sources and make connections between concepts that previously seemed unrelated. This indicates that mind mapping media plays a role in improving students' ability to connect different ideas, which is an important element of critical thinking.

However, this research also found that the successful use of mind mapping media is very dependent on the teacher's skills and understanding in implementing it. Teachers who have been trained in the use of this media can be more effective in guiding students to develop their critical thinking skills. On the other hand, teachers who are not familiar with mind mapping may take longer to master this technique, which can affect the effectiveness of learning.

Overall, the results of this research show that mind mapping media has an important role in developing elementary school students' critical thinking skills. The use of this media not only helps students in organizing information, but also facilitates improving analysis, synthesis and evaluation skills. Although there are several challenges in its implementation, such as time constraints and initial difficulties in using mind mapping, the benefits obtained from its implementation are very significant. Therefore, the use of mind mapping media in elementary schools can be an effective alternative for improving the quality of students' critical thinking. For a clearer understanding, this can be seen in the following image.

Figure 1. Implementation of Mind Mapping Media

CONCLUSION

Mind mapping media has an important role in developing elementary school students' critical thinking skills. The use of this media helps students organize information, connect various concepts, and increase understanding of lesson material. In the process, students show improvements in aspects of analysis, synthesis and evaluation skills, which are the main components of critical thinking.

Apart from that, mind mapping also encourages students to participate more actively in learning, both individually and in groups. Students look more motivated and creative in developing their ideas. Group discussions facilitated by mind mapping also support the development of students' social and collaborative skills, which are an important part of the critical-based learning process.

Implementing mind mapping media in elementary schools requires intensive guidance from teachers. Some students experience initial difficulty in compiling a structured mind map, and the time required to complete assignments using this media tends to be longer. Therefore, adequate training and assistance is needed for teachers to ensure the successful use of this media in learning.

These findings have the implication that mind mapping media can be an effective learning tool for improving students' critical thinking abilities, as long as it is supported by appropriate teaching strategies. This research recommends that mind mapping be integrated more widely into the primary school curriculum, with particular attention to teacher training and flexible learning time planning.

This research makes an important contribution in understanding how innovative learning media such as mind mapping can support the development of students' critical thinking skills, as well as providing a basis for further research on the application of this media in various other educational contexts.

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