The Influence of the Mind Mapping Learning Model Regarding Concept Understanding Learning Outcomes

Didik Iswahyudi[1*], I Nyoman Sudana Degeng[2], Henry Praherdhiono[3], Dedi Kuswandi[4]
Universitas Negeri Malang, Malang, Indonesia

Abstract

The mind mapping learning model is a learning model that uses a combination of writing, images, symbols and colors at the same time so that it can maximize the function of the right and left brain to make it easier to remember and understand material concepts. This is the key to effective learning. The mind mapping learning model has often been used by previous researchers to test its effectiveness in increasing understanding of concepts in scientific knowledge (IPA). However, in this research, to test the power of the mind mapping learning model on the learning outcomes of understanding concepts in the social sciences group, namely in the Pancasila Education course in the Pancasila Ideology material which explains events and each event has an implied or abstract meaning so it needs to be concreted, the figures involved, the timeline or dynamics of events, with the characteristics of the material, Mind Mapping is needed to create the main ideas of the material to make it easier for students in the learning process. This research is experimental research which aims to test the effect of the mind mapping model on learning outcomes in understanding concepts. The results of the analysis of calculating the average final ability score of students (posttest) in the experimental group were 79.43. The results of the analysis of the calculation of the average final ability score of students (posttest) in the control group were 71.87. Based on the results of the questionnaire, data was obtained that students liked learning Pancasila Education with Pancasila Ideology material using the Mind Mapping model, because it has been proven to help students understand the concept of Pancasila Ideology material. Students are also motivated to learn Pancasila Education through the phases in the Mind Mapping model and the character of the model through interesting content.

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INTRODUCTION

Mind Mapping is a creative, effective way, and will literally map our thoughts (Buzan, 2010). Mind Mapping is also a graphic technique that makes it possible to explore all of our brain's abilities for thinking and learning purposes (Anon n.d.-a). Mind Mapping is also a great route map for memory, making it easier for us to organize facts and thoughts in such a way that the brain's natural way of remembering information will be easier (Zahro et al., 2018), (Guerrero 2023).

The relationship between the use of Mind Mapping in learning and conceptual understanding has been studied by several previous researchers (Yang et al. 2022), (Su and Zou 2024). (Budiono et al., 2018) found that the use of Mind Mapping can increase student motivation in learning which leads to increased

student conceptual understanding of lessons, especially social sciences. The same thing also applies to natural science lessons, as discovered by (Jain, 2015). Research by (Ho et al., 2023) also shows that the application of Mind Mapping through scientific learning can improve students' conceptual understanding.

The Mind Mapping model is often used by previous researchers to test its effectiveness in increasing understanding of concepts in scientific knowledge (IPA). In this study, researchers were interested in testing the effectiveness of the Mind Mapping model on learning outcomes in understanding concepts. In building students' understanding of abstract concepts in the social sciences (IPS) group, namely the Pancasila Education course, the material is Pancasila Ideology.

The characteristics of the Pancasila Ideology material explain events and each event has an implied or abstract meaning so it needs to be concreted, the figures involved, the timeline or dynamics of events, the need for Mind Mapping to create the main ideas of the material to make it easier for students to understand and learn the learning process. remember the material. The research will test the power of Mind Mapping in the learning process with the characteristics of current students. The stages of the Mind Mapping model are expected to provide students with the opportunity to understand concepts by asking, answering questions and expressing opinions actively.

METHODS

This research includes experimental research, according to (Sugiyono, 2017) that the experimental method is a research method used to find the effect of certain treatments. Experimental research aims to investigate possible causal relationships by imposing one or more treatment conditions on one or more experimental groups and comparing the results with one more group given a different treatment. There are several types of experimental research, one of which is factorial experiments.

This type of research uses a factorial experiment with the research subjects being students from across study programs who teach the Pancasila Education course, Class of 2022, Univ. PGRI Kanjuruhan Malang for the 2023/2024 academic year. Data analysis using prerequisite tests, namely the normality test and homogeneity test, then testing the average difference in student pretest results and continuing with hypothesis testing through the two-way ANOVA test or 2x2 factorial.

RESULTS & DISCUSSION

The data obtained in this research are the results of learning about Pancasila Education between groups of students who used the Mind Mapping model in their learning process and groups of students who did not use the Mind Mapping model. Learning outcomes (gain score) are obtained from the difference between the initial ability score (pretest) and the final ability score (posttest).

Based on the results of the research that has been carried out, data on learning outcomes from the experimental class (A) and control class (C) can be presented as follows:

Table 1. Learning Outcomes

Descriptive statistics	Class A	Class C
N	16	16
Mean	79.43	71.87
Std. Deviation	3.91	8.92
Variance	15.32	79.58
Range	15.00	35.00
Minimum	75.00	50.00
Maximum	90.00	85.00
Sum	1271.00	1150.00

To see the learning outcomes of students, we can review the average scores obtained which can be seen in the table row Mean class C with an average score of 71.87 and class A with an average score of 79.43, then for the Standard Deviation obtained in each class for class C the standard deviation is 3.91 and for class A 8.92, the variance or difference in values between class C and class A is 15.32 and 79.58, then for the range in class C we get 15.00, class A gets 35.00 and the minimum score in class C is 75.00 and class A is 50.00 and the maximum score obtained in class C and class A is 90.00 and 85.00. So a conclusion can be drawn from the total number between class C and class A which can be seen in the table row. The average mean student learning outcomes are higher in class A with the average score obtained being 79.43.

This shows that the Mind Mapping model learning has an effect on the ability to understand concepts. The Mind Mapping learning model is able to have an influence on students' ability to understand concepts, because in this learning the concepts studied are not directly given by the lecturer to students, but rather students obtain concepts from the material studied by creating structured patterns (Ho et al., 2023). This aims to make it easier for students to remember and understand the material more comprehensively.

Based on the results of the questionnaire, research findings were obtained that students liked learning Pancasila Education with Pancasila Ideology material using the Mind Mapping model, because it has been proven to help students understand the concept of Pancasila Ideology material. Students are also motivated to learn Pancasila Education through the phases in the Mind Mapping model and character model through interesting content. Educators feel a sense of depth in the process of guiding students, because the mind map model does not require a lot of group movement arrangements.

Apart from the main findings, there are several additional findings that show the advantages of the Mind Mapping model. These findings include: first, students learn more actively when using the Mind Mapping model. The stages of the Mind Mapping model provide students with the opportunity to understand concepts by asking, answering questions and expressing opinions actively (Zhong and Zheng 2023). Students' independent construction makes them active and creative in

finding connections between learning material and their previous experiences (Degeng, Praherdhiono, and Degeng 2024), (Pradana et al. 2024).

These findings can be proven from student involvement when taking part in learning through observation notes contained in the model content, including activities of asking questions, expressing opinions, and being good listeners (Ferguson-Walter et al. 2023). Students' independent acquisition of concepts is more meaningful and creates internal schemas (Anon n.d.-b). Students gain functional knowledge to solve the problems they face. This can also be seen from the acquisition of cognitive learning outcomes or the average gain score of students in the experimental class which has a higher value than the control class.

CONCLUSION

The results of the analysis of the calculation of the average value of students' final abilities (posttest) ongroupexperiment is 79.43. The results of the analysis of the calculation of the average final ability score of students (posttest) in the control group were 71.87. Based on the results of the questionnaire, data was obtained that students liked learning Pancasila Education with Pancasila Ideology material using the Mind Mapping model, because it has been proven to help students understand the concept of Pancasila Ideology material. Students are also motivated to learn Pancasila Education through the phases in the Mind Mapping model and the character of the model through interesting content.

The results of hypothesis testing through the two-way ANOVA test on the learning outcomes for students' understanding of concepts in the experimental class and control class have a sig value. (2-tailed) $0.000 > 0.05$ it can be concluded that H_0 is accepted and H_1 is rejected. These results indicate that the Mind Mapping Learning Model and spatial intelligence in the experimental class have no effect on student concept understanding learning outcomes compared to the control class which uses the conventional model (Concept mapping). It is hoped that the continuation of this research can improve students' spatial intelligence in maximizing learning outcomes in understanding concepts.

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