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The effect of mind mapping on the level of student learning success in the Pancasila course: a study on students of the UNY English department

Isra' Nurhanifah, Mukhamad Murdiono, Chandra Dewi Puspitasari
Universitas Negeri Yogyakarta, Indonesia

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ABSTRACT

The quality of a nation's human resources can be measured from the learning achievements of students. Learning achievement is an indicator of student learning success and also an indicator of educator success in conducting learning. Learning success reflects the success of students in mastering learning concepts expressed by grades. One way to increase student understanding of concepts is by applying mind mapping. This study aims to determine the effect of mind mapping on the success rate of student learning in the Pancasila course. The method used in this research is Pre-Experimental with One Group Pretest-Posttest Design. The research sample consisted of 36 students majoring in English literature at UNY by choosing purposive sampling. Analysis of the learning outcomes obtained shows that the value of ha is accepted which means that the effect of applying mind mapping has on student learning success in the Pancasila course. While the Gain value (the average increase as an indicator of learning success) obtained results of 0.33 in the medium category. The implication of this research is as a source of information or a reference for educators that the application of mind mapping in learning can increase learning success.

Corresponding Author:

Isra' Nurhanifah,
Universitas Negeri Yogyakarta
Email: isra.nurhanifah@gmail.com

Introduction

Pancasila is the basic philosophy of the Indonesian state which consists of five principles or basic values that form the basis for the life of society, nation and state. In the context of learning success, there is a close relationship between understanding and application of Pancasila values and student learning outcomes. Education is a measure of the quality of a nation's human resources. The quality of human resources can be measured from the learning achievements of students. Learning achievement is an indicator of student learning success and also an indicator of educator success in conducting learning ((Fitriwati, 2018); (Destomo et al., 2021)). Learning achievement is influenced by internal factors such as emotional maturity, intelligence, interest, motivation, and students' talents. While external factors that influence such as the social environment (teachers, friends, family) and non-social environment (strategies, techniques, media and learning methods (Atma et al., 2021).

Learning success reflects the success of students in mastering learning concepts expressed by grades. The value achieved must have been determined according to the standards of each agency in the assessment

(Riswanto & Aryani, 2017). Concept mastery is the ability of students to understand and apply concepts that have been obtained in various ways. (Widia et al., 2020) revealed that mastery of concepts is important for students to have because without mastery of concepts, one's survival will be disrupted. One of the ways to increase students' understanding of concepts is by applying mind mapping.

Mind mapping is a learning technique that uses a nonlinear learning approach that forces students to think and explore concepts using partial visual relationships that flow from themes located in the central part to peripheral branches that can be interconnected. The media for drawing mind maps are usually colored pens or pencils. By placing this central image in the center of the paper, it allows students to be free 360 degrees to develop their mind map from the main theme which is located in the center to the branches and then to the sub-branches (As' ari, 2016). The application of mind mapping can increase students' absorption of the information received because students not only listen but represent concepts in graphical form, so students can imagine and see objects (Rizali, 2019). Relevant research conducted ((Khoiriyah, 2014); (San Risqiya, 2013); (Waloyo, 2017); (Pribadi & Susilana, 2021)) which states that if the mind mapping technique is effective it can improve writing skills. (Astriani et al., 2020) said that Mind mapping can be used as a strategy to train metacognitive skills through learning, because it greatly influences the improvement of metacognitive skills as indicated by the results of increased metacognitive skills tests. Based on the role of mind mapping on skills. (Nasution, 2020) states that if the mind mapping technique is effective it can improve the skills of educators, especially speaking skills.

The amount of evidence that mind mapping can increase learning success makes the author want to examine it more deeply. The research was conducted to determine the effect of mind mapping on the level of student learning success in the Pancasila course. Similar research has also been carried out by ((Avrianty et al., n.d.); (Nurlaila & Setyoningrum, 2022) (Nurlaila & Setyoningrum, 2023)), which state that applying the mind mapping method can improve student learning outcomes, as evidenced by the increase in the percentage of successful students get in each cycle. The difference between this research and this research is the research method used. This research uses the pre-Experimental method with One Group Pretest-Posttest Design, while the previous research used the class action research method. So the researcher wants to conduct research with the aim of knowing the effect of mind maps on the level of student learning success in the Pancasila course.

Method

The research method used was "Pre-experiment with the One Group Pretest-Posttest design". The score was taken twice, first at the pre-test stage, then students were given treatment in the form of learning with mind mapping, then measurements were taken again in the second stage, namely the post-test stage. Data collection was carried out using multiple choice questions of 30 items. The number of research samples was 36 students majoring in English Literature at UNY. The sample selection was carried out by purposive sampling technique. The stages in data analysis are as follows: (1) The normality test was carried out to ensure that the data is normally distributed with the Shapiro Wilk normality test because the number of samples is less than 50. (2) The paired sample statistics test was carried out to see whether or not there was an increase in the average as an indicator of learning success before and after the application of mind mapping to the Pancasila course. (3) Correlation test to see the correlation between variables. (4) The paired sample t-test was carried out to analyze whether there was any effect of applying mind mapping to learning success in the Pancasila course.

Data analysis was performed with the help of SPSS software. The design of the research conducted can be seen in Figure 1.

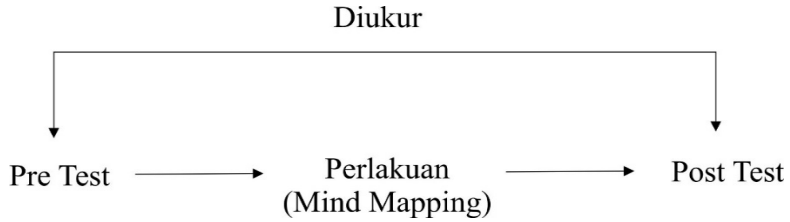

Figure 1. Research Design

The research hypothesis is:

H0 = there is no effect of using mind mapping on student learning success in the Pancasila course

Ha = there is an effect of using mind mapping on student learning success in Pancasila courses

Results and Discussions

The first stage carried out in this study was to measure students' abilities before being given treatment, namely at the pre-test stage. The measurement was carried out with an instrument of 30 multiple choice questions related to the Pancasila course. The second stage is to provide treatment in the form of using mind mapping in lectures. During the lecture, students are taught about the process of making a mind map. The third stage is the measurement of student learning success after being given treatment, namely at the post test stage. The collected data is then analyzed. The first step in data analysis is to perform a normality test. The criteria for drawing conclusions about the normality test can be seen in Table 1.

Table 1. Normality Test Criteria

Criteria	Conclusion
Significance > 0.05	Data is normally distributed
Significance < 0.05	Data is not normally distributed

The results of the analysis of the normality test data using the SPSS software can be seen in the Shapiro Wilk section shown in Figure 2 below:

Table 2. Output SPSS-Test for normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.131	36	.123	.967	36	.356
Posttest	.149	36	.042	.912	36	.008

From the output data results are tabulated and interpreted which can be seen in Table 2 below:

Table 3. Interpretation of Normality Test Data Analysis Results

Value Test	Significance	Interpretation of Results
Pre-test	0.356	Data is normally distributed
Post-test	0.008	Data is normally distributed

Based on Table 2. it can be concluded that the research data used has been normally distributed, which means that data analysis can be carried out in the next stage, namely the paired sample statistics test which is carried out to see the difference in values before and after being given treatment as an indicator of learning success as shown in Figure 3 below.

Table 4. Output-Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	73.8333	36	12.11493	2.01915
	Posttest	83.7500	36	9.95239	1.65873

Based on table 4 it can be seen that the average value after being treated is greater than the average value before being given treatment. This shows that the application of mind mapping can increase student learning success in Pancasila courses. The increase in the average value can also be seen in Figure 3.

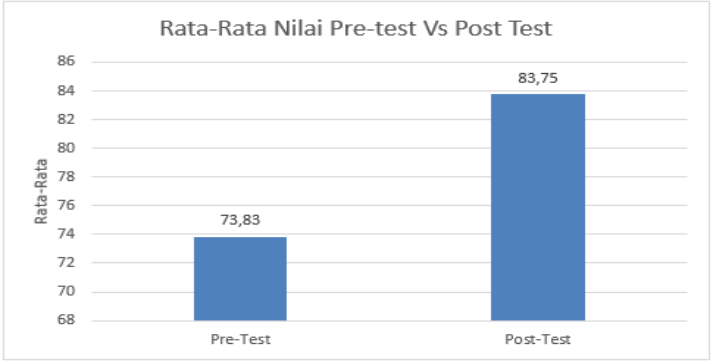

Figure 2. Graph of Average Values

Data from Figure 4 can be used to calculate the Gain (N-Gain) value by the following formula:

$$Nilai\ Gain = \frac{Nilai\ Posttest - Nilai\ Pretest}{100\% - Nilai\ Pretest}$$

The Gain value obtained is then interpreted as to whether it is classified as high, medium or low with the Gain Value categorization guidelines shown in Table 5.

Table 5. Gain Value Categorization

N-Gain Value	Category
Value > 0.7	High
0.3 ≤ Value ≤ 0.7	Medium
Value < 0.3	Low

After the calculations were carried out, the Gain value was 0.33, where the increase in student learning success in the Pancasila course was classified as moderate. The next step is to do a correlation test. Correlation test was conducted to see the correlation between pre-test and post-test variables. Analysis of the correlation test data is shown in table 6.

Table 6. Output SPSS-Paired Samples Correlations

		N	Correlatiom	Sig.
Pair 1	Pretest & Posttest	36	.539	.001

Based on the output of data analysis, it can be concluded that there is a correlation between the pre-test and post-test variables because of the significance in Figure 5, the SPSS output <0.05. The next data analysis was a paired sample t-test which was carried out to answer the hypothesis in this study. The guidelines or criteria in the paired sample t-test can be seen in Table 7 below:

Table 7. Test conclusion criteria Paired Sample t-Test

Criteria		Conclusion
Sig. (2-tailed) < 0.05	t count > t table	H0 rejected, Ha accepted
Sig. (2-tailed) > 0.05	t count < t table	H0 accepted, Ha rejected

The results of data analysis using SPSS software can be seen in the t and sig values section. (2-tailed) shown in Figure 6 below:

Table 8. Output SPSS-Paired Sample t-Test

		Paired Difference							
					95% Confidence Interval Of The Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upoer	t	df	Sig. (2-tailed)
Pair	Pretest – Posttest	-9.91667	10.76971	1.79345	-13.55757	-6.27577	-5.529	35	.000

Then the data is tabulated and interpreted which can be seen in Table 5. The value of t table can be searched with df 35 with a significance of 0.025 which obtains a value of 2.03011. Sig. Value (2-tailed) is compared with a significance of 0.05 and the t value at the SPSS output (count) is compared with the t table value.

Table 9. Test Interpretation Paired Sample t-Test

Data Analysis Results		Conclusion
Sig. 2-tailed (0.000) < 0.05 (2.03011)	t count (5.529) > t table	H0 rejected, Ha accepted

The interpretation of the results of data analysis in table 5 is that Ha is accepted, which is meaningful if there is an effect of using mind mapping on student learning success in the Pancasila course. This research is in line with research conducted by (Jbeili, 2013) where the application of mind mapping can increase the learning

achievement of students. Pancasila education is an educational program that contains the nation's noble values and aims to form positive human attitudes through the matters contained in Pancasila (Arafat, 2021). Pancasila education is a generally compulsory subject that is an essential part of the educational process in tertiary institutions. Pancasila courses are given to all students across disciplines or fields of knowledge. The obstacle is that there still needs to be an ideal model and format for teaching and learning Pancasila education for specific disciplines (Farid, 2021). The critical role of Pancasila Education and Citizenship Education in developing knowledge, values, attitudes, and social skills. By developing appropriate Pancasila Education and Citizenship Education lessons, it can direct students to become good citizens of Indonesia, the nation and state of Indonesia, but there are still many areas for improvement in learning Pancasila Education and Citizenship Education, both in design and in the learning For this reason, the challenges of learning and developing the Pancasila and Citizenship Education learning model are significant to continue to study (Istianah et al., 2021).

Mind Mapping for students is a powerful way to remember and understand new teaching materials. By making a good concept map, students can always remember the teaching material provided by the teacher and become more creative and active. Based on these opinions, the mind-mapping learning model is designed to motivate students to be more creative and active in determining and organizing important material points from teaching materials. The mind map learning model can help students improve their learning achievement in mastering subject concepts and stimulate increased student creativity (Wardayadi, 2021). Mind Mapping combines and develops the working potential of the brain contained within a person. With the involvement of both hemispheres of the brain, it will make it easier for someone to organize and remember all forms of information, both written and verbal (Nurlaila & Setyoningrum, 2023).

Mind Mapping is a perfect example of using techniques that can help us understand concepts and memorize information with a learning tool. The Mind Mapping model, using concept maps in Pancasila learning, will help students make it easier to understand concepts that are interrelated to one another in a material. The ability to understand the concept of the basic formulation of the Pancasila state can be increased because students can understand the concept maps they make themselves. It makes it easier for students to absorb the material well. Concept maps show the pouring of thoughts as notes in graphic form as a practical learning technique. The brain is seen as a forest of many trees with hundreds of large branches, millions of branches, and billions of branches. Concept maps are created the same way information is stored on the branches of a central theme, although the scale is much smaller. Concept mapping is a way to strengthen students' knowledge and understanding of the materials they have read (Sholeh & Sadiman, 2018).

Mind mapping does not only include key words of information or ideas but also implements the use of colors and images so that it becomes fun (San Risqiya, 2013). Students apply mind mapping in lectures such as to record, summarize, evaluate, and express themselves. Therefore, while ensuring students to use both lobes of their brain actively, their traits such as creative thinking, increasing imagination, developing a holistic view can be developed as well (Erdem, 2017). Educators can use mind mapping techniques to build, organize, and link information with previous concepts. Mind mapping can make it easier for students to store, understand, organize, memorize, and remember information and knowledge when needed and stimulate them to form thoughts by describing them on a piece of paper and This technique also increases students' learning motivation. Mind mapping can also improve students' intellectual abilities, develop independent study habits and change students' thoughts and imagination into graphical representations so as to improve student performance, memory, creative abilities and thinking capacity (Hanif et al., 2020). The implications of this research are as a source of information for educators that the application of mind mapping is quite effective in learning and has a role in increasing learning success.

Conclusions

The conclusion that can be drawn based on the results of the research is that there is an influence of the application of mind mapping on the success rate of student learning in the Pancasila course. There was an increase in student learning success in the Pancasila course which was included in the moderate category. This means that the application of mind mapping in the Pancasila course is proven to significantly increase student learning success.

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