Available online at
MACCA: Science-Edu Journal (ISSN: 3048-0507)
Journal homepage: https://etdci.org/journal/macca/index

The Effect of ICARE Learning Model on Students' Learning Outcomes in Physics Learning Class XI SMAN 13 Makassar

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Received: Oct 02, 2024 *Accepted: Oct 14, 2024* *Online Published: Oct 31, 2024*

ABSTRACT

The purpose of this research is to determine the learning outcomes of students who were taught using the ICARE learning model for class XI IPA SMAN 13 Makassar, to determine the learning outcomes of students who were not taught using the ICARE learning model for class students who were taught and those who were not taught using the ICARE learning model for class XI Science at SMAN 13 Makassar. The type of research used is quasi-experimental, using a research design only, non-equivalent control group design. This research consisted of 2 sample classes: 1 sample class as an experimental class, namely class XI IPA 1, totaling 35 students, and one other sample class as a control group, namely XI IPA 3, totaling 35 students. Researchers took one of the non-probability sampling techniques, namely convenience sampling. This research uses a learning outcomes test instrument. The results of the descriptive analysis in this research are students who were taught using the ICARE learning model for class and students who were not taught using the ICARE learning model for class. Meanwhile, after carrying out an inferential analysis in this research, it was discovered that there was a significant difference in the average learning outcomes between students who were taught and those who were not taught using the ICARE learning model in the effort and energy material of XI IPA students at SMAN 13 Makassar, based on the results of the Mann test calculations. Whitney (U) in SPSS 26, where the calculation results obtained a value of Zcount = 2.128 and Ztable = 1.96. These results show that Zcount > Ztable, so it can be concluded that Ho is rejected and H1 is accepted. This indicates differences in students' learning outcomes and those who need to be taught using the ICARE learning model for Class XI students at SMAN 13 Makassar.

Keywords: *ICARE, Learning model, Learning outcomes.*

INTRODUCTION

One of the efforts to improve the quality of human life is education. Education itself is an essential need in human survival, where with education, a person can develop all the abilities that exist in him to be used in the learning process. Education is also an effort to increase knowledge, know skills, form a good person, and be aware of social life.

Learning is a two-way communication that combines two aspects, namely learning aimed at what students do and teaching-oriented to what educators give as a provider of lessons. One way that the educational goals of each country are achieved is by having curriculum standards as a reference in every learning process.

Good learning will get optimal learning results as well, and a less good learning process will get less optimal results as well, where a teacher who has been mandated to bring students to a quality learning process so that it can train students to be able to have many abilities such as skills, skills, and attitudes. Subjects are very diverse, so professional teachers are needed to teach students, especially natural science subjects, which are very complex, one of which is physics.

Physics lessons are a science family directly related to the natural environment. Physics learning is learning that includes processes, attitudes, and results. When a learner is unable to master the concept of physics well, then he is unable to develop the idea he has.

The selection of a suitable learning model is essential to achieve learning objectives. Although the learning objectives are well formulated and the material chosen is appropriate, the expected goals may not be adequately achieved if the learning model used needs to be revised. So, the learning model is one of the essential learning components and is very decisive in the success of the learning process. The learning model should be an interaction between teachers and students, as well as interactions between students that will form a mutually beneficial synergy for all members.

For learning to produce optimal results, teachers should be good at choosing models involving students playing an active role in the learning process. In achieving this goal, educators must create educational and pleasant classroom conditions, mainly so that students are comfortable and understand the lesson. This is only possible if an educator realizes the classroom atmosphere and decides on a suitable learning model. Therefore, however appropriate and suitable the teaching materials set are, they do not guarantee the achievement of educational goals. One of the critical factors in achieving these goals is the learning process that emphasizes optimal student involvement. In connection with the above problems, an innovation in learning is needed in the form of a learning model that can make students more active and help students in mastering concepts.

Based on the results of observations at SMAN 13 Makassar on 8 January 2022, educators teach using the lecture method. However, the learning process with this model is less effective, characterized by students being less involved in using their knowledge and thinking skills. In addition, practicum activities or activities that support student skills are not carried out due to the need for more facilities for tools and materials to support practicum activities. As a result, students need more understanding of the theory and concept of physics learning.

Based on this research, one solution to this problem is applying the ICARE learning model. The ICARE model includes five key elements: introduction, connection, application, reflection, and extension. The use of the ICARE system ensures that students have the opportunity to apply what they have learned. The ICARE learning model is designed to be more fun and contextualized, and the accuracy of theory to practice. Using the ICARE learning model, students can train their ability to think creatively, socialize, solve problems, and encourage students to be more active in learning.

METHODS

The type of research used in this study is the Quasi Experiment, which is done by selecting two classes non-randomly. One class is experimental, and the other is a comparison. The experimental class was given treatment, namely learning with the ICARE model, while the comparison class did learning with the lecture method.

RESULTS AND DISCUSSION

1. Students' learning outcomes using the ICARE learning model

Based on the results of the posttest conducted on students, data was obtained and then analyzed using descriptive analysis.

Table 1. Distribution of descriptive analysis of experimental class

Statistical parameters	Value
Sample Quantity	35
Maximum Score	60
Minimum Score	10
Average	40,4
Standard Deviation	15,3

Table 2. Categorisation of experimental class learning outcomes

No.	Categorisation	Interval score	Frequency	presentation
1	Very Low	0-20	8	23%
2	Low	21-40	8	23%
3	Medium	41-60	19	54%
4	High	61-80	0	0%
5	Very High	81-100	0	0%
Total			35	100%

2. Learning outcomes of students who were not taught using the ICARE learning model

Based on the results of the posttest conducted on students, data was obtained and then analyzed using descriptive analysis as follows:

Table 3. Distribution of descriptive analysis of control class

Statistical parameters	Value
Sample Quantity	35
Maximum Value	55
Minimum Value	10
Average	34
Standard Deviation	11,30

Table 4. Categorisation of control class learning test results

No.	Categorisation	Interval score	Frequency	presentation
1	Very Low	0-20	6	17%
2	Low	21-40	22	63%
3	Medium	41-60	7	20%
4	High	61-80	0	0%
5	Very High	81-100	0	0%
Total			35	100%

3. Differences in learning outcomes of students who are taught and not taught using the ICARE learning model

After descriptive analysis, the analysis continued with inferential analysis. After conducting a normality test and data homogeneity test and test, it was found that the data were not normally distributed and the data were not homogeneous, therefore this study used the Mann Whitney test.

Table 5. Mann Whitney Test

	RESULTS
Mann-Whitney U	432,500
Wilcoxon W	1062,500
Z	-2,128
Asymp. Sig. (2-tailed)	0,033

1. Students' learning outcomes using the ICARE learning model

Further, the maximum, minimum, and average values obtained can be known. The maximum value of students taught using the ICARE learning model is 60, and the minimum value is 10, while the average value of students taught using the ICARE learning model is 40.4. The value is the result of a manual test, which has also been tested using the descriptive analysis feature on Microsoft Exel. The results from manual tests and descriptive analysis on Microsoft Exel obtained the same value.

After conducting a descriptive analysis, the researcher then categorized the learning outcomes. From the category results, it is known that 19 students have learning outcomes with a percentage of 54% and are in the medium dominant category. One of the causes of students having

the moderate category is that learners work on questions calmly and do not rush. They tend not to focus on work but listen to the material well when the learning process occurs; some of the learners in this category are very active when researchers conduct the learning process in class. They can answer questions given by researchers correctly related to things learned at that meeting. So that the learning process becomes more lively. Another cause is the researcher's lack of class mastery during the learning process and class control, which needs to be more flexible.

2. Learning outcomes of students who were not taught using the ICARE learning model

The test results of students not taught using the ICARE learning model are then processed further so that the maximum value, minimum value, and average value obtained can be known. The maximum value in the control class is 55, and the minimum value is 10, while the average value of students who are not taught using the ICARE learning model is 34, which is the low dominant category. The value is the result of a manual test, which has also been tested using the descriptive analysis feature on Microsoft Exel. The results from manual tests and descriptive analysis on Microsoft Exel obtained the same value.

After conducting a descriptive analysis, the researcher then categorized the learning outcomes. From the category of learning outcomes, it is known that six students have meager category learning outcomes with a percentage of 17%, and 22 students have learning outcomes with a percentage of 63% with a dominant low learning outcome category. One of the causes of learning outcomes in the shallow categories is that students have lower enthusiasm for learning than those taught using the ICARE learning model. This above affects students' enthusiasm for learning physics, which is considered difficult and then taught with a monotonous lecture method. Not infrequently, students feel sleepy in class. To overcome this, the researcher made a break if the situation was uncontrollable. From the researcher's side, class mastery, class control, and the level of confidence in carrying out the process of providing learning still need to be improved, which is lacking.

In addition to the things mentioned above, it is also known from the results of observations when researchers conducted research that some students understand physics calculations well but need to improve in answering concept understanding questions. For example, when asked, "Does an object that is pushed but remains stationary have effort or not?" these students could not provide good feedback. However, when given an effort question in the form of a calculation problem, these learners can provide answers well. In addition, some students have a good understanding of physics concepts but still need to gain the application of mathematics in physics.

The average score of the context aspect is lower than that of the knowledge aspect obtained by students. Students need help answering questions requiring them to organize and interpret data or graphs from experimental results. The difficulty level of the questions in this aspect is more complex than in the knowledge aspect. The results showed that one-third of the students needed clarification on several questions, which caused the low results they received. In contrast, other students could use their conceptual knowledge to work on questions in this aspect, so they obtained scores above 60.Differences in learning outcomes of students who are taught and not taught using the ICARE learning model

The learning outcomes of students taught using the ICARE learning model have an average value of 40.4 in the medium category. The learning outcomes of students not taught using the ICARE learning model have an average of 34 in the low category. Therefore, there is an average difference in learning outcomes between students who are taught using the

ICARE learning model and those who are not taught using the ICARE learning model. The average learning outcomes of students taught using the ICARE learning model are higher than those not taught using the ICARE learning model. This conclusion is obtained from the results of descriptive analysis. At the same time, inferential analysis also states a significant difference between the average learning outcomes of students taught and those not taught using the ICARE learning model. This can be concluded based on the Mann-Whitney (U) test on SPSS 26, where H1 is accepted because it shows Zcount greater than Ztabel. So, there is a significant difference between the average learning outcomes between students taught and those not taught using the ICARE learning model.

CONCLUSION

Based on the results of the analysis and discussion that has been done, it is obtained data on the learning outcomes of students who are taught using the ICARE learning model of class XI IPA 1 SMAN Makassar is in the medium category, the learning outcomes of students who are not taught using the ICARE learning model of class XI IPA 3 SMAN 13 Makassar is in the low category, and based on the results of the Mann Whitney (U) test calculation on SPSS 26, using the $\alpha = 0.05$ level where H1 is accepted because Zhitung is greater than Ztabel. So, it can be concluded that there is a significant difference between the average learning outcomes of students and those who are not taught using the ICARE learning model in class XI IPA at SMAN 13 Makassar.

In connection with the results obtained in this study, the researchers proposed several implications for further researchers, namely:

1. The ICARE learning model can be developed to be even better so that not only the material of effort and energy but also other physics materials can be contained.
2. For future researchers, the results of this study can be used as comparison and reference material, especially for those who want to conduct similar research.

ACKNOWLEDGMENT (If any)

State acknowledgements in a separate section at the end of the article before the references and do not include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, or proof reading the article, etc.).

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