

The Influence of the Cooperative Script Model using the Gasing Method Assisted by Couple Card Media on Concept Understanding

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Abstract

This study aims to, 1) analyze the understanding of the concepts of students who are taught by the cooperative script learning model using the gasing method with the help of the media couple card class XI MIA SMAN 2 Bantaeng, 2) analyze the understanding of the physics concepts of students who are taught using conventional learning models for class XI MIA. SMAN 2 Bantaeng, and 3) analyze the differences in conceptual understanding between students taught the cooperative script learning model using the gasing method assisted by the couple card media and the conventional learning model in class XI MIA SMAN 2 Bantaeng. This type of research is quasi-experimental. The research design is The Matching Only Post-Test Control Group Design. The research population was all students of class XI MIA SMAN 2 Bantaeng. The research sample is class XI MIA 1 and class XI MIA 3. The sampling technique used is two-step matching sampling. The research instrument is a conceptual understanding test. The results showed that 1) the understanding of the concepts of students who were taught with the cooperative script learning model using the gasing method assisted by the couple card media in the experimental class was categorized as very good with an average value of 89.38; 2) understanding of the concepts of students who are taught using conventional learning models in the control class is categorized as good with an average value of 79.61; 3) there is a significant difference in conceptual understanding between students who are taught with the cooperative script learning model using the gasing method assisted by the couple card media and the conventional learning model. The research implies that the cooperative script model using the gasing method with the help of the couple card media influences students' understanding of concepts better than conventional learning models.

Keywords: *Concept Understanding; Cooperative Script Model; Couple Card Media; Gasing Method*

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PENDAHULUAN

The implementation of learning in academic units is directed at a process to achieve national education goals. To achieve this goal, the learning process

should be carried out regarding improving the ability of students to create an interactive, inspiring, fun and challenging atmosphere. In addition, the learning process held should provide

space for students to be more motivated, independent, active, and participatory, both physically and psychologically. This is stated in Government Regulation no. 22 of 2016 concerning Standards for Primary and Secondary Education (Kemendikbud, 2016)

Based on the Qur'an, learning is explained in QS An-Nahl/16:125 which reads:

أَدْعُ إِلَى سَبِيلِ رَبِّكَ بِالْحُكْمَةِ وَالْمَوْعِظَةِ الْحَسَنَةِ
وَجَادِلْهُمْ بِالَّتِي هِيَ أَحْسَنُ إِنَّ رَبَّكَ هُوَ أَعْلَمُ بِمَنْ ضَلَّ
عَنْ سَبِيلِهِ وَهُوَ أَعْلَمُ بِالْمُهْتَدِينَ - ١٢٥

The translation:

“Call (humans) to the way of your Lord with wisdom and good teaching. Verily, your Lord, it is He who knows best who has strayed from His path, and He is best who is guided” (Kementerian Agama RI, 2014).

Learning is a process of individual development when interacting with the environment to obtain information through knowledge, skills, and attitudes. Learning physics is a learning process related to natural sciences, namely studying natural phenomena and understanding the relationship between one symptom. Thus, mastering the basic concepts of physics through understanding is very necessary for learning physics.

Understanding a concept, not just understanding the notions of physics. However, success in understanding a concept can be measured from several aspects of ability, namely the ability to change a symbol into another form, interpret physics concepts, and reason with information obtained through the physics learning process.

The results of an interview with one of the physics subject educators for class XI MIA SMAN 2 Bantaeng on Sunday, June 14, 2020, at 07:31 WITA, showed that students' learning outcomes were still quite satisfactory. This can be seen from the evaluation results of learning materials (daily tests) with a minimum standard value of 75 and the valuation

results of 73.65 with a percentage of the number of students who completed 51.7%. Based on this information, the authors argue that students' understanding of physics subject matter still needs improvement. Referring to the learning model applied by educators during the learning process, they tend to apply conventional learning models. The conventional model in question is a learning model that prioritizes teacher-centred rather than student centred. This can be one of the causes of low student understanding due to a monotonous learning system.

Based on the explanation of the problems above, an educator should make learning innovations that can increase students' understanding of concepts. The innovation that can be done is innovation in the learning model, one of which is by applying the cooperative script model.

The cooperative script model is a learning model that involves the cooperation of partners who act as readers and listeners to explain the parts of the material being studied (Damayanti & Tarmed, 2018).

To support the implementation of the cooperative script model, learning methods and media are used, namely the Gasing method and the couple card media. The Gasing method is a learning method that aims to make it easier to understand the material and solve analytical problems through the logic of words; after that, the formula adjusts (Lestari et al., 2016).

The Gasing method is a physics learning method developed to make it easy for educators to teach physics. In addition, students can feel learning that is easy, fun and fun. The Gasing method leads to a thinking process like a physicist in solving physics problems with a logical approach based on the basic concepts of physics with five stages, namely: 1) Imagining / fantasizing, 2) Simple dialogue, 3)

Presenting relevant examples of questions, 4) Presenting material in-depth, and 5) Provide a variety of questions (Purwari, 2020).

Meanwhile, the couple card learning media is a learning media in the form of paired cards, consisting of question cards and answer cards that complement each other; the goal is that students can find the available answer cards. This media is very suitable for students whose class conditions are hyperactive—most hyperactive children like learning accompanied by games so that students are more motivated. The couple card media prioritizes the cultivation of social skills, especially the ability to work together, interact, and think quickly through the game to find a partner using cards. The selection of the couple card media is made so that students achieve the expected learning objectives (Sulistyaningsih *et al.*, 2019).

Based on the results of research conducted by Suswanti (2018), the understanding of students' concepts on rotational and rigid body materials increases after applying the cooperative script learning model. The research results by Ambotaang & Rafiqah (2015) show that the gasing method applied to improve students' conceptual understanding of energy and its changes is effective to be applied with a complete understanding of the concept of 81%. Rahmi *et al.* show that the cooperative model assisted by the couple card media can improve student learning outcomes (Rahmi *et al.*, 2018).

The purpose of this study was to analyze the understanding of the concepts of students who were taught by the cooperative script learning model using the gasing method assisted by the couple card media for students of class XI MIA SMAN 2 Bantaeng, to analyze the understanding of concepts of students who were taught using conventional learning models of class XI MIA SMAN 2 Bantaeng, and

analyzed the differences in conceptual understanding between students who were taught using the cooperative script learning model using the gasing method assisted by the couple card media and students who were taught using the conventional learning model for class XI MIA SMAN 2 Bantaeng. The novelty of this research provides information and becomes an option for educators and students to carry out a more active and innovative learning process.

METHOD

This research is a quasi-experimental study, consisting of an experimental class (treatment) and a control class. The experimental class was given treatment in the form of a cooperative script model using the Gasing method with the help of a couple of card media, while the control class was taught using a direct learning model. With a research design that is The Matching Only Post-Test Control Group Design, it is a form of group equality with one or more variables.

This research was conducted at SMAN 2 Bantaeng, Jl. Hasanuddin No. 8 Bantaeng, Bonto Atu Village, Bissappu District, Bantaeng Regency, South Sulawesi Province, in the even semester of the 2020/2021 Academic Year, March 22 to April 22, 2021, to be exact.

The population in this study was all class XI MIA SMAN 2 Bantaeng consisting of 4 classes, namely XI MIA 1 to XI MIA 4 with 116 students. The sample was determined using a two-step matching sampling technique. Based on the sampling technique used, the samples were 21 people for the experimental class (class XI MIA 1) and 21 people for the control class (class XI MIA 3).

The research instrument used is a test of understanding the concept of physics which two experts have validated. The average validity index given by the expert to the instrument is 3.8, indicating a high level of validity.

Descriptive data analysis techniques consist of minimum, maximum, mean, standard deviation, variance, and sum—descriptive data processed with IBM SPSS version 21 programs.

The categorization of students' conceptual understanding from the two classes being compared is determined using the proportion formula (Siregar, 2015).

The range of concept understanding value categories refers to the assessment guide by educators and education units for junior high schools (Kemendikbud, 2017), as shown in Table 1.

Table 1 Value Range for Concept Understanding Category

Range	Category
>75	Low
75-83	Moderate
84-92	Good
93-100	Very good

Before testing the hypothesis, the analysis prerequisite test was carried out using the Kolmogorov-Smirnov test at the level of $\alpha = 0.05$. This is done to determine whether the data to be tested is normal or not. If the data is normal, then the hypothesis testing uses a 2-sample t-test. If the data is not normal, then the Mann-Whitney test is used. They were testing research data

processed with the IBM SPSS version 21 application.

RESULTS AND DISCUSSION

The results of the descriptive analysis of the understanding of the physics concept of the experimental class and control class students can be seen in Table 2.

Table 2 Results of Descriptive Analysis of Students' Understanding of Physics Concepts

Statistical parameters	Value	
	XI MIA 1	XI MIA 3
Minimum	83,00	53,00
Maximum	93,00	90,00
Mean	89,38	79,61
Standard deviation	2,72	11,14
Variance	7,44	124,14
Sum	1877,00	1672,00

Based on Table 2, it can be shown that the average (mean) value of students' conceptual understanding in class XI MIA 1 (experimental class) is 89.38 and class XI MIA 3 (control class) is 79.61. The two average values indicate that students' understanding of concepts in the experimental class is higher than students in the control class.

Categorization of students' concept understanding test results can be seen in Table 3.

Table 3 Categorization of Students' Understanding of Physics Concepts

R	XI MIA 1		XI MIA 3		K
	f	%	f	%	
>75	0	0	7	33	Low
75-83	1	5	3	14	Moderate
84-92	15	71	11	52	Good
93-100	5	24	0	0	Very good
Sum	21	100	21	100	

Description: R is the range of category values, f is the frequency, and K is the category of concept understanding

Table 3 shows that 71% of the students in class XI MIA 1 (experimental class) understand

concepts in the good category, while in class XI MIA 3 (control class), there are only 52% of the total number students. This shows that the number of students

with a good conceptual understanding level in the experimental class (XI MIA 1) is more than the control class (XI MIA 3).

The results of the prerequisite test for data analysis using the Kolmogorov-Smirnov test, the experimental class and the control class are presented in Table 4.

Table 4 Prerequisite Test Results for Concept Understanding Data

<i>Tests Of Normality</i>			
	Kolmogorov-Smirnov		
	Statistic	Df	Sig.
experimental class	0,209	21	0,0017
control class	0,240	21	0,003

Based on Table 4, it can be shown that the value of sig. for concept understanding data, both from the experimental class and the control class, both have a smaller value of 0.05 (sig. < 0.05). Therefore, it can be concluded that the two data are not normally distributed, so hypothesis testing must use the Mann-Whitney test (non-parametric statistics).

The results of hypothesis testing using the Mann-Whitney test can be shown in Table 5.

Table 5 Hypothesis Testing Results

Test Statistics	
Statistical parameters	value
Mann-Whitney U	140,500
Wilcoxon W	371,500
Z	2,886
Asymp. Sig. (2-tailed)	0,004

Based on Table 5, the Z_{count} value is 2.886, and the Asymp value is obtained. Sig. (2-tailed) of 0.004. The Z table value for the = 0.05 level is 1.96. If the value of Z_{count} is compared with the value of Z table, it can be shown that $Z_{count} > Z_{table}$ ($2.886 > 1.96$), so H_0 is rejected and H_a is accepted. This shows that there are differences in students' understanding of physics concepts in the experimental class and the control class.

The experimental class, namely class XI MIA 1, is given treatment using a cooperative script model using the top method with the help of a couple of card media. The control class is a class that is treated using a conventional learning model, this study is a direct learning model with lecture and discussion methods.

Following the results of hypothesis testing and research results, it can be shown that the cooperative script learning model using the gasing method with the help of the couple card media is more suitable for improving students' conceptual understanding than conventional models.

The cooperative script model is a learning model that leads students to take a role in the learning process as readers or listeners. The learning process is carried out in pairs and alternately to summarise the learning material discussed. Cooperative learning is a learning model that emphasizes cooperation between students in their groups to achieve learning objectives. So, the cooperative script learning model is carried out by first delivering teaching materials by providing discourse or summaries to students so that they can be read. After that, students are led to provide new ideas or ideas into the reading material in pairs and alternately so that the deficiencies found in the reading material can be completed. Therefore, in this learning, students are more active in their learning than direct learning, which focuses more on educators or teachers. (Harefa *et al.*, 2020)

According to Suprijono (2010:143), the cooperative script model is a learning model in which students work in pairs to find ideas or ideas related to learning materials. When applying the cooperative script learning model, each pair has a role as a reader and a listener and exchanges roles. Readers are students who have a role in explaining

the material summarized to their partners or listeners. Listeners are students who have a role in correcting and completing incomplete ideas.

The advantage of this model is that all students have a responsibility to understand the learning material. The weakness of this model is that it can only be applied to specific subjects and takes a long time (Pertiwi, 2017).

This is also supported by the theory put forward by Trianto (2011) that cooperative script learning is based on constructivism. Problem-solving is done together and concluded together, and the educator acts as a student facility that directs students to achieve learning goals. The interactions in the cooperative script learning process are dominated by students with other students, who become their partners. Both pairs of students will exchange ideas and discuss to complete the concepts that are felt to be lacking in the learning material so that a common conclusion is obtained.

Through learning with the cooperative script model, critical thinking power can be improved, and curiosity can be developed so that students can express new things. This is an advantage of the cooperative script learning model. Meanwhile, in the process, the cooperative script learning model has a weakness in terms of the amount of time it takes to explain the model (Hidayatulloh, 2016).

The conventional learning model is a learning model that is centred on the educator or teacher centre. Educators have an essential role during the learning process, from presenting the material to providing solutions to the problems raised in the learning materials. In general, the application of the conventional model is always marked by lectures accompanied by explanations by educators, assignments of tasks and exercises. During the learning process, students can provide

statements of understanding and questions about the learning material or ask for an explanation if they do not understand the learning material presented by the teacher. Furthermore, all learning processes return to educators, and students are more dominant as passive actors.

During the learning process in this study, educators create new groups to play pair cards to see how far the students' understanding of the material is. Each group member works together to match the cards and compete with other groups to get the highest score. They were strengthening the learning materials of educators using the top method as an easy, fun and enjoyable method. Educators explain the material and provide illustrations of problem-solving using logic, after which the formula adjusts.

The use of learning methods and media in this study is also very supportive for increasing the understanding of students' concepts because these two things contribute. The top method, which is used in this study, is a method that prioritizes understanding in solving a form of a problem and the use of simple equations.

Gasing is an acronym for easy, fun and enjoyable. According to the Surya Institute, the top learning method is a simple learning method that combines a logical approach with an investigative approach to minimize the use of formulas and focus on strengthening concepts. (Hiden et al., 2020).

In line with this explanation, Harefa (2018) explained that one of the methods currently being developed is the Gasing physics method (easy, cool, and fun) developed by Prof. Yohanes Surya hopes that students will focus more on the material and will think that science lessons are easy and fun. The Gasing physics method applies more to delivering fun and exciting material with

problem-solving (questions) that are presented in an easy and non-confusing way. An exciting and fun way of learning will involve the participation of students, unlike the way of learning, which is usually centred on the delivery of the teacher. With the active participation of students in learning, students will directly pay more attention to the subject matter, and their enthusiasm and attention to science lessons will increase.

Meanwhile, the couple card media used in this study also contributed significantly to students' understanding of physics concepts. Train students to be active and think fast. This is following the statement of Sulistianingsih *et al.*, who explained that the couple card media prioritizes the development of social skills, especially the ability to work together, interact, and think quickly through game to find a partner using cards. (Sulistyaningsih *et al.*, 2019).

Nomleni & Nubatonis (2021) added that a couple of cards or cards in pairs is a learning media in the form of a card containing questions and another card containing complementary answers, making it easier to conduct discussions to activate students' minds in competing in solving problems.

The results of this study are in line with research conducted by Anita (2014), which shows that the cooperative script learning model can improve student learning outcomes on certain materials.

The results of this study are also in line with the research of Astawan & Mustika (2013), which showed that students expressed pleasure in learning physics with the quantum learning model of the top physics technique. The use of quantum learning models of top physics techniques can guide and develop students' logic. In addition, the use of top physics techniques is

beneficial for students to solve physics problems.

CONCLUSION

Referring to the research results obtained, it can be concluded that; 1) the understanding of the concepts of students who are taught by the cooperative script learning model using the gasing method assisted by the couple card media in the experimental class is categorized as very good with an average value of 89.38; 2) understanding of the concepts of students who are taught using conventional learning models in the control class is categorized as good with an average value of 79.61; 3) there is a significant difference in conceptual understanding between students who are taught with the cooperative script learning model using the gasing method assisted by the couple card media and the conventional learning model. The research implies that the cooperative script model using the gasing method with the help of the couple card media influences the understanding of students' concepts better than conventional learning models.

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