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The Influence of Outdoor-Inquiry Learning Models on the Cooperative Skill of Students

Trisya Afidah Sukma, Djumadi & Insih Wilujeng

Abstract

Cooperative skill is very important in society interaction. Students must have cooperative skills in all situations either at school, home, society, even at work environment. At school, students' cooperative skills can be trained by choosing the right learning model. In this study, the implementation of the outdoor inquiry learning model was conducted to see its effect on students' cooperative skills in physics learning. Outdoor-Inquiry Learning model utilizes the surrounding environment to conduct learning activities that guided by the teacher. Inquiry activities that carried out as groups are able to develop student's cooperative skills. Research data was obtained by observation sheets to measure students' cooperative skills during the learning process. Based on the analysis of the application of outdoor inquiry learning model effect, there was a positive effect of outdoor inquiry learning models on cooperative skills of students. The conclusion of this study was outdoor inquiry learning model able to influences student's cooperative skills.

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About Author

Trisya Afidah Sukma, (Corresponding Author) Graduate School Program, Yogyakarta State University, Yogyakarta, Indonesia.
Djumadi, Graduate School Program, Yogyakarta State University, Yogyakarta, Indonesia.
Insih Wilujeng, Graduate School Program, Yogyakarta State University, Yogyakarta, Indonesia.

Introduction

Based on Minister of Education and Culture Regulations (Permendikbud) Number 22 Year 2016 concerning Process Standards, the preferred learning models in the implementation of the 2013 curriculum are inquiry based learning, discovery based learning, project based learning, and problem based learning. The use of learning models and methods can be influence the learning process and the development of skills possessed by students (Rosana, 2014; Putri, 2017). There is no learning model that suitable for all concepts, therefore the learning model must be adjusted to the concept being taught (Ministry of National Educational/Depdiknas). The Inquiry learning model involves students actively cooperating in investigating to solve real problems with guidance from the teacher (Yuniastuti, 2016). The implementations of cooperation skill is very important in society interaction, either at school, home, society, even at work environment. That's why every student should have cooperative skill that will support their works in the future. Based on the research of Rosita & Leonard (2015), the collaboration of students in schools is still not optimal. The research conducted by Suhardi (2013) states that students do not participate in group work and are passive in learning. Gillies & Boyle (2010) asserts that learners are often in a classroom situation where they have little opportunity to interact with others. Therefore, only some students are actively involved and participate in completing group assignments and interacting with others for the purpose of sharing information. Fayombo (2014) also emphasizes that the less participation of students in learning, the less information maintained in their memory.

Learning methods that can improve cooperative skills have several activities that must be carried out by the teacher, including the teacher must stimulate students through discussion (Paolini, 2015), make real experiences (Sani, 2016), and work in groups (Arzak & Muchtar, 2015). The success of cooperative skills is the creation of effective learning through interaction between students or with their environment (Tsay & Brady, 2010). Learning by applying cooperative aspects provides opportunities for students to interact with classmates (Ahmad & Mahmood, 2010). Such interactions develop so that students will feel concern for others and cooperation. Cooperation can be established if individuals realize that they have the same goals / interests and need each other or dependency in order to achieve these goals (Hapsari & Yonata, 2014). Learning in general will be more effective if organized with information processing learning (Purwanto, 2012). Information processing learning model trains how someone thinks and how to process information. One of the information processing models is a guided inquiry model (Trianto, 2010). The guided inquiry model is a type of inquiry where students are given the opportunity to formulating procedures, analyzing results, and drawing conclusions independently, while in determining the topic of questions and supporting materials the teacher only acts as a facilitator (Amri & Ahmadi, 2010). Learning will have a more effective impact if implemented through a variety of learning activities such as outside the classroom or better known as outdoor learning (Dhanapal, 2013). The application of outdoor learning that implements and direct monitoring can hone the creativity of students in solving problems (Maulidiyahwarti, 2016), encourage self-reliance (Prasetyo, 2012), participants between students and participants to be able to support dialogue (Tan, 2018), encourage scientific attitude (Susetyo, 2008) and of course have an impact on more optimal learning outcomes because the learning process is presented with learning strategies while trying or practicing various kind of assignment. (Dhanapal, 2013; Cooley, 2015; Vera, 2012; Widiasworo, 2017). The syntax of the guided inquiry learning model consists of five phases (Trianto, 2007).

1. Problem orientation. The teacher presents problems that can raise student curiosity. The teacher divides students into 5 groups and takes students out of class (outdoor-learning).
2. Formulates a hypothesis. Students are given the opportunity to gather as much information as possible about the problem given, it is hoped that there will be group discussion activities to form a hypothesis as a temporary answer to the problem.
3. Conducts experiments. Students carry out experimental activities with their groups whose procedures have been provided by the teacher through the student worksheet. This activity aims to test the hypothesis that was stated earlier. The role of the teacher in this phase is the role of the teacher at this stage is to guide, direct, and constrain experimental activities.
4. Collects and analyzes data. The teacher provides opportunities for students to collect and analyze data in groups to formulate explanations that answer the problems presented, by directing students to present the data and information they get through experiments.
5. Concludes. The teacher guides students in making conclusions based on the data obtained. Students can conclude whether the initial hypothesis is in accordance with the results of the data obtained.

The outdoor-inquiry model is a model of learning carried out outside the classroom that asks participants to search for and find out for themselves the answers to the question. So that it is expected that the outdoor inquiry learning model can be one solution to train the cooperative skills of students in SMAN 1 Sleman. The purpose of this study was to determine the effect of outdoor inquiry learning models on the cooperative skills of students in class XI Science SMAN 1 Sleman.

Method

The research method used is Quasi-Experiment. The research sample was determined using purposive sampling method. The research design used is posttest-only control design. The population of this study were all students of class XI Science SMAN 1 Sleman. The samples of this study were students of class XI Science A and class XI Science B. Students of class XI Science A as an experimental class and class XI Science B students as a control class. The experimental class uses an outdoor inquiry learning model, while the control class uses conventional methods. The instrument used consisted of the cooperative skill observation sheet of students. The cooperative skills of students are obtained through direct study during the learning process using observation sheets. Aspects of Assessment for cooperative skills namely positive interdependence, individual accountability and personal responsibility, promotional interactions, the use of appropriate social skills, and group processing (Johnson, Johnson & Holubec, 2008). Tran (2013) explains in more detail as follows. Descriptive data analysis results are shown in the form of students' level of cooperative skills based on ability categories as shown in Table 2. While to know whether there is a difference between cooperative skills observation results between control and experimental classes can use independent sample t-test.

Table 1. Cooperative Skills Indicators

Aspects of Cooperative Skills	Indicators
Positive Interdepence	a. Relations between group members
	b. Role of members in groups
Individual accountability and Personal Responsibility	a. responsibility
	b. freedom of speech
Promotive Interaction,	a. communication

	b. Peer relation
Appropriate use of social skills	a. Selfless
	b. Listening skills
	c. accepted the decision on mutual agreement
Group processing	a. time management
	b. division of tasks
	c. participation

Table 3. Cooperative Skills Categories

Range of Average Scores	Category
$4.00 \leq X > 3.25$	High
$2.50 < X \leq 3.25$	Medium
$1.75 < X \leq 2.50$	Low
$1.00 < X \leq 1.75$	Very Low

The influence of the outdoor-inquiry learning model on the cooperative skills of students has been done by comparing the results of the post-test between the experimental class and the control class. If the acquisition of the average score of the experimental class is higher than the control class, the treatment has a positive effect. If the opposite applies, the treatment has a negative effect (Sugiyono, 2015).

Result and Discussion

The cooperative skills of students are obtained from the results of observations of students during the learning process with the outdoor inquiry model in the experimental class and the conventional method in the control class. Cooperative skills in learning are carried out through direct observation during the learning process by using the outdoor inquiry model. Observation of cooperative skills is carried out by 5 observers with 1 observer observing a group consisting of 5-6 students. The description of the results of the observation of students' cooperative skills by applying the outdoor inquiry model is presented in Table 3.

Table 3. Results of Observation of Students' Cooperative Skills

No.	Aspects of Cooperative Skills	Experiment Class		Control Class	
		Score	Category	Score	Category
1.	Positive interdependence	3.34	High	3.22	Medium
2.	Individual accountability and Personal Responsibility	3.46	High	3.12	Medium
3.	Promotive Interaction	3.64	High	2.89	Medium
4.	Appropriate use of social skills	3.83	High	3.11	Medium
5.	Group processing	3.32	High	2.76	Medium
	Average score	3.52	High	3.02	Medium

The data in Table 3 explains that the cooperative skills of students in various aspects for the experimental class are categorized as high. In the control class, all aspects of cooperative skills of students are classified as medium. It can be seen that the average cooperative skill score in the experimental class is greater than the average cooperative skill score in the

control class, meaning that the application of practicum outdoor inquiry models has a positive effect.

Analysis of Cooperative Skills Based on Groups

In the experimental class consisted of 5 groups. Each group consists of 5 students. There are differences in the level of cooperative skills of students for each aspect based on group division. In aspect number 1 there are 2 groups that have a high category, aspects number 2, 3 and 5 categories are being obtained in group 5, and aspect number 4 all groups get a high category. Table 4a shows the analysis of cooperative skills of experimental class students.

Table 4a. Analysis of cooperative skills of experimental class students

No.	Aspects	Experiment Class				
		Group1	Group2	Group3	Group4	Group5
1.	Positive interdependence	4.00	3.60	3.00	3.00	3.10
		High	High	Medium	Medium	Medium
2.	Individual accountability and Personal Responsibility	3.70	3.40	3.50	3.50	3.20
		High	High	High	High	Medium
3.	Promotive Interaction	3.00	3.40	4.00	4.00	3.80
		Medium	High	High	High	High
4.	Approriate use of social skills	3.87	3.53	4.00	4.00	3.67
		High	High	High	High	High
5.	Group processing	3.27	3.20	3.33	3.33	3.33
		High	Medium	High	High	High
Average		3.57	3.43	3.57	3.57	3.42
Category		High	High	High	High	High

The control class consisted of 5 groups. There are differences in the level of cooperative skills of students for each aspect based on group division. In aspects number 1 and 4 there is 1 group get high category, aspect number 2 there are 2 groups get high category, aspect number 3 is moderate category for all groups, and aspect number 5 there is 1 group get low category. Table 4b shows an analysis of the cooperative skills of control class students.

Table 4b. Analysis of cooperative skills of control class students

No	Aspects	Experiment Class				
		Group1	Group2	Group3	Group4	Group5
1.	Positive interdependence	3.08	3.50	3.08	3.25	3.17
		Medium	High	Medium	Medium	Medium
2.	Individual accountability and Personal Responsibility	3.33	3.33	3.08	2.92	2.92
		High	High	Medium	Medium	Medium
3.	Promotive Interaction	2.83	3.17	2.83	2.83	2.75
		Medium	Medium	Medium	Medium	Medium
4.	Approriate use of social skills	3.33	3.22	3.22	2.89	2.89
		High	Medium	Medium	Medium	Medium
5.	Group processing	2.89	2.89	2.78	2.50	2.72
		Medium	Medium	Medium	Low	Medium
Average		3.09	3.22	3.00	2.88	2.89
Category		Medium	Medium	Medium	Medium	Medium

The following are inferential analysis results using independent sample T-test in Table 5.

Table 5. Independent Sample T-Test Analysis

Indicator of T-Test	Class	
	Experiment	Control
Average score of students' cooperative skills	3.52	3.02
Sig. (2-tailed)	0.000	
α (significant level)	0.05	

Based on Table 5. Shows sig value. (2-tailed) of 0.000 <0.05, it can be concluded that there is a significant difference in the cooperative skills of students in class XI Science SMAN 1 Sleman with the application of an outdoor inquiry model based on practicum on the material of optical equipment - loop. Thus, based on descriptive and inferential analysis, it can be concluded that the cooperative skills of students with the application of outdoor inquiry learning models are better than those using conventional learning.

This study aims to determine the level of cooperative skills of students through the application of the outdoor learning model-inquiry. Learning is done outside the class in groups. Data is collected in a direct way, namely students are observed when learning takes place. The observer assesses whether or not the student has aspects of cooperative skills. Discussion for each aspect in detail as follows:

Positive interdependence is the most important element in group learning. In the cooperative learning process found that there is good cooperation in each group member in solving problems, there is a positive dependence on each group member to achieve a group success (Yusuf, 2016). Interdependence means that in a group learning situation, students are required to work together to achieve shared learning goals. . In the process, students must be responsible for the success of themselves and their group of friends, students must ensure that their group members complete the task and achieve good results. In the experimental class, the score of Positive Interdependence 3.34. In general, the achievement of this aspect is in the high category. Cooperative skill scores in this aspect for groups of one to five that are observed are 4.00, 3.60, 3.00, 3.00, 3.10. Scores for this aspect are included in the high category because in learning, the teacher directs and motivates students to actively work to help each group member to get good grades. The role of this teacher is in accordance with the research conducted by Suhardi (2013) that to increase student participation and collaboration in his group is to give direction to all students involved in group work, motivating students to be active, and holding group discussions.

Individual accountability and Personal Responsibility, is an attitude of individual responsibility which means that students help each other in groups, work on tasks that are given well, issue opinions and ideas, take seriously the assignments given and help the group to complete the assignments (Johnson, 2009). If students have positive interdependence, it will create accountability and a sense of responsibility for each group member. Based on observations on outdoor-inquiry learning, the aspects of Positive interdepence and Individual accountability and Personal Responsibility have a score of 3.46. in general, the achievement of this aspect is in the high category. Cooperative skill scores in this aspect for groups one to five are observed respectively 3.70, 3.40, 3.50, 3.50, 3.20. Each group member must have the same

responsibility for the results that will be achieved for the task given. During the learning process, the teacher as the facilitator, mediator, motivator and evaluator, goes around and observes how each group works. Based on research from Rosita & Leonard (2015), so that students are aware of their responsibilities, the teacher needs to intervene in the following situations: 1) bring the group back to the destination if they seem to shift and doubt what they have done, 2) provide feedback immediately to the group about how far the progress in the task has been done, 3) explain something that is unclear or provide information to the whole class after observing the general difficulties in mastering the material, 4) helping the development of social skills through appreciation, praise and group reflection, and 5) encouraging and motivating groups about how they have made progress in their duties. Based on the score of the observation results of the Positive Interdepence and Individual Accountability and Personal Responsibility aspects, it is seen that each student already has responsibility for himself and his group members for the common good.

Promotive Interaction. In group learning, students are asked to interact verbally with each other in learning tasks, for example in the phase of formulating hypotheses, taking data, analyzing data and concluding, communication between group members is needed. Communication between group members can be in the form of helping each other, discussing each other, arguing for reasons according to concepts, exchanging opinions, and helping explain to group members who do not understand, so that each group can ensure that each member has mastered the concepts being studied (Hamdi & Hasan, 2016). Based on the data obtained, the Promotive Interaction score is 3.64 which is high. Cooperative skill scores in this aspect for groups one to five are observed respectively 3.00, 3.40, 4.00, 4.00, 3.80. This shows that the interaction between group members is good. This finding is similar to that of Hapsari & Yonata (2014) that group learning involves the cognitive abilities of students to discuss exchanging information and material, giving responses, appreciating student opinions and trying to complete assignments given.

Appropriate use of social skills. Social skills that are not trained will result in students not being able to work effectively in groups because they are not skilled in managing group work. Inquiry learning requires students to be involved in the task of learning and working together. Therefore, social skills such as listening to other people's opinions, asking questions, negotiating with respect, not cutting other people's conversations and accepting collective agreements need to be taught so that students can work together effectively in groups (Killen, 2007). Each group member needs to know how to manage groups, make decisions, and solve problems that appear in the group. Huda (2013) emphasized that group success in completing tasks depends greatly on the extent to which they interact with each other to solve them. In addition to learning in class, students are expected to be able to apply physics in everyday life so that good social skills are needed in society. Many activities in the community are carried out in groups that help each other so it is important to have good social skills to achieve goals (Hapsari & Yonata, 2014). Based on the results of the observation, the appropriate use of social skills aspect scores 3.83 which means the high category. Cooperative skill scores in this aspect for groups of one to five that are observed are 3.87, 3.53, 4.00, 4.00, 3.67. All groups get a high category, this shows that learning is carried out positively influences the social skills of students. In this aspect, socializing skills that arise in the interaction between students during learning take place in accordance with what Gillies (2016) found in his research, namely: 1) Actively listening to each other; 2) Sharing ideas and resources; 3) Commenting on other people's ideas constructively; 4) Accept

responsibility for one's behavior; 5) Make decisions democratically; 6) Respect other people's opinions.

Group processing. Each group member needs participation to complete the task given by the teacher. So that the task can be completed on time. Group work management can use the division of tasks. The teacher encourages students to be active in their groups to achieve desired learning outcomes. The score on this aspect is 2.32 in the high category. . Cooperative skill scores in this aspect for groups one to five are observed respectively 3.27, 3.20, 3.33, 3.33, 3.33. This shows that each group can manage the group by dividing tasks into group members and participating in the task so that it can be completed on time. Rosita and Leonard (2015) revealed that a collaboration in learning might not run optimally and achieving group goals without the supported by good cooperative skills. Good cooperative skills will create a cooperative climate which ultimately encourages all group members to work together to achieve optimal goals.

Conclusion

Based on the results that obtained, it can be concluded that the application of the outdoor inquiry learning model in physics learning has a positive influence on the cooperative skills of students. Through the application of this learning model is expected to assist teachers in improving students' cooperative skills and understand physics concepts. This research can continue to be developed by considering time management (such as at what time and how long to do learning outside the classroom) and adequate preparation (media and tools needed) in order to achieve the intended learning goals and obtain optimal results.

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