

Group investigation model to improve interpersonal skills

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ABSTRACT

This study aimed to prove the effectiveness of the application of the group investigation learning model in improving students' interpersonal skills. The sample of this study was 116 students, which was determined by a simple random sampling technique. This experimental research used pre-test post-test Control Group Design. Data were obtained by direct observation of the interpersonal skills of students during the learning process. Final observation score of interpersonal skills is 0.026 and the t value count greater than t table ($2.272 > 1.980$). Thus, there are differences in interpersonal skills between the experimental class and the control class. This means that the use of the group investigation model is effective in improving students' interpersonal skills.

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1. INTRODUCTION

Between 1986-2006 many studies provide evidence that soft skills have a crucial role in the world of work in the future. One of the soft skills mentioned in the study is interpersonal skills, namely skills related to a person's ability to interact, collaborate, adapt to other people [1], the ability to communicate effectively with others [2], and a person's ability to achieve personal goals in social interaction while maintaining positive relationships with others [3]. Interpersonal skills show a significant influence on the success of one's performance, including on leadership professionalism [3], performance [4], and the success of public services [5]. High interpersonal skills are one of the determining factors for the success of one's life, and conversely, low interpersonal skills can be one of the causes of one's life failure [6]. Interpersonal skills for children have a positive influence on their personality development and learning success. Students with good interpersonal skills have a positive drive-in meeting academic challenges, relational relationships, and careers [7].

Low interpersonal skills behavior can cause a person to have individualistic, selfish, indifferent attitudes and lack empathy for others. It will bring up various societal problems, such as rampant violent behavior, coercion of will, destruction, conflicts between groups, and brawls. Symptoms of low interpersonal skills occur in adults and adolescents, and children [8]. Low interpersonal skills in adolescents and children affect his inability to face the problems that befall him. For example, research on several junior high school

students proves that: children who have low interpersonal skills cannot prevent and overcome bullying that befalls them, so that it also affects their academic achievement [9]. Symptoms of low interpersonal skills in students also appear from a lack of ability to speak, for example, difficulty responding to what other people say, difficulty opening communication with others, not being a good listener, lack of concern for what their friends are doing, and low empathy for others [10]. Several studies show that students' interpersonal skills are still in a reasonably low category [11], [12].

The description of the data reinforces the need to develop interpersonal skills for students through the educational process. The function and role of education are to increase human resources, which become the power to overcome various societal problems, one of which is social and economic problems [8]. The development of interpersonal skills is also in line with the nature of national education, which explains that education is a strategic medium to develop students' full potential, namely individuals who have spiritual intelligence, superior personality, noble character, and life skills [13]. School as a strategic place in educating children is expected to encourage the development of good interpersonal skills.

The development of interpersonal skills requires a learning environment that facilitates students to get hands-on learning experiences. Therefore, a learning design is needed by considering two essential components, namely: i) A learning design that facilitates students to gain new knowledge and at the same time apply it; ii) Accommodate and develop the performance of students to become better individuals [14].

The cooperative learning model is an appropriate design for developing interpersonal skills [15]. This model guides students to communicate with each other effectively in achieving group goals and solving problems constructively, encouraging social dynamics, providing opportunities for students to communicate or interact actively with other students intensively in a team [16]. Several studies have proven that the cooperative learning model can significantly improve students' interpersonal skills [11], [17]–[19].

Cooperative learning models are not new in the conventional learning process. Often, the teacher assigns students to complete tasks in groups to exchange opinions with their teammates. Unfortunately, this is not effective because it is not appropriately designed so that what happens depends on completing the task on one friend only [16]. The group investigation model is one of the categories of the cooperative learning model, which is expected to improve interpersonal skills effectively. Cooperative learning serves as the foundation and is an integral part of the group investigation model [20]. This model combines the inquiry learning process in small cooperative groups with the principles of effective group management so that the group is expected to be successful in solving problems and making democratic decisions [21], [22].

According to the Dewey model, group investigation involves students in groups that are organized to be able to solve problems democratically. Students also gain knowledge about academic procedures and scientific methods from the research process [23]. The principle of democratic learning in the group investigation model indicates that learning requires the active role of students. This aligns with the constructivist view, which explains that students are "key players" in the learning process. They must participate in generating meaning or understanding. Students are not appropriate if they only receive information by imitating the words or conclusions of others. Instead, they must involve themselves in internalizing and reshaping or changing information actively; students build understanding from within, not from external sources [24].

The group investigation model makes the classroom a miniature social life that has a social and cultural order. Students will be involved, following the lifestyle in it, following the standards and expectations set by the teacher. In such circumstances, the teacher's task is to supplement the natural energy developed to create social order. The learning style in the classroom is not much different from the negotiation style needed by the community. Through negotiation, students will learn things that are academic and are involved in the process of solving social problems [23]. Therefore, the group investigation model is built based on three main components: teamwork, cooperation, and task segmentation [25].

Structure learning in the group investigation model consists of six steps, namely: i) Identify topics and organize students into heterogeneous groups; ii) Plan tasks to be studied; iii) Carry out investigations; vi) Prepare final reports; v) Present final reports; iv) Evaluation. In group investigation, teachers can start learning by presenting fundamental conflicts as an introduction so that students are encouraged to explore problems, analyze them, position themselves in roles, actions, and evaluate the results obtained. Teachers should also encourage students to use various learning resources as references [26].

The advantage of the group investigation model is to encourage students to clarify problems, explore various perspectives of the problem, study together to master knowledge, and simultaneously develop students' social competence. Teachers can guide students in finding and managing information simultaneously and ensuring dynamic learning activities [23]. This model can effectively encourage group collaboration in the inquiry process, encourage a better understanding of the topics they are studying. It also provides the amplest opportunity for students to determine what and how they will learn [27], become independent learners [28], and develop critical thinking skills [29], [30].

The peculiarity of the group investigation model is to provide learning experiences to students through the inquiry process towards solving a problem. This has become the basis for researchers to develop a group investigation model based on solving social problems as a novelty of this research. The resolution of these social problems is reflected in each learning topic that will be studied. The implementation of this is that each learning begins by linking the learning topic with daily events or conflicts in story descriptions. Students' task is to investigate in groups how the steps taken to resolve the conflict, what solutions are offered, and reflect on the results of group discussions related to the topic of the material being studied. The group investigation model is based on solving social problems. Besides being able to improve interpersonal skills, it is also expected to make learning more meaningful. More specifically, the purpose of this study is to prove if the group investigation model can affect the improvement of students' interpersonal skills.

2. RESEARCH METHOD

2.1. Population, sample, and sampling techniques

The sample in this study was 116 of 7th-grade (junior high school) students at SMPN 1 Salaman in Magelang district, Indonesia determined by simple random sampling. The sampling of population members is done randomly without regard to the existing strata in the population [31]. Respondents were selected based on the consideration that students were in the range ages 12-13 years. In this age range, according to the theory of cognitive development adopted from Piaget, children are at the stage of formal operations with the main characteristics of children being able to think with hypothetical, abstract, and logical concepts [32]. This ability allows teachers to apply the group investigation model in learning.

2.2. Measuring instruments

Data on students' interpersonal skills in this study were obtained through direct observation during the learning process in the classroom. Researchers act as the full observer (complete observer). The researcher is near the scene, sees, observes, takes notes, but is not involved in the observed event [33]. The instrument for observing interpersonal skills was developed based on the indicators of interpersonal skills proposed by Bochner and Kelly [34], which includes: empathic communication (empathy communication), description (descriptiveness), having a balance of feelings and thoughts (owning feelings and thoughts), self-disclosure, behavioral flexibility (behavioral flexibility). A Likert scale with a scale of 4 is used for the answer category in the interpersonal skills observation sheet, with alternative answers consisting of very good (4), good (3), sufficient (2), and less (1) categories.

2.3. Validity and reliability of measuring instruments

The interpersonal skill observation sheet in this study consisted of 10 statement items. The validity of this observation sheet was carried out through expert judgment by three experts. Then calculate the average answer and match it with the value scale classification made to decide the feasibility of using the instrument. The product can be used if it meets the assessment classification in the good and very good categories. Table 1 shows the classification of the assessment results refers to Widoyoko [33]. Based on the indicators of interpersonal skills in Table 1, then developed into behavioral indicators that may appear in the learning process by applying the group investigation model. These indicators are presented in Table 2.

Table 1. Expert validation data assessment classification

Score range	Criteria	Information
>3.25-4.00	Very good	Proper to use
>2.50-3.25	Good	Proper to use
>1.75-2.50	Enough	Not worth using
1.00-1.75	Less	Not worth using

Table 2. The aspect of interpersonal skills observations

No	Aspect	Sub aspect
1.	Empathy communication	Intensive listening skills of the interlocutor. Ability to maintain good relations with others.
2.	Description (Descriptiveness)	Ability to answer questions in discussion. Clarity of content in conveying ideas or opinions.
3.	Have a balance of feelings and thoughts (Owning feelings and thoughts)	Ability to communicate with others. The ability to respect the opinions of others.
4.	Self-disclosure (Self-disclosure)	Ability to convey ideas or opinions in discussions. The ability to convey things he doesn't know.
5.	Behavioral flexibility	Ability to adapt within the group. Concern for the completion of group assignments.

The interpersonal skill observation sheet was then assessed by three experts, resulting in an accumulated average score of 3.6 and a range of scores >3.25-4.00. Based on the data from the assessment, it can be concluded that the observation sheet is in the very good category, so it is feasible to use. The data are presented in the Table 3.

Table 3. Validation results interpersonal skills observation sheet

No	Assessment aspect	Validator		
		1	2	3
1	Conformity with the purpose of the assessment	3	3	4
2	Presenting expected behavioral indicators	4	3	4
3	Completeness of questionnaire identity	3	4	4
4	There are instructions on how to do	4	4	4
5	attractiveness of view	3	4	4
6	Using good and correct Indonesian rules	3	3	4
7	The formulation of the statement is clear	4	4	3
	Average	3.4	3.5	3.8
	Overall aspect average	3.6		

2.4. Data analysis

The researchers were doing a statistical test to prove the effectiveness of the group investigation model on improving students' interpersonal skills with the help of SPSS 20. After that, a comparative test of the post-test results was carried out in the experimental and control classes. Comparative testing was carried out with an independent sample t-test after meeting the normality test and homogeneity test as a prerequisite test. The hypothesis is accepted if the significance value is less than 0.05 ($p > 0.05$) or the t value is greater than the t table.

3. RESULTS AND DISCUSSION

Several test requirements must be met before the independent sample t-test is carried out, namely the normality and homogeneity tests. The two prerequisite tests are described in the following description. The normality test in this study used the Kolmogorov Smirnov test. Table 4 shows that the distribution of the data obtained from the pre-test and post-test of the control class and the experimental class obtained a significance value of 0.055, 0.222, 0.595, and 0.57 ($p > 0.05$). Thus, it can be concluded that if the data distribution is obtained in this study normally distributed.

The homogeneity test in this study aims to see the variance of the data obtained in the control class, and the experimental class is homogeneous, and as a prerequisite that must be met in the independent sample t-test. Data is homogeneous if it meets a significance value of more than 0.05 (> 0.05). The homogeneity test is shown in Table 5. The table shows that the variance of the data obtained from the initial observation of students' interpersonal skills is 0.415 ($p > 0.05$), and the final observational data of students' interpersonal skills is 0.372 ($p > 0.05$), so it can be concluded if the variance the data obtained in this study are homogeneous.

Table 4. One-sample Kolmogorov-Smirnov test

		Pre-interpersonal skill experiment	Post interpersonal skill experiment	Pre interpersonal skills control	Post interpersonal skills control
	N	58	58	29	29
Normal parameters, b	Mean	2.2621	2.3798	2.2276	2.2914
	Std. Deviation	.24838	.16750	.28271	.17832
Most extreme differences	Absolute	.176	.138	.143	.248
	Positive	.105	.138	.088	.248
	Negative	-.176	-.107	-.143	-.142
	Kolmogorov-Smirnov Z	1.342	1.048	.769	1.333
	asympt. Sig. (2-tailed)	.055	.222	.595	.057

a. Test distribution is normal

b. Calculated from data

Table 5. Test of homogeneity of variances

	Levene statistics	df1	df2	Sig.
Pre-interpersonal skills	.670	1	85	.415
Post-interpersonal skills	.804	1	85	.372

An independent sample t-test was conducted to prove the difference in interpersonal skills between the control and experimental classes after treatment. The hypothesis is accepted if the significance value is less than 0.05 ($p > 0.05$) or the t value is greater than the t table. The results of the comparative test can be seen in Table 6. The table shows the acquisition of the sig (2-tailed) score for the final observation of interpersonal skills of 0.026 ($0.026 < 0.05$) or the t-value count greater than the t table ($2.272 > 1.980$). Thus, there are differences in interpersonal skills between the experimental and control classes, with the experimental class results being higher than the control class. These data prove that using the group investigation model effectively improves students' interpersonal skills.

Table 6. Independent sample test

		t-test for equality of means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
									Lower	Upper
Post interpersonal skill	Equal variances assumed	.804	.372	2.272	85	.026	.08845	.03892	.01106	.16584
	Equal variances not assumed			2.225	53.081	.030	.08845	.03975	.00872	.16818

The group investigation model divides students into several small groups. It aims to create social dynamics in the classroom that can encourage the development of interpersonal skills. Group work is one of the main components in the group investigation model that contributes to improving students' interpersonal skills. The process of group work in learning has proven to encourage students to guide and help each other in an atmosphere of warmth and trust, a positive response to negotiated rules and policies, independent learning, and a sense of sensitivity to the rights of others [26]. Hence, it improves interaction and communication between members, critical thinking skills, and problem-solving skills [35], [36].

Group-based learning in the group investigation model aims to encourage students to contribute to teamwork actively and take responsibility for the success of their team [15]. The group investigation model makes the classes a place for creativity cooperatively, while students are active participants in all aspects of life. Schools determine the goals of what they do, and groups serve as social media [37]. The principle of inquiry cooperative learning in this model provides opportunities for students to communicate or interact actively with other students intensively in a team [16], [38]. They are in relationships that have positive interdependence [39]. The active involvement of students in teamwork has an essential contribution in developing interpersonal skills. This is because the higher the activity of students in teamwork, the higher the process of interaction and communication is carried out.

The learning steps in the group investigation model provide opportunities for students to interact and communicate intensively and repeatedly. Task segmentation in problem-solving requires students to conduct group discussions, analyze problems, and find solutions. This naturally encourages students to interact and communicate between one person and another continuously. As one of the main components in the group investigation model, task segmentation is a means to raise problems or complexities in learning to encourage the active participation of students in group work [15], [40]. The higher the cooperative power of a group, the more positive the energy possessed by students in doing assignments and interacting with friends [23].

The group investigation model in this study also encourages the creation of democratic learning with the following objectives: i) Develop a social system based on and generated by democratic processes; ii) Direct scientific research on natural life and social processes; iii) Use research strategies to solve social or interpersonal problems; vi) Provide an experience based on reflection and learning state [23]. Task segmentation in the form of solving social problems in everyday life developed in this study is an effective way to encourage democratic learning. The presentation of the problem is packaged in a story description that describes a conflict in everyday life. The task of students, in this case, is to analyze problems and provide alternative solutions through a group investigation process. This process trains students to think empirically in solving problems, practicing group responsibility, and gaining meaning in learning.

Democratic learning also emphasizes that students are actively developing knowledge for themselves in the learning process. The teacher's job is not to deliver lessons in the traditional way to several students, but the teacher's job is to build situations so that students are actively involved in learning [41]. In this regard, the group investigation model places the function of the teacher as an academic supervisor [26], who plays a role increase positive interdependence among group members, facilitate active interaction of students in learning, encourage individual responsibility, explicitly teach social skills that are following learning objectives, encourage each group to reflect on the learning process both related to task management or the interaction process between members that occurs during learning [42]. Therefore, the effectiveness of teacher participation in this model also contributes to the success of improving students' interpersonal skills.

4. CONCLUSION

The group investigation model is proven to improve students' interpersonal skills. The approach to solving social problems applied in this group investigation model is aimed at creating complexities in learning to increase group activities and is also expected to encourage meaningfulness in learning. Applying learning principles that combine inquiry and cooperative processes in the group investigation model is one of the most effective factors in encouraging social dynamics and improving students' interpersonal skills. Interpersonal skills are long-term goals in education that will affect one's performance, productivity, and career success.

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