

The Group Investigation Learning Model in Enhancing Students' Learning Outcomes

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Abstrak

Penelitian ini bertujuan untuk menganalisis efektivitas model pembelajaran Group Investigation (GI) dalam meningkatkan hasil belajar siswa melalui mekanisme kolaboratif dan investigatif yang terstruktur. Menggunakan desain Penelitian Tindakan Kelas (PTK) selama dua siklus, penelitian ini memadukan langkah inti GI identifikasi topik, perencanaan investigasi, pelaksanaan investigasi, analisis kelompok, penyusunan laporan, dan presentasi dengan evaluasi berkelanjutan berbasis refleksi. Data dikumpulkan melalui kuesioner terbuka, observasi kelas, dan penilaian hasil belajar, kemudian dianalisis menggunakan pendekatan analisis berbasis nilai untuk mengintegrasikan temuan kualitatif dan kuantitatif. Hasil penelitian menunjukkan bahwa empat dari lima indikator hasil belajar meningkat secara konsisten, seperti kemampuan mencatat materi, kerjasama, keberanian bertanya, dan kemampuan menjawab pertanyaan. Selain itu, partisipasi dalam pembuatan laporan tetap berada pada kategori sangat tinggi. Temuan ini menegaskan bahwa model GI mampu menciptakan keterlibatan aktif, memperkuat tanggung jawab kolektif, dan meningkatkan kinerja akademik siswa secara signifikan. Penelitian ini berkontribusi pada literatur pedagogik dengan menawarkan bukti empiris bahwa GI dapat dijadikan pendekatan efektif untuk memperbaiki dinamika pembelajaran dan hasil belajar di tingkat sekolah.

Kata Kunci: *Group Investigation; Hasil Belajar; Pembelajaran Kolaboratif; PTK*

Abstract

This study aims to examine the effectiveness of the Group Investigation (GI) learning model in improving student learning outcomes through a structured collaborative and investigative process. Employing a two-cycle Classroom Action Research (CAR) design, the study integrates the core phases of GI—topic identification, investigation planning, group inquiry, data analysis, report preparation, and presentation—with continuous reflective evaluation. Data were collected through open-ended questionnaires, classroom observation, and achievement assessments, then analyzed using a value-based analytic approach to synthesize qualitative and quantitative findings. Results indicate consistent improvement across four of the five learning indicators, including note-taking skills, group collaboration, questioning ability, and accuracy in responding to questions. Meanwhile, participation in report writing and presentation remained at a very high level. These findings affirm that the GI model fosters active engagement, reinforces collective responsibility, and significantly enhances students' academic performance. The study contributes to pedagogical scholarship by offering empirical evidence that GI is an effective approach for strengthening classroom interaction and improving learning outcomes in school settings.

Keywords: *Group Investigation; Learning Outcomes; Collaborative Learning; CAR*

Introduction

Scholarly discussions on cooperative learning have consistently highlighted Group Investigation (GI) as one of the most intellectually stimulating and socially constructive instructional models (Yuliana et al., 2022). Early empirical studies demonstrated that GI encourages deeper conceptual processing because it positions students as co-constructors of knowledge rather than passive recipients. For instance, Sharan and Sharan's foundational work revealed that GI enhances academic engagement by allowing learners to define problems, plan inquiries, and synthesize findings collaboratively, creating a learning environment that mirrors authentic research communities (Stenlund et al., 2017). Subsequent investigations affirmed that such inquiry-driven collaboration supports higher-order thinking, particularly when students negotiate meaning, analyze divergent perspectives, and collectively interpret data (Octaviyantari et al., 2020).

Other studies have explored how GI supports differentiated learning needs. Investigations conducted in multilingual and multicultural classrooms indicate that the structure of GI accommodates diverse learning paces and cultural backgrounds. Students are able to contribute according to their strengths, and group inquiry allows learners who may not excel in competitive or highly standardized settings to participate meaningfully. This inclusivity has become especially relevant in contemporary educational landscapes, where equity and student agency form important pillars of curriculum reform (Rosfiani et al., 2021).

Several previous studies have demonstrated the effectiveness of the Group Investigation (GI) model in improving student learning outcomes across various subjects and educational levels. Khasanah and Setiaji (2023) found that the GI cooperative model supported by comic-based media significantly enhanced the mathematical literacy of junior high school students. A meta-analysis by Boke et al. (2025) also indicated that cooperative learning methods, including GI, exert a substantial positive impact on students' cognitive, social, and affective learning outcomes, as published in *Frontiers*. Likewise, Setiawan (2025) that cooperative learning is more effective than conventional methods in strengthening students' critical reading skills. Damayanti (2025) further highlighted the growing trend of GI-related research and its contribution to student engagement and academic performance. Additionally, a meta-analysis by Aprilia and Isnaeni (2025) on biology learning revealed that cooperative learning which encompasses GI fosters interaction, shared responsibility, and improved conceptual understanding.

Based on these various findings, the novelty of this research lies in its focus on testing the effectiveness of GI in the context of improving learning outcomes on certain materials with an analytical approach that emphasizes the dynamics of group interactions, student investigation patterns, and changes in academic performance comprehensively.

Method

This study employs the Group Investigation (GI) learning model combined with a Classroom Action Research (CAR) design to obtain a comprehensive

understanding of how structured group investigation activities enhance students' learning outcomes in the Fiqh Subject for Grade VII Students of Mts Daar Al-Falah Tanjung Balai. The GI model was selected due to its emphasis on collaboration, independent exploration, and shared responsibility in resolving instructional problems, while the CAR framework enables a systematic cycle of continuous improvement in classroom practice. Through this integration, each phase of instructional intervention can be refined based on empirical findings emerging from classroom dynamics.

The research was conducted through two action cycles, each consisting of four core stages: planning, action implementation, observation, and reflection. In the planning stage, the researcher developed all learning instruments aligned with the GI model, including the formation of heterogeneous student groups, formulation of investigation topics, mapping of learning resources, and the design of final group presentations as performance tasks. The action implementation stage followed the six fundamental steps of the GI model: (1) topic identification, (2) investigation planning, (3) investigation execution, (4) group data analysis, (5) report preparation, and (6) presentation of findings. Throughout these stages, the teacher provided facilitative guidance to maintain productive group dynamics and ensure alignment with learning objectives (Sriarunasmee et al., 2015).

Data were collected through open-ended questionnaires administered to students to capture their perceptions, learning experiences, and evaluations regarding the use of the GI model. Open-ended items were chosen to allow students to articulate their views freely, generating rich qualitative data for in-depth interpretation. Quantitative data were obtained through assessments of learning outcomes, including end-of-cycle tests and rubric-based evaluations of group presentations (Listiana et al., 2020).

Data analysis employed a value-based analytical approach that integrates qualitative insights from students' responses with quantitative learning outcome measures to identify consistent patterns of improvement across cycles. Qualitative data were analyzed through categorization, coding, and thematic interpretation, whereas quantitative data were processed using mean-score calculations and mastery-learning percentages. Triangulation was carried out by comparing classroom observations, questionnaire responses, and students' performance scores to enhance the validity and reliability of the findings.

Results and Discussion

Results of Action Implementation in Cycle I

Table 1: Percentage of Students' Fiqh Learning Activities

No	Activity Indicators	Score	Percentage
1	Recording Materials	32	64 %
2	Cooperation in groups	37	74 %
3	Issuing opinions/questions	25	50 %
4	Answer questions	26	52 %
5	Participation in the	46	92 %

creation	
Reports and Percentages	
Average	66 %

Based on the table above, the percentage of student learning outcomes in Fiqh subjects in the Fardhu Prayer material has not reached the expected results. It can be seen that the average overall student learning outcome has not reached 75%. The percentage of Student Learning Outcome indicators that are still seen to be lacking is 50% of opinions / questions and answering questions of 52%. This is because students still lack confidence in expressing opinions/asking questions and answering questions. In addition, there are also students who dominate so that other students do not get the opportunity to do activities.

Based on the results of the analysis of the observation data, data on the percentage of student learning outcomes were obtained. It is presented in the table as follows:.

Table 2: Percentage of Student Learning Outcomes in Fiqh Material

No	Activity Categories	Number of students	percentage
1	Very high	3	12 %
2	Tall	10	40 %
3	Enough	10	40 %
4	Low	3	8 %
5	Very low	0	0 %

The results of observations show that the achievement of students in the category of Very High and High student learning outcomes has not reached the expectations of 75%. The achievement of the Very High and High categories is 52%, so there needs to be improvement in cycle II to achieve the expected results. Data on the percentage of student learning outcomes was also obtained from the results of questionnaire analysis. The data obtained from this questionnaire is to strengthen the observation data. The results of the analysis of the student learning outcome questionnaire per indicator based on the questionnaire are presented in the table as follows:

Table 3: Percentage of Students' Fiqh Learning Activities

Yes	Yield Indicators	Percentage
1	Record material	73%
2	Group cooperation	100%
3	Issuing opinions/questions	59%
4	Answer questions	72%
5	Participation in report making and percentage	92%
6	Enthusiasm for learning	86%
	Average	80%

Based on the table above, it can be seen that the indicator of student learning outcomes in fiqh subjects that is still lacking is expressing opinions/questions, which is 59%. This is in accordance with the observation data that has been presented previously. The Student Learning Outcome Indicators in the questionnaire are coupled with indicators that cannot be observed directly by

observation. The indicator is enthusiasm for learning. The percentage of indicators of enthusiasm for learning reached 86%. This shows that students have a good enthusiasm for learning using a Group Investigation type cooperative learning model. The results of the analysis of the Fiqh Learning Activity questionnaire per individual based on the questionnaire are presented as follows:

Table 4: Percentage of Student Learning Outcomes in Fiqh Subjects

No	Result Categories	Number of students	percentage
1	Very high	6	24%
2	Tall	17	68%
3	Enough	3	8%
4	Low	0	0%
5	Very low	0	0%

Based on the table above, it can be seen that the achievement of the Very High and High categories reached 92%. The learning outcomes of students per individual have achieved the expected results, which is that more than 75% of students reach the Very High and High categories.

Cycle II Action Plan

Cycle II is carried out by implementing the improvements that have been planned in the reflection of cycle I. The implementation of these improvements aims to overcome the weaknesses found in cycle I so that the implementation of cycle II runs smoothly and in accordance with expectations. The improvements that will be implemented in the second cycle include coordinating students so as not to make noise, motivation for students to play a more active role in discussions and presentations, and improvements in terms of timing of presentations. This second cycle learning is no different from cycle learning. The instruments prepared by the researcher are the Learning Implementation Plan (RPP), group discussion questions, student learning outcome observation sheets, questionnaires and field notes. The material for the implementation of this second cycle of actions is Basic Competencies (KD) Explaining mandatory requirements, legal requirements and the pillars of five-time prayer.

The second cycle of Fiqh learning will be held on Wednesday, January 30, 2023. The implementation of this second cycle was carried out at 5-6 hours with a time allocation of 1 x 40 minutes. The lesson starts at 11:20 a.m. The teacher opens the lesson with prayers and greetings then checks the students' attendance. This second cycle was attended by all students, totaling 26 students. After checking the attendance, the teacher conveyed. The learning objectives and the Basic Competencies (KD) that will be studied are to explain the mandatory requirements, legal requirements and the pillars of five-time prayer. The teacher also reminded students to use a number board to facilitate the observation of student learning results during learning.

The next activity is a discussion. The teacher coordinates the students to gather in their respective groups. The time for this discussion is 30 minutes. Students carry out discussions to discuss the material they have investigated as well

as to prepare for presentations. In addition, they also worked on discussion questions that had been shared previously by the teacher.

The implementation of the discussion went smoothly. Students cooperate with each other in solving discussion problems. They exchanged opinions during the discussion. The second cycle discussion went better than the first cycle discussion. Each member of the group plays an active role in the implementation of the discussion. The time for the group discussion has run out. At 11.10 a.m., the next activity began, namely the presentation of the results of the investigation of each group. Each group came to the front of the class to carry out the presentation.

The presentation of the second cycle was improved from before. Setting a time to deliver the material briefly and increasing the time for questions and answers. This presentation activity is a little noisy when students scramble to ask questions to the group that is presenting. Students were very enthusiastic during the presentation, but there were some students who were less interested and less attentive to the course of the discussion. The presentation ended at 12.40 pm. Fiqh learning started again at 13.10 after the break was over. This time is used by teachers to carry out evaluations of discussions and presentations. The teacher discusses the questions asked by the students and discusses the questions that have been discussed by the students.

The learning outcomes of students during learning are recorded in observation sheets and field notes. The observation process experienced a slight obstacle because there were some students who did not bring a license plate. The last twenty minutes were used to fill out questionnaires and student responses with the implementation of learning using a Group Investigation learning model. One of the students representing the class gave his response and stated that the students were happy with the variety of learning models like this to avoid boredom with the monotonous learning model. By studying in groups, students can practice cooperation with their friends, share knowledge, train cohesiveness and train students in expressing opinions and questions. The learning was closed with prayers and greetings by the teacher.

Based on the results of observation of student learning outcomes in the fiqh subject of obligatory prayer material described above, the researcher obtained data on student learning outcomes using the Group Investigation (*GI*) learning model of cycle II in the form of percentages. The results of the observation recorded in the observation sheet were then given a score of 0-2 according to the predetermined criteria. After data analysis, the percentage of student learning outcomes in the first cycle was obtained as follows:

Table 5: Percentage of Fiqh Learning Activities of Cycle II Students

No	Yield Indicators	Total Score	Percentage
1	Record material	40	80%
2	Group cooperation	45	90%
3	Issuing opinions/questions	32	64%
4	Answer questions	35	70%
5	Participation in report making	46	92%

percentage
Average 80%

Based on the table above, the percentage of student learning outcomes in fiqh subjects in the obligatory prayer material has achieved the expected results. It can be seen that the average overall student Learning Outcome has reached more than 75%. The percentage of Student Learning Outcome indicators that are still seen to be lacking is expressing opinions/questions, which is 64%. This is due to the dominance of very active students and the group whose presentation only chooses questions from students who raise their hands first. The percentage of each indicator has achieved good results and there has been an increase in the percentage of each indicator from cycle I to cycle II.

Based on the results of the analysis of the observation data, data on the percentage of student learning outcomes was obtained. It is presented in the table as follows:

Table 6: Percentage of Students' Fiqh Learning Outcomes

no	Result Categories	Number of students	percentage
1	Very high	18	32%
2	Tall	13	52%
3	Enough	5	16%
4	Low	0	0%
5	Very low	0	0%

The results of observations show that the achievement of students with the Very High and High Learning outcome categories has reached expectations of more than 75%. The achievement of the Very High and High categories is 84%. This means that there has been an improvement of each individual student in terms of Learning Outcomes. Data on the percentage of student learning outcomes was also obtained from the results of questionnaire analysis. The data obtained from this questionnaire is to strengthen the observation data. The results of the analysis of the Learning Outcomes questionnaire per indicator based on the questionnaire are presented in the following table:

Table 7: Percentage of Students' Fiqh Learning Activities

Yes	Yield Indicators	Percentage
1	Record material	80%
2	Group cooperation	100%
3	Issuing opinions/questions	65%
4	Answer questions	78%
5	Participation in report making and percentage	92%
6	Enthusiasm for learning	98%
	Average	85%

Based on the table above, it can be seen that the indicator of Learning Outcomes that is still lacking is expressing opinions/questions, which is 65%. This is in accordance with the observation data that has been presented previously. The increase in each indicator of Fiqh Learning Activities indicates that the action has been successfully implemented. The indicators of Fiqh Learning Activities in the

questionnaire are coupled with indicators that cannot be observed directly by observation. The indicator is enthusiasm for learning.

The percentage of indicators of enthusiasm for learning reached 98%. This shows that students have a very good enthusiasm for learning using the Group Investigation learning model. The results of the analysis of the student learning outcomes questionnaire per individual based on the questionnaire are presented as follows:

Table 7: Percentage of Students' Fiqh Learning Activities

no	Result Categories	Number of students	percentage
1	Very high	11	44%
2	Tall	13	52%
3	Enough	2	4%
4	Low	0	0%
5	Very low	0	0%

Based on the table above, it can be seen that the achievement of the Very High and High categories reaches 96%. The learning outcomes of students in the fiqh subject of the Fardhu Prayer material per individual have achieved the expected result, namely more than 75% of students reach the Very High and High categories.

Assessment of Assessment and Reflection

The improvement in student learning outcomes from cycle I to cycle II based on observation can be clearly seen in the following figure:

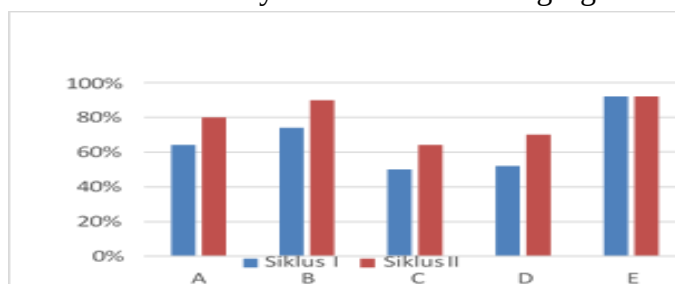


Figure 1. Graph of Improvement in Fiqh Learning Outcomes Based on Observation

Information:

A=Record material

B=Cooperation in groups

C=To express an opinion / ask

D=Answer questions

E=Participation in report making and percentage

Based on the figure above, each indicator of Student Learning Outcomes has increased from cycle I to cycle II. There is one indicator of Student Learning Outcomes that remains. The indicator noted that the material increased from 64% in the first cycle to 80% in the second cycle. The indicators of cooperation in the group increased from 74% in the first cycle to 90% in the second cycle. The indicator of issuing opinions/questions increased from 50% in cycle I to 64% in cycle II. The indicator of answering questions increased from 52% in cycle I to 70% in cycle II. The percentage of participation indicators in report making and presentation remained the same from cycle I to cycle II, which was 92%.

The increase in Fiqh Learning Activities from cycle I to cycle II based on the questionnaire can be clearly seen in the following figure:

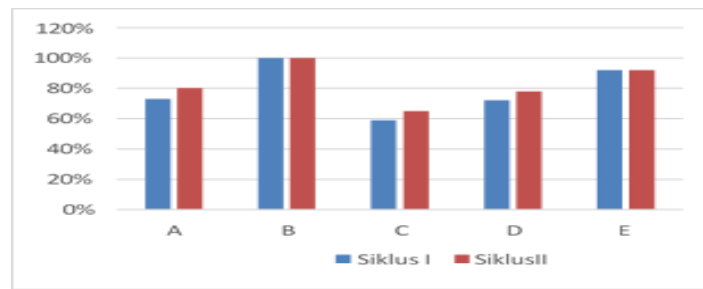


Figure 2. Graph of Increasing Fiqh Learning Activities Based on Questionnaires

Information:

A=Record material

B=Cooperation in groups

C=To express an opinion / ask

D=Answer questions

E=Participation in report making and percentage

Based on the image above, it can be seen that there are four indicators of Student Learning Outcomes that have increased. The two indicators of Student Learning Outcomes are the same percentage. The instigator noted that the material has increased from

73% in cycle I to 80% in cycle II. The indicators of cooperation in the group are fixed and achieve maximum results of 100%. The indicator of issuing opinions/questions increased from 59% in the first cycle to 65% in the second cycle. The indicator of answering questions increased from 72% in cycle I to 78% in cycle II. The participation indicator in the preparation of reports and presentations remains at 92%. The indicator of enthusiasm for learning has increased, from 86% in the first cycle to 98% in the first cycle.

The improvement in most of the student learning outcome indicators from cycle I to cycle II shows that the application of the Group Investigation (GI) model is able to create learning dynamics that are more collaborative, participatory, and oriented towards learning independence (Asyari et al., 2016). The percentage increase in indicators such as recording material, expressing opinions, answering questions, and learning enthusiasm indicates that the group investigation process provides space for students to build understanding constructively (Candradewi et al., 2020). This is in line with Vygotsky's theory of social constructivism which emphasizes that social interaction and group work can accelerate cognitive development through the zone of proximal development. When students engage in discussions, ask questions, and help each other understand the material, they not only absorb information but also internalize more mature critical thinking strategies. Thus, the improvement in learning outcomes on various indicators is a direct manifestation of the effectiveness of GI in encouraging student-centered learning (Pattipeilohy et al., 2022).

Fixed indicators such as participation in report making and presentations illustrate that there are aspects of learning that have reached optimal achievement

from the beginning, but also show the potential saturation of student behavior in certain areas. In the context of group cooperation that reached 100% in cycles I and II, this phenomenon can be explained through the theory of social interdependence which emphasizes that common goals and task dependency make students consistently maintain their collaborative roles (Nofita & Rusnilawati, 2022). However, the stability of the numbers on certain indicators also indicates the need for further innovations, such as variations in instruction or increased academic challenges, in order to make more progressive developments. Overall, this reflection confirms that the GI model is effective in comprehensively improving learning outcomes, but the sustainability of improvement requires a more adaptive differentiation strategy so that all aspects of student learning behavior can be optimally facilitated (Artawan, 2023).

Conclusion

Based on the results of the research through the application of the Group Investigation (GI) learning model in two action cycles, it can be concluded that the GI model is able to make a significant contribution to improving student learning outcomes. A structured group investigation process encourages students to be more active, collaborative, and responsible in learning activities. The percentage increase in most indicators such as the ability to record material, express opinions, answer questions, and enthusiasm for learning illustrates that the GI model has succeeded in creating a more participatory and meaningful learning environment. In addition, the presence of indicators that remain stable with high values indicates that the GI is able to maintain the positive aspects that have developed in the initial cycle. These findings confirm the relevance of the GI model to constructivist learning principles that emphasize dialogue, cooperation, and knowledge formation through social processes. The active involvement of students in each stage of the investigation fosters stronger critical thinking, communication, and academic responsibility skills.

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