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The Impact of Achievement Grouping to Improve Understanding of Islamic Education Material

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Research Article

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Abstract

Background/purpose. The characteristics of each subject allow for adjustments to the learning model and the role that will be carried out by the teacher. One of them is Islamic education lessons with a diversity of student abilities and abstract and complex characteristics of Islamic education with its application. This research aiming to determine the improvement and difference in students' understanding of material due to the application of achievement grouping learning, and to examine teacher's role in the model.

Materials/methods. This research is quantitative using a quasi-experiment approach. Grade VII students of Al-Irsyad Serang Junior High School in Banten became a sample. Through the purposive sampling technique, class A (experiment I) with the achievement grouping model, class B (control) with the conventional model, and C (experiment II) with the cooperative model. Data analysis was carried out using the Rasch model, general linear model test, independent sample T-test, Oneway Anova, and n-gain score.

Results. The results of Anova test significantly showed that a difference in the comprehension value of each research class. The difference based on post hoc Anova test showed that the experimental class I was 18.74% superior to the control class, and 7.36% from the experimental class II.

Conclusion Furthermore, supported by the average n-gain score (0.5395), that the application of the achievement group learning model is able to increase students' comprehension scores with a moderate improvement category.

1. Introduction

In the modern education era, various innovations are implemented to improve the effectiveness of the learning process. One of the innovations that has begun to be widely applied in various schools is in the aspect of learning strategies. (Afif, 2023; Fitrianti & Annur, 2024; Saskia Permana et al., 2024). This application will be able to have a positive impact when it is in accordance with the characteristics of the lesson and students. This condition results in teachers needing to know the characteristics of each subject to be taught as well as the students. (Edmonds, 2020; Muzakki et al., 2021). Of course, this is the basic thing that teachers must have. One of them is the Islamic Religious Education lesson as the focus of this research. The main challenge in teaching Islamic education is how teachers are able to explain abstract concepts, such as faith, morals, and worship so that they are easily understood by students with various levels of understanding. These challenges are characteristic of Islamic education lessons (Cibro, 2024; Romlah & Rusdi, 2023).

After learning about the characteristics, it is necessary to focus on the students' level of education. At the junior high school (SMP) level, learning will be emphasized dynamically and responsively to the needs of students, which is an integration of the independent curriculum. In accordance with the implementation of the Merdeka curriculum whose main iconic is the Pancasila student profile (Mustafa, 2023; Wasehudin et al., 2023; Zalukhu et al., 2023). The details are students who have Pancasila characters in their daily lives. Realistic characteristics accompanied by diverse student abilities cannot be avoided (Lavy, 2020). This situation requires learning methods that can accommodate differences in student abilities and accelerate the achievement of understanding.

Learning strategies in the form of achievement grouping methods or grouping based on academic achievement are one of the innovations in the present (Novianti et al., 2022). Achievement grouping in learning aims to group students based on their academic so that teachers can customize teaching strategies to the needs of each group (Baidowi & Aulia Widyaningsih, 2022; Rahmawati et al., 2024). The study by Mahsus and Latipah (2021) shows that grouping can improve learning effectiveness, especially if it is applied with the right approach and according to student needs. A study by Hung et al (2019), mentioned that achievement-based grouping can reduce the achievement gap in the classroom. According to Suyuti et al. (2023), Learning by adapting to students' abilities can increase students' motivation to learn and involvement in the learning process.

The opposite achievement of the application of the achievement grouping model in Islamic education learning can be a social gap. This learning method has the potential to create a social gap between high-achieving students and low-achieving students. This can affect the dynamics of student interaction and learning environment (Dörnyei & Muir, 2019; Prast et al., 2023). The role of the teacher determines the success of achievement grouping learning. Teachers can make it a means to motivate students to achieve their own better achievements without comparing or focusing on the achievements of friends. A study by Mubaroh and Pusparini (2018) showed that with the right guidance, the achievement grouping method can create a more competitive yet healthy learning atmosphere and improve each student's understanding.

Research by Özgenel and Mert (2019) emphasizes the importance of the teacher's role in maximizing the effectiveness of the achievement grouping method in the learning process. Especially in the context of Islamic Religious Education, effective teaching will be reflected in the final result in the form of student understanding. They will use this understanding to answer test questions and assignments (Agustin, 2018; Hanifa et al., 2023). More complexly, it will be reflected in the ability of students to apply the values of this understanding in everyday life. Ultimately, the use of the achievement grouping method in this study should be able to help students understand Islamic education material more quickly, and also apply it. In line with Aulia (2021) research which shows

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that students who learn through achievement grouping better understand the application of religious values in everyday life.

Based on these issues, this study seeks to examine and analyze in-depth the effect of the achievement grouping learning model on improving students' understanding of Islamic Religious Education at the junior high school level. The research will also evaluate the challenges and opportunities that exist in the application of this method, as well as provide recommendations strategies for teachers to improve the effectiveness of their learning.

2. Literature Review

2.1. Achievement grouping learning model

Learning in the context of modern education continues to develop along with the need to increase the effectiveness and efficiency of the teaching and learning process. One approach that attracts the attention of educators is achievement grouping, which is the grouping of students based on their level of academic achievement (Gentry, 2021a). This strategy is believed to be able to optimize student potential according to their abilities (Chen & Kuo, 2019; Junaidah, 2020). In the context of Islamic Religious Education, this approach is expected to make a significant contribution to a deeper understanding of material concepts.

Achievement grouping is rooted in constructivism theory which emphasizes the importance of social interaction in the learning process (De Vega et al., 2024; Zajda, 2021). According to Vygotsky, interaction with peers can improve students' cognitive abilities through the zone of proximal zone of proximal development (ZPD) (Erbil, 2020; Suardipa, 2020). Grouping students based on their level of achievement is expected to lead to more effective collaboration, where students with a better understanding can help their peers. Overall, achievement grouping has the potential to improve the understanding of material concepts in Islamic religious education if applied with the right approach. The accuracy of the approach is one of the teachers' ability to determine and apply the syntax of the achievement grouping model. This study collaborates on the syntax of achievement grouping according to Slavin (1995) and Johnson (1999). Sequence from the syntax into 6 phases: material orientation, group formation, structured tasks, active collaboration, presentation of results, and reflection.

The first phase (material orientation) is intended to help the teacher provide an introduction to the topic and learning objectives. The specific objective is to stimulate and build students' interest or focus on learning. In the second phase (group formation), students are divided into small groups based on their achievement (achievement). As a result, each group has an aligned level of achievement to maximize the effectiveness of interaction between students. In the third phase (structured tasks), each student in the group will get a role such as taking notes, analyzing, speaking, or reminding the group of time and progress. This condition will ensure that there is a balanced contribution to each student. The fourth phase (active collaboration) is a condition that occurs as a result of the third phase. The picture is that each group will share ideas and feedback to complete their tasks.

The fifth phase (presentation of results) is intended for each group to be responsible for the results of their work in front of the class. In this phase, students will strengthen their understanding of the concept through responses or questions from other groups. In the last phase (Reflection), the role of teachers reappears by evaluating student learning outcomes both individually and in groups. In this phase, students will know the form of mistakes/shortcomings and truths/advantages in the results of their group work. The implementation of the six phases ultimately focuses not only on academic achievement but also on the development of social skills, teamwork, reflection, and evaluation of concept understanding in detail.

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2.2. Mastery of concept of Islamic religious education material

In the context of Islamic religious education lessons, understanding concepts not only involves cognitive aspects but also affective and psychomotor aspects (Putra et al., 2024; Salsabila et al., 2025). It is necessary to implement learning such as achievement grouping, considering the balance between mastery of material and character building. An effective learning process in Islamic religious education requires a holistic approach, where students not only understand religious teachings theoretically but are also able to internalize them in everyday life (Anggraini et al., 2024; Demirel Ucan & Wright, 2019).

Another factor that influences the effectiveness of achievement grouping is the role of the teacher as a facilitator (Park et al., 2018a). Islamic Religious Education teachers must be able to design teaching strategies that encourage active participation from all group members. In addition, teachers also need to provide guidance that is appropriate to the individual needs of students to ensure that no student is left behind. According to Rahmat and Yahya (2022) and Janah and Ristianah (2024), in Islamic religious education lessons, the diverse characteristics of the material require variations in teaching methods. Concepts such as noble morals, tolerance, and universal human values can be taught more effectively through group discussions and joint reflections, which are part of the achievement grouping strategy. In this condition, students do not only learn from teachers but also from their friends.

3. Methodology

This research is quantitative with a quasi-experiment approach. Students of grade VII (A, B, and C) of Al-Irsyad Serang Junior High School in Banten were sampled in this study using a purposive sampling technique. The researcher uses a purposive sampling technique in class VII A (achievement grouping model) based on a sufficient number of students so that the role of teachers in supervising student group work activities based on achievement can be maximized. Next is class VII B (conventional model), which is because the number of students is relatively too large (>30), which is why the learning conditions created are difficult to control. Finally, for class VII C (cooperative model) for the reason that the number of students is quite large, so group-based learning activities will be a little easier to do. The general consideration of the determination of the class and the learning model is based on the teachers' experience of the students' character approach from each class. The results showed that students in class VII A had the right character indicators in using the achievement grouping model as the main focus of the research.

This study uses a pretest-posttest control group design model. There are three (3) groups of research classes with different treatment of learning models, namely experimental class I with the achievement grouping model (VII A), control class with the conventional model (VII B), and experimental class II with the cooperative model (VII C). Each class was given a pretest to measure students' initial comprehension skills. This was followed by the provision of the treatment of the learning model. Finally, a posttest was given to find out the comprehension ability of each class. The pretest and posttest questions are in the form of multiple choice (4 answer choices) totaling 10 questions.

Research data in the form of student pretest-posttest scores will be analyzed with the help of Microsoft Excel, winstep (Rasch model), and SPSS 24. The statistical tests used were the independent sample t-tests and the one-way ANOVA tests to determine differences in comprehension abilities between research class groups (Putri et al., 2023). N-gain score is another type of test to determine the improvement of students' understanding when with and without using the achievement grouping model in Islamic education learning (Wahab & Azhar, 2021). In general, the results of the statistical tests will reflect the influence and effectiveness of the application of the achievement grouping model on students' comprehension ability.

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4. Results and Discussion

4.1. The frequency of student comprehension score data was reviewed from class and gender

The research data was obtained in the three research classes that had different frequencies of the number of students and different genders. The use of the general linear model test will show the frequency of the research data.

Table 1. Research Data Frequency

Value Label		N
Research Class	Achievement Grouping Learning	19
	Conventional Learning	33
	Cooperative Learning	22
Gender	Male Student	31
	Female Student	43

Based on Table 1, the number of samples in this study is 74 grade VII students. A number of these students were given a pretest to find out the average score margin of each class reviewed based on the gender of the students.

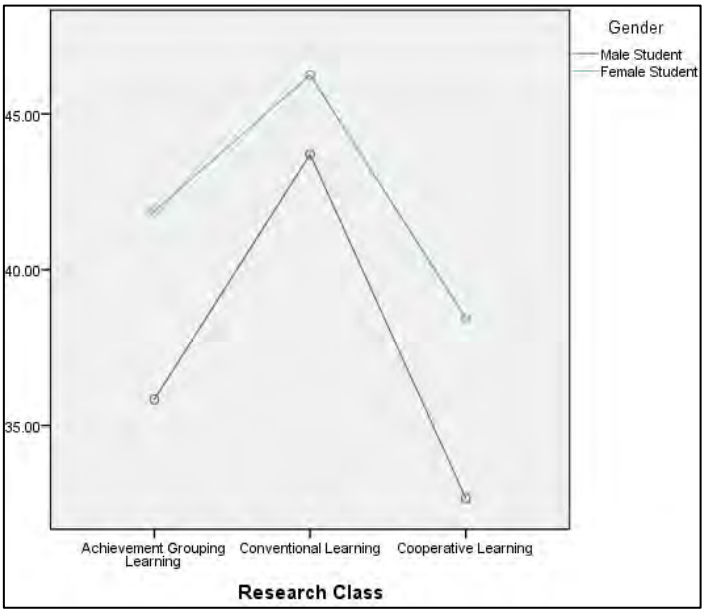

Figure 1. Margin of Average Pretest Score of Students in Each Research Class by Gender

Based on Figure 1, the most dominant average score is owned by the control class with the conventional learning model. Figure 1 also shows the margin between the comprehension value of female students and male students in the experimental class I (achievement grouping model) and experiment II (cooperative model). This display shows that the abilities or achievements of students in the class have not been aligned.

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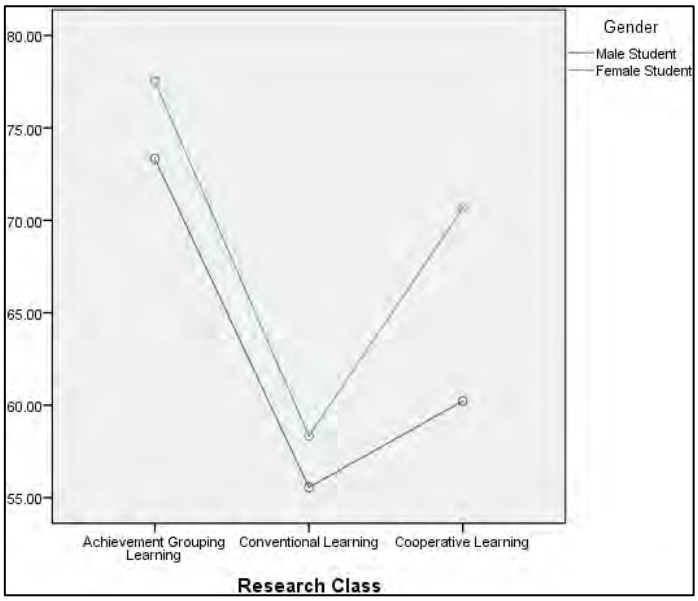

Figure 2. Posttest Average Score Margin of Students in Each Research Class by Gender

Based on Figure 2, the most dominant average score is owned by the experimental class I with the achievement grouping learning model, followed by the class with the cooperative learning model. It is interesting to see that the gap between the comprehension scores of female students and male students in the first experimental class is not as tight as in the pretest. This display shows that the use of the achievement grouping learning model is able to align the students' abilities or comprehension values. Meanwhile, in the second experimental class, it still looks tenuous. It indirectly shows that the cooperative learning model is able to increase the comprehension value but is not optimal in harmonizing the students' abilities or comprehension values.

The main focus of the research is on the application carried out in classes with the achievement grouping learning model, as a result of which the data that should be significant has differences or changes, namely the data group of class VII A. The frequency of pretest value data for the class is shown in Table 2.

Table 2. Frequency of Pretest Scores for Experimental Class I

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20.00	2	3.8	10.5	10.5
	30.00	5	9.6	26.3	36.8
	40.00	6	11.5	31.6	68.4
	50.00	3	5.8	15.8	84.2
	60.00	3	5.8	15.8	100.0
	Total	19	36.5	100.0	

Based on Table 2, the frequency of scores with the highest percentage (31.6%) is with a score of 40 points. While the lowest percentage (10.5%) is with a score of 20 points.

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Table 3. Frequency of Posttest Scores for Experimental class I

Experiment Class I Posttest					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	50.00	2	3.8	10.5	10.5
	60.00	3	5.8	15.8	26.3
	70.00	6	11.5	31.6	57.9
	80.00	5	9.6	26.3	84.2
	90.00	3	5.8	15.8	100.0
	Total	19	36.5	100.0	

Based on Table 3, the frequency of scores with the highest percentage (31.6%) is with a score of 70 points. While the lowest percentage (10.5%) is with a score of 20 points. The pretest and posttest data of the experimental class I were then analyzed by crosstabulation to determine changes as a form of increase or decrease in student scores.

Table 4. Crosstabulation of pretest and posttest scores of experimental classes I

Count							
		Experiment Class I Posttest					
		50.00	60.00	70.00	80.00	90.00	Total
Pretest	20.00	1	1	0	0	0	2
Experiment Class I	30.00	0	1	2	1	1	5
	40.00	1	1	2	2	0	6
	50.00	0	0	2	1	0	3
	60.00	0	0	0	1	2	3
Total		2	3	6	5	3	19

Based on Table 4, each acquisition of pretest scores experienced changes as a form of improvement in student scores reviewed in the posttest. More specifically, it can be seen that the highest increase in value occurred in the pretest score of 30 points to 90 points experienced by one student. Conversely, the lowest increase occurred in the pretest score of 40 points to 50 points which was also experienced by one student.

4.2. Independent sample t-test

The use of an independent sample T-test statistical test was used to find out if there was a significant difference in values from data groups that had no relationship as a result of the application of a treatment in the study. The data group in question is the scores of the experimental class I with the control class. There are prerequisite tests (normality and homogeneity) that must be met in order to conduct an independent sample t-test (Nabila et al., 2021). The first prerequisite test is that the data is normally distributed with the Shapiro-Wilk test type because the research data is relatively small.

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Table 5. Normality test results of research data

Tests of Normality			
	Shapiro-Wilk		
	Statistic	df	Sig.
Experiment Class I Pretest	.184	19	.107
Control Class Pretest	.139	33	.065
Experiment Class I Posttest	.169	19	.127
Control Class Posttest	.135	33	.059

Based on Table 5, it shows that each group of data on student understanding scores has a normal category. It is shown through the significant value (α> 0.05). The second prerequisite test is the homogeneity test with the Levene test.

Table 6. Homogeneity Test Result of Pretest-Posttest Data

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
Pretest Score	.837	1	50	.365
Posttest Score	.002	1	50	.966

Based on Table 6, that the data group of students' understanding scores both pretest and posttest have been categorized as homogeneous. It is shown with a significant value (α> 0.05). The research data has met the prerequisite tests (normality and homogeneity) so it is assumed to have the same variance. As a result, hypothesis testing can be done with the independent sample t-test.

Table 7. Independent sample t-test test results referring to research post-test data

Independent Sample Test		t-test for Equality of Means						
							95% Confidence Interval of the Difference	
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Posttest Score	Equal variances assumed	2.142	50	.037	7.86284	3.67037	.49067	15.23500
	Equal variances not assumed	2.176	39.464	.036	7.86284	3.61390	.55578	15.16990

Based on Table 7, the assumption that data has the same variance obtained a significant value of 0.037 (α < 0.05), so it is stated that there is a difference in the value of student understanding due to the application of the achievement grouping model in Islamic education lessons. The difference scores will be further known through one-way ANOVA. In this test, all data of the research class will be tested so that it is more specific to know the difference even though the treatment is almost similar. The treatment in question is in the experimental class I with the experimental class II.

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Table 8. Homogeneity Test Result of Pretest-Posttest Data

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
Pretest Score	.466	2	71	.629
Posttest Score	1.325	2	71	.272

Based on Table 8, it is stated that the data group of students' comprehension scores in this study has been categorized homogeneously, so the assumption of the Anova test will refer to this category.

Table 9. Oneway Anova Test Results

Anova						
		Sum of Squares	df	Mean Square	F	Sig.
Pretest Score	Between Groups	529.075	2	264.537	2.289	.109
	Within Groups	8206.061	71	115.578		
	Total	8735.135	73			
Posttest Score	Between Groups	4508.959	2	2254.480	18.815	.000
	Within Groups	8507.257	71	119.821		
	Total	13016.216	73			

Based on Table 9, the pretest scores of students' understanding in the three research classes are categorized as the same, or there is no difference. This statement is evidenced by the significance of 0.109 (> α 0.05). Conversely, the posttest scores of students' understanding in the three research classes are categorized as differences. Proven by the significance of 0.000 (< α 0.05). Furthermore, the oneway ANOVA (post hoc) test will show the significance of the difference in student understanding scores from the three research classes.

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Table 10. Post Hoc Anova Test Result

Multiple Comparisons							
						95% Confidence Interval	
Dependent Variable	(I) Research Class	(J) Research Class	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Pretest Score	Bonferroni Achievement Grouping Learning	Conventional Learning	-4.84848	3.13859	.381	-12.5526	2.8556
		Cooperative Learning	1.57895	3.53594	1.000	-7.1005	10.2584
	Conventional Learning	Achievement Grouping Learning	4.84848	3.13859	.381	-2.8556	12.5526
		Cooperative Learning	6.42743	3.13859	.133	-1.2767	14.1316
	Cooperative Learning	Achievement Grouping Learning	-1.57895	3.53594	1.000	-10.2584	7.1005
		Conventional Learning	-6.42743	3.13859	.133	-14.1316	1.2767
Posttest Score	Bonferroni Achievement Grouping Learning	Conventional Learning	18.74003*	3.16765	.000	10.9646	26.5155
		Cooperative Learning	7.36842	3.56868	.128	-1.3914	16.1283
	Conventional Learning	Achievement Grouping Learning	-18.74003*	3.16765	.000	-26.5155	-10.9646
		Cooperative Learning	-11.37161*	3.16765	.002	-19.1471	-3.5962
	Cooperative Learning	Achievement Grouping Learning	-7.36842	3.56868	.128	-16.1283	1.3914
		Conventional Learning	11.37161*	3.16765	.002	3.5962	19.1471

*. The mean difference is significant at the 0.05 level.

The assumption of homogeneous data so that further testing uses the Bonferroni type. Based on Table 10, the pretest value of the control class (conventional learning model) has an average value that is superior to the other two classes. The difference is 4.84% (experimental class I) and 6.43% (experimental class II). After treatment with different learning models in each class, it was found that the experimental class I (achievement grouping learning model) had an average value that was

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superior to the other two classes. The difference was 18.74% (control class) and 7.36% (experimental class II). This fact indirectly shows that there is an indication of an increase in student understanding scores due to the application of the achievement grouping learning model.

There is an indication of an increase in student understanding scores due to the application of the achievement grouping model, so an n-gain score test is needed to prove the truth of the indication. The use of the n-gain score test to determine the increase in student scores due to treatment using student pretest and posttest data. Through the n-gain test, the category of learning effectiveness with the achievement grouping model can also be determined. It will be further shown through Rasch model analysis to find out the truth that students' comprehension ability with the application of the achievement grouping model is superior to the other two classes, as shown in Figure 3.

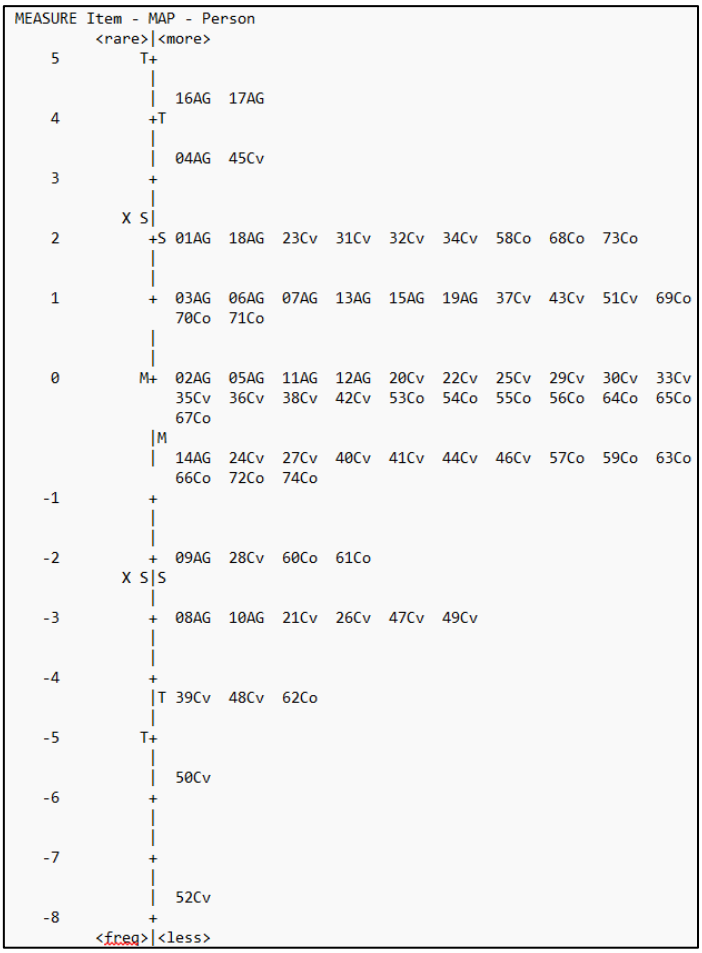

Figure 3. Distribution of Students with the Highest to Lowest Scores.

There are two (2) students with the highest scores, namely by applying the achievement grouping model (16 AG and 17 AG). While the two (2) students scored the lowest score, namely by applying the conventional model (50Cv and 52Cv). The conditions shown in Figure 3 are relevant or support the statement in Table 10 that the average score of students with the achievement grouping model is superior to that of students with cooperative and conventional models.

4.3. N-gain score test

The use of the n-gain statistical test to determine the increase in value and the effectiveness category of the application of a treatment in research.

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Table 11. Results of the n-gain test of pretest-posttest data for experimental classes I

The N-Gain test					
	N	Minimum	Maximum	Mean	Std. Deviation
n-gain Score	19	.17	.86	.5395	.17064
n-gain Percent	19	16.67	85.71	53.9536	17.06435
Valid N (listwise)	19				

Based on Table 11, that the n-gain test score shows an average of 0.5395 which is categorized as moderate. The moderate category means that the use of the achievement grouping learning model is moderate in improving students' understanding of Islamic education lessons can be seen from the following Figure 4.

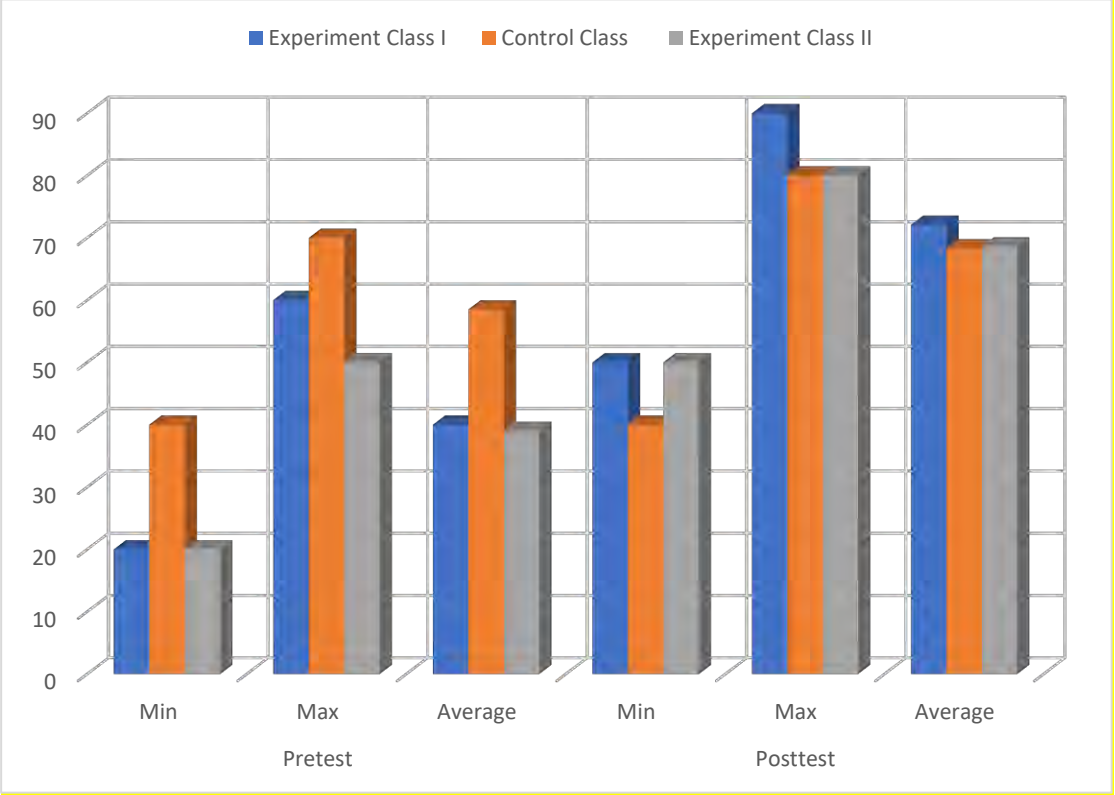

Figure 4. Comparison of student comprehension values in experimental classes with control classes

Based on Figure 4, the control class is superior to the experimental class I and experiment II. After being treated with the application of their respective learning models, the experimental class I turned superior. The difference in the superior scores of the experimental class was, on average, 10%, thus supporting the previous statistical results that the level of effectiveness of the achievement grouping learning model in improving student understanding was in the medium category. When reviewing the form of improvement that is categorized as moderate individually in each class/application of the learning model, then the Rasch model analysis is used, the results are as shown in Figure 5.

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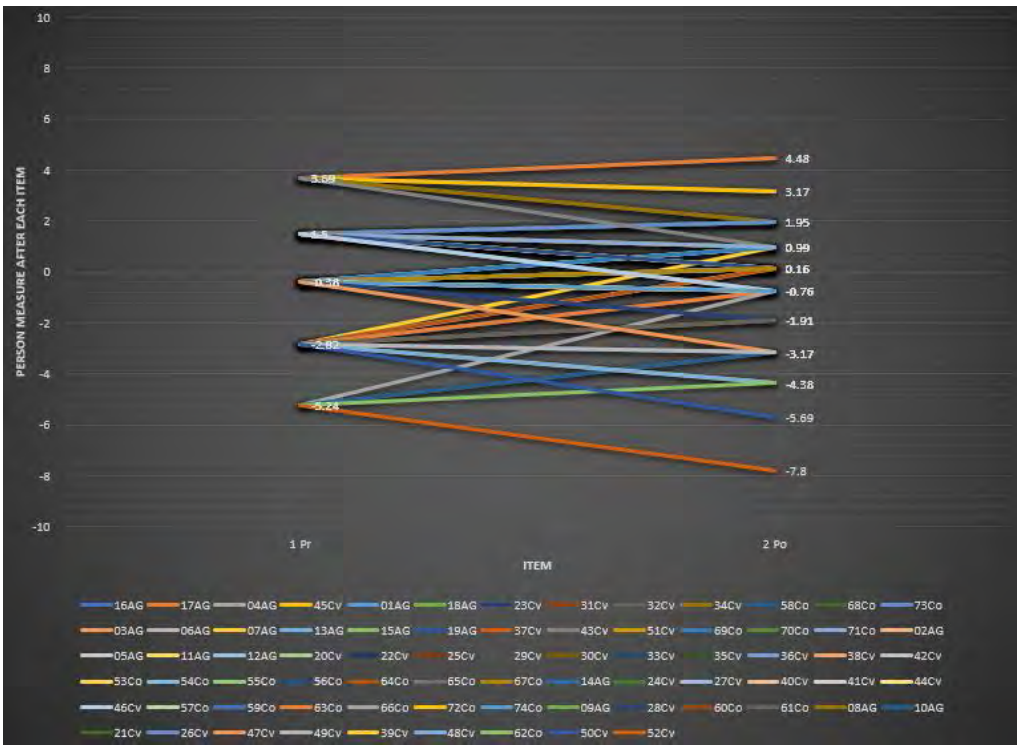

Figure 5. Analysis of Student Grade Improvement from Pretest-Posttest

Based on Figure 5, it can be seen that the curve of the pretest value (1Pr) towards the average posttest value (2Po) does not have a large angle of increase. There are also some that have decreased. If reviewed in more detail, it was found that the dominance of students was found with the application of the achievement grouping (AG) model which showed an improvement curve. This condition supports the above statement (Table 10) that the level of increase in student comprehension scores due to the application of the achievement grouping model is in the moderate/moderate category.

5. Discussion

5.1. Teacher's role in achievement grouping learning model

According to Gentry (2021b), the achievement grouping learning model is a pedagogical approach that divides students based on their academic achievement. Achievement grouping aims to increase learning effectiveness by focusing on the specific needs of each achievement group. In the context of Islamic religious education lessons, the role of the teacher is crucial to ensure that all students, whether high, medium or low achievers, can gain a deep understanding of religious values (Judrah et al., 2024; Kamila, 2023).

Teachers have a central role in managing merit-based groups. According to Juvonen et al. (2019), teachers must ensure that this grouping is done fairly and does not cause stigmatization among students. After the grouping is done, in implementing the achievement grouping learning model, teachers can use a simpler approach for low-achieving groups (Kousa et al., 2018) and provide more complex challenges for high-achieving groups (Luthar et al., 2020). This is important to ensure all students gain a deep understanding according to their abilities. Character and moral development are other aspects that need to be emphasized in addition to academic aspects in Islamic Education lessons (Utomo & Rizqa, 2024). The application of the achievement grouping model requires the role of the teacher in integrating moral learning in accordance with the conditions of students, both those with high and low achievements. As a result, teachers need to adjust teaching materials, assignments, and evaluations to suit students' abilities (Chowdhury, 2018; Purwati et al., 2018; Valiandes & Neophytou, 2018).

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Another role of the teacher in implementing the achievement grouping model is to motivate students from various groups that have been formed (Park et al., 2018b; Rubiyati, 2022). Motivation is intended to maintain students' enthusiasm for learning regardless of whether they are from achievement groups or not. According to de Boer et al. (2018), teachers need social sensitivity towards students with lower achievement groups so that they can feel valued and motivated to do better. Regardless of group and achievement differences, students are led to create an inclusive learning environment. A learning environment that encourages cooperation, mutual respect, and support will be created through the achievement grouping model (Dunbar et al., 2018; Villardón-Gallego et al., 2018). The key is the role of the teacher as a driver of positive interactions between students and groups despite differences in achievement

5.2. Effectiveness of achievement grouping learning on student understanding in lessons

This research provides a solution through the application of achievement grouping, which is grouping students based on their academic achievement. Through this learning model will be able to improve student understanding. In addition, teachers have the opportunity to give more intensive attention to student groups (Gentry & MacDougall, 2023; Isroani & Rubiyati, 2022; Saugi, 2018). As a result, students' potential can be maximized as well as increased. The theory is in accordance with the results of the study, which showed that there was a difference in the average score (32 points) of the posttest from the pretest in the experimental class. This difference in scores indicates an increase in students' academic ability in the form of understanding. Furthermore, it is also evident that there is potential for student maximization in understanding Islamic education lessons. Referring to Table 3, there was an increase of 60 points after learning with the achievement grouping model. This achievement is supported by previous findings, which state that the achievement grouping model will provide academic improvement to groups of students so that they do not feel left behind and continue to learn to improve their understanding (Lesmana et al., 2022).

A theory states that the achievement grouping model will have an impact on the difference in student achievement before and after applying it (Cimermanová, 2018). The existence of this theory is relevant to the results of this study, referring to Table 6, the results of the independent sample t test obtained significant 0.037 ($\alpha < 0.05$). The acquisition of this significant value is required to state that there is a difference in the value of student understanding before and after the application of the achievement grouping learning model. Another proof is based on the results of the Anova one-way test; a significance of 0.000 ($\alpha < 0.05$) was obtained, which stated that there was a difference in the value of student comprehension in each research class due to the use of different learning models. The difference in this value is visually shown in Figure 2 and in the results of the Anova post hoc test. The results show that the experimental class I (achievement grouping model) is superior to other classes. The difference in superiority is 18.74% (control class) and 7.36% (experimental class II). This result is also supported by research from (Akila & Hayati, 2023), that through the Wilcoxon test (sig. 0.00) stated that there was a significant difference between the experimental group and the control group on the average value of student understanding due to the application of the achievement grouping model. Through the n-gain test, it was also found that the experimental group had an average n-gain value (0.29) higher than the control group (0.13).

According to Preckel et al. (2019), another impact of the application of the achievement grouping learning model is the significant increase in students' cognitive development. The n-gain test results (Table 7) support the existing theory. The results state that there is an increase in the value of understanding in the medium category. The statement is in accordance with the results of the average n-gain score of 0.5395 (medium). It is also supported by the results of the n-gain percentage of 53.9% which is categorized as less effective. Less effective is intended in the effect of applying the

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achievement grouping learning model on the value of understanding students' Islamic education lessons. This achievement is relevant to previous research from Aditya (2018), that the experimental group experienced an increase in understanding with the n-gain category classified as moderate (0.3417). Other research from Fika (2020) also showed that the achievement grouping learning model not only improved students' understanding significantly but also had a greater impact on their cognitive development despite being in the less effective category. A theory states that this less effective category is due to the lack of teacher preparation time. Teachers have not received special or further training on the application of achievement grouping (Angin & Pratiwi, 2023; Erna et al., 2022).

6. Conclusion

Based on the results of the research and the review of the discussion, that the application of the achievement grouping learning model is appropriate in subjects with relatively abstract material and has complex knowledge aspects such as Islamic religious studies. The key to this action is the role of the teacher in providing attention, sensitivity, and motivation to each group. The results of the implementation of the achievement grouping model are proven to be able to increase student comprehension scores by a maximum of 60 points. This increase in comprehension value is also evident from the results of the n-gain score test, which shows that the maximum increase in value (sig. 0.86) occurred, which is in the very high category. Meanwhile, the average n-gain score (sig. 0.5395), which is in the medium category. The category of medium in increasing student comprehension scores is shown by the average difference in posttest scores between the experimental class I and the control class (18.74) and the experimental class II (7.36%). The existence of this score difference indirectly shows that the application of the achievement grouping learning model causes differences in students' comprehension skills. The difference in comprehension ability was evidenced by the results of the independent sample T-test (sig. 0.037) and oneway Anova (sig. 0.00), which both stated that there was a difference in students' Islamic education comprehension ability before and after learning with the achievement grouping model in each research class. In general, it can be concluded that the achievement grouping learning model is effective in improving learning outcomes. The achievement grouping model also shows an influence in the form of differences in students' understanding abilities between research classes.

7. Suggestion

Specifically in Islamic Religious Education lessons, the application of this model is limited to improving learning outcomes. As a result, there needs to be collaboration between the achievement-based grouping model and innovative learning media, as a form of future research prospects.

Declarations

Author Contributions. M.M.: Literature review, conceptualization, and methodology. S.N: methodology and data analysis. S.S., A.A., and M.I.: review-editing and writing, original manuscript preparation. All authors have read and approved the publication of the final version of the article.

Conflicts of Interest. No conflict of interest.

Ethical Approval. (Please provide information on respect for privacy and approval by the ethics committee/ethical approval with the reference number)

Data Availability Statement. The data supporting this study are available from the corresponding author upon reasonable request.

Acknowledgments. During the preparation of this work the author(s) used [the AI TOOL / SERVICE] in order to [REASON]. The author(s) declare that they reviewed and edited the final output as needed and take(s) full responsibility for the content of the published article.

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