Indonesian Journal of Islamic Education Studies (IJIES)
Online: https://ejournal.uit-lirboyo.ac.id/index.php/ijies

P-ISSN: 2621-5837
E-ISSN: 2622-7975

Article History

Received:	Revised:	Accepted:
30-04-2024	25-06-2025	28-06-2025

DOI: https://doi.org/10.33367/ijies.v8i1.7445 Available Online: 30-06-2025

Effectiveness of the Quantum Teaching Model in Enhancing HOTS in Fiqh at State Islamic High School

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Abstract

The low level of Higher Order Thinking Skills and the conventional learning model applied in various schools is ineffective in improving students' HOTS, especially in Fiqh learning. This study aims to test the effectiveness of the Quantum Teaching learning model in enhancing the HOTS skills of tenth-grade students at MAN 4 Bantul. The study employs a quantitative and quasi-experimental design involving experimental and control classes. Cluster random sampling was used for sample selection. The research instruments consist of pretest and posttest questions that have been validated. Data analysis includes normality tests, homogeneity tests, t-tests, and N-Gain analysis. The results showed a significant difference between the pretest and posttest scores in the experimental class, with an average N-Gain of 68.49%, which is considered fairly effective, compared to the control class with an average N-Gain of 28.43%, which is regarded as less effective. Thus, the Quantum Teaching model has proven effective in enhancing students' HOTS skills in the Fiqh subject. This research improves HOTS of Fiqh learning students based on quantum teaching models and becomes a reference for teachers in designing learning strategies oriented towards HOTS.

Keywords: Fiqh Learning, High School Students, HOTS, Quantum Teaching.

Citation in APA Style:
Aulia, M. G., Ichsan, I., Sentosa, S., & Rifkiya, A. (2025). Effectiveness of the Quantum Teaching Model in Enhancing HOTS in Fiqh at State Islamic High School. *Indonesian Journal of Islamic Education Studies (IJIES)*, *8*(1), 53–72. https://doi.org/10.33367/ijies.v8i1.7445

Introduction

The learning models currently used in schools are still ineffective (Engzell et al., 2021; Jamila et al., 2021; Zalat et al., 2021) because these learning models are conventional (Dewi, 2018; Hew et al., 2020; Serdyukov, 2017). The general trend in developing learning models is influenced by the interaction between the unique aspects of children and their families, communities, and classroom contexts (Al-Thani & Ahmad, 2025; Nahar et al., 2022; Tavares et al., 2022). As a result, children require different support and instruction to facilitate optimal competencies, self-confidence, and motivation growth (Darling-Hammond et al., 2020). Therefore, providing new and engaging learning models inside and outside the classroom is the responsibility of educators (Al-Hunaiyyan et al., 2017).

Learning models in today's era must be tailored to the circumstances of the students (Ariyanti, 2024; Rohmah et al., 2024; Sutiani et al., 2021). The advancement of technology has brought about significant changes in current educational practices, with conventional methods gradually being replaced by digital ones (Subiyantoro, 2022). A teacher has the responsibility, influence, and role within the school environment to educate, train, and impart as much knowledge as possible to help students achieve their goals (Khofiyah, 2020). Teachers must connect learning models to real life and foster a sense of collaboration with students (Hamdini & Latipah, 2017). Using learning models that align with the subject matter is one way teachers can convey complex information in an easily understandable manner (Hidayat & Syahidin, 2019). Effective learning models allow students to absorb the material presented (Cholid et al., 2021).

As observed in the preliminary research conducted at MAN 4 Bantul, the learning process is still ineffective. Therefore, teachers must implement effective and efficient learning to improve learning outcomes (Suyidno et al., 2018). One alternative solution believed to strengthen students' scientific understanding and responsibility in learning is to apply another learning model (Darling-Hammond et al., 2020; Suyidno et al., 2018). The role of teachers is focused on creating conditions that align with the desired learning objectives (Mendez & Florez, 2018). This approach to learning is characterized by guarantees and challenges that are heavily influenced by current trends toward efficiency, standardization, and control (Frache, 2017).

Learning refers to the interaction between three forms of knowledge: pedagogy, content, and technology (Ariyanti, 2024; Haleem et al., 2022; Kaffenberger & Pritchett, 2021; Polman et al., 2021; Rohmah et al., 2024; Sibarani, 2021; Sutiani et al., 2021). The learning design process is shaped by Bloom's Taxonomy of cognitive domains and the knowledge dimensions or types of expertise: factual, conceptual, procedural, and metacognitive (Zgheib & Dabbagh, 2020). Until now, teachers have only lectured on teaching material, resulting in low student enthusiasm and activity in learning. Teachers have not used learning media to help students understand. Teachers assess objects around them or easily found objects (Aulia et al., 2025). When teachers explain through lectures, students ignore the lesson (Romanvican et al., 2020).

In addition to learning models, teachers must use appropriate learning media (Susanti et al., 2022). According to preliminary research observations conducted at MAN 4 Bantul, teachers still rely on textbooks and use only simple PowerPoint presentations. Students' learning media face various instructional and technological constraints that can affect their understanding (Kazanidis et al., 2018). From an instructional-pedagogical perspective, the most indicative issue is the lack of support from the primary instructor in contemporary-based learning sessions. The absence of technological infrastructure for user interaction in a digital-oriented environment also negatively impacts student participation (Aulia et al., 2022). Teachers also acknowledge the benefits of using educational media tailored to academic content in a standard context (Baceviciute et al., 2021).

The state of learning at the high school level in Yogyakarta demonstrates the local government's strong commitment to improving the quality of education (Sugiharyanti, 2023). However, at MAN 4 Bantul, one of the secondary schools in this region, there are still various learning issues that need attention. Students' lack of interest in specific learning activities and challenges in implementing ineffective methods have resulted in suboptimal understanding of the material. This study focuses on Fiqh because it is considered highly complex in understanding Islamic law concepts, so it is often less popular among students and requires a more innovative learning approach. This situation highlights the need to develop more engaging and contextually relevant learning strategies to enhance student motivation and academic outcomes significantly.

Meanwhile, observations conducted on tenth-grade students at MAN 4 Bantul revealed that students' understanding of concepts was still low. Teachers still frequently used lecture methods in their teaching. To increase student motivation, the learning process needs to be enjoyable and interactive (Retnowati, 2020). Teachers' views on teaching and learning and their beliefs about knowledge and intelligence are widely recognized to influence their teaching methods. A teacher's approach to teaching significantly impacts their practical teaching methods, and learning also depends on the teacher's knowledge and intelligence. Teachers must be able to think and understand information about the universe by engaging directly (Kosasih et al., 2022). Through learning that directly involves students, it is hoped that students can learn to their fullest potential. Learning that involves students is expected to achieve learning objectives effectively.

Teachers have made efforts to further develop learning experiences by implementing engaging learning strategies (Rohmad et al., 2022; Sönmez, 2017; Tong et al., 2022).

However, the efforts made by teachers and schools indicate that learning outcomes remain below standard. That is evident from the students' learning styles, which still tend to be passive in Fiqh lessons. This attitude may stem from teachers explaining more than students during the learning process or teacher-centered learning (Ennis, 1991; Thornhill-Miller et al., 2023; Wibowo, 2023). During learning evaluations, many students still do not understand the newly taught material because they have not been allowed to engage in higher-order thinking skills (HOTS) in Fiqh learning. Therefore, selecting the learning model used to design the learning process significantly impacts the learning process (Wote et al., 2020).

One way to implement good learning is through the Quantum Teaching model. Retnowati revealed in her research that students who learn with the Tandur learning model achieve better results than students who use conventional learning models (Retnowati, 2020). Analysis of student learning activities during Quantum Teaching shows that the development of Tandur learning tools is highly effective in enhancing student engagement (Allo et al., 2022; Amin et al., 2021; Kasgari & Shooshtari, 2024; Nasution et al., 2023; Tanjung et al., 2024). Celebrations can inspire students to actively participate in learning (Retnowati, 2020). With Quantum Teaching, students will likely experience learning that will be remembered for the long term (Wote et al., 2020).

Based on previous research on the Quantum Teaching model, which has been limited to exact subjects such as mathematics and science (Aryanti & Muhsam, 2023; Mahmud et al., 2023; Putri & Wardika, 2020; Sibarani, 2021; Tanjung et al., 2024; Wote et al., 2020), it has not been widely applied in the context of Fiqh learning. In addition, previous studies have focused more on improving learning outcomes in general, without specifically measuring their impact on higher-order thinking skills (HOTS). Research on the Quantum Teaching model focusing on improving HOTS in Fiqh learning is still relatively limited. Therefore, this study aims to address this gap by examining the effectiveness of the Quantum Teaching model in improving HOTS in Fiqh learning through an experiment. This study's alternative hypothesis (Ha) is that the Quantum Teaching learning model effectively improves students' HOTS skills in Fiqh learning at MAN 4 Bantul, Yogyakarta.

Methods

This study employs a quantitative approach with a quasi-experimental research design to evaluate the effectiveness of the Quantum Teaching model in improving HOTS in Fiqh learning at MAN 4 Bantul, Yogyakarta (Sirotová et al., 2021; Creswell, 2015). This design used a control group using a cluster sampling technique. The sample consisted of 64 students from classes X-E and X-C, selected based on their initial academic ability, comparable availability of study time, and similarity in the teachers and curriculum utilized.

Several factors were considered in sampling, including population size, characteristics, and the desired confidence level. The instruments used in this study consisted of a pretest and a posttest, each containing 20 items. The validity of these instruments was assessed by evaluation experts, Fiqh teachers, and peers using Aiken's V to ensure reliable results (Aiken, 1985).

$$V = \sum \frac{s}{[n\ (c\ -1)}$$

$$V = \sum \frac{r\ - lo}{[n\ (c\ -1)}$$

Table 1. The validity test results of questions with Aiken V

No	$\sum s$	n (c - 1)	Aiken Coefficient (V)	Minimal Aiken	Description
1	20.33	21	0.97	0.86	Valid
2	19.93	21	0.95	0.86	Valid
3	19.93	21	0.95	0.86	Valid
4	19.93	21	0.95	0.86	Valid
5	19.73	21	0.94	0.86	Valid
6	19.87	21	0.95	0.86	Valid
7	19.93	21	0.95	0.86	Valid
8	20.13	21	0.96	0.86	Valid
9	19.80	21	0.94	0.86	Valid
10	20.13	21	0.96	0.86	Valid
11	20.07	21	0.96	0.86	Valid
12	20.07	21	0.96	0.86	Valid
13	19.87	21	0.95	0.86	Valid
14	20.07	21	0.96	0.86	Valid
15	20.27	21	0.97	0.86	Valid
16	20.40	21	0.97	0.86	Valid
17	19.73	21	0.94	0.86	Valid
18	20.20	21	0.96	0.86	Valid
19	20.40	21	0.97	0.86	Valid
20	20.20	21	0.96	0.86	Valid

The test items were verified for validity, with Aiken coefficients ranging from 0.94 to 0.97, indicating a high level of reliability ($V \geq 0.86$). The research data were then tested for normality and homogeneity to meet the assumptions necessary for further analysis. After ensuring the data were normally distributed, the next step was to evaluate the effectiveness of the experimental intervention. T-tests and N Gain scores were used to assess its effectiveness and allow for a comprehensive understanding of the experiment's impact.

Results and Discussion

Results

Before administering the treatment, pretests were administered to the experimental class (XE) and the control class (XC). It aimed to determine students' initial ability levels in the aspects studied and to ensure that both groups had relatively equal ability. The pretest data were then analyzed to examine the similarity of means, standard deviations, and score distributions between groups. The pretest data calculations are shown in Table 2 as a basis for comparison before administering the treatment.

Table 2. Pretest score

Data Centralization and Distribution	Class	
	Experiment	**Control**
Minimum Value	30	30
Maximum Value	70	70
Mean	48.75	49.22
Median	50	50
Mode	40	50
Standard Deviation	9.33	11.15
N	32	32

Table 2 shows the minimum and maximum scores for the experimental class (30) with an average score of 48.75 and the control class (70) with an average score of 49.22. The median score for both classes was 50. The most frequently occurring score in the experimental class was 40, and the control class was 50. That indicates that the initial abilities of both classes before the treatment were similar

It appears that the initial abilities of students in the experimental class and the control class were at a relatively equal level. It is indicated by the same minimum score of 30 and the same maximum score of 70 in both classes. The average pretest score in the experimental class was 48.75, slightly lower than that of the control class at 49.22, but the difference was small and insignificant. Additionally, the same median score of 50 indicates that the distribution of scores in both classes is relatively symmetrical, while the different mode scores 40 in the experimental class and 50 in the control class show variations in the frequency of scores, but not enough to conclude that there is a significant difference in ability. Therefore, both classes can be said to have balanced initial ability levels before being given different learning treatments.

After the treatment was administered, a posttest was conducted to assess the effects of the learning models on the students' learning outcomes. The experimental group engaged with the Quantum Teaching model, emphasizing active participation and student engagement, while the control group continued with the traditional lecture-based approach. This posttest was designed to quantitatively evaluate the effectiveness of each instructional method in enhancing students' understanding and skills following the intervention. Analysis of the posttest results provides insight into the comparative advantages of innovative teaching models over conventional ones. Details are presented in Table 3, which provides a basis for further academic discussion and evaluation.

Table 3. Posttest score

Data Centralization and Distribution	**Class**	
	Experiment	**Control**
Minimum Value	70	40
Maximum Value	100	90
Mean	83.9	65
Median	85	65
Mode	80	70
Standard Deviation	8.39	12.82
N	32	32

Table 3 shows that the lowest score in the experimental class was 70, and the highest was 100, while some of the control class scores varied from 40 to 90. The experimental class obtained an average score of 83.9, while the control class had an average score of 65. Meanwhile, the median score for the experimental class was 85 points, and for the control class was 65. The mode score in the experimental class was 80, and 70 in the control class. Additionally, the standard deviation of the experimental group was 8.39, and that of the control group was 12.82.

Analysis of the posttest results showed a significant difference between the experimental and control classes after various instructional treatments. Table 3 also shows that the experimental class scores ranged from 70 to 100 using the Quantum Teaching model. In contrast, the control class had a lower minimum score variation: from 40 to a maximum of 90. After the 4-week teaching experiment, the test scores for the experimental group averaged 83.9, while those in the control class averaged only 65.

The average score for the experimental class was 85, with a mode of 80, while the control class scored 65 and 70. Meanwhile, the smaller standard deviation of the experimental class (8.39 compared to 12.82) means that the students' scores were more evenly distributed and consistent than those in the control class. From this data, it can be concluded that after applying the Quantum Teaching learning model in the experimental class, there was a higher increase in HOTS skills compared to the control class with the conventional learning model.

T-test

After obtaining normally distributed and homogeneous data, we analyzed it through a series of hypotheses. To evaluate the effects of the treatment, we conducted a paired sample t-test, which allowed us to compare the average values before and after the intervention. This statistical method is advantageous in determining whether any observed differences are statistically significant. By applying the t-test, we aimed to gain insights into the impact of the treatment on the subjects involved in the study.

Table 4. Paired T-test

		Paired Differences				
		Mean	Std. Deviation	t	df	Sig. (2-tailed)
Pair 1	Pretest Experiment – Posttest Experiment	-35.156	10.433	-19.062	31	0.001
Pair 2	Pretest Control – Posttest Control	-15.781	16.220	-5.504	31	0.001

Table 4 shows the results of pair 1; a significance value of 0.001 < 0.05 was obtained, so it can be concluded that there is a difference in the average results of students' understanding of concepts in the pretest and posttest of the experimental class. That is because the significance value of 0.001 is smaller than 0.05, so it can be concluded that H0 is rejected and Ha is accepted. Meanwhile, based on the results of pair 2, a significance value of 0.001 < 0.05 was obtained, so it can be concluded that there is a difference in the average concept understanding scores of students in the pretest and posttest of the control class.

N Gain

An N-gain test was conducted on students at MAN 4 Bantul to assess the effectiveness of the Quantum Teaching learning model in improving Higher Order Thinking Skills in the subject of Fiqh. Teachers conducted this test to understand the real impact of the Quantum Teaching training method on student achievement. The results can provide further insights into how educational tools that engage students and encourage interaction have the potential to lead to the development of problem-solving and critical thinking skills. This research will ultimately help advance learning in the classroom, both for teachers and students.

Table 5. N-Gain Scores

No	Class Experiment N-Gain Score (%)	Class Control N-Gain Score (%)
1	60	45,45
2	100	22,22
3	44,44	55,56
4	66,67	12,5
5	72,73	22,22
6	25	15,38
7	81,82	-11,11
8	90	85,71
9	44,44	57,14
10	63,64	-33,33
11	75	-20
12	80	0
13	57,14	-10
14	55,56	40
15	37,5	37,5
16	64,29	22,22
17	75	41,67
18	58,33	38,46
19	66,67	72,73
20	66,67	25
21	91,67	40
22	71,43	-28,57
23	66,67	30,77
24	72,73	41,67
25	60	38,46
26	50	35,71
27	88,89	25
28	81,82	37,5
29	75	20
30	100	20
31	81,82	57,14
32	66,67	72,73
Mean	**68,49**	**28,43**
Min	**25**	**-33**
Maks	**100**	**86**

Table 5 shows the detailed analysis results of the N-Gain values for the experimental and control classes. The average N-Gain value of 68.43% obtained in the experimental class indicates a classification of moderately effective, with results falling within the range of 56–75%. This class, in particular, shows N-Gain values ranging from a low of 25% to a high of 100%, indicating significant differences in the effectiveness of the intervention. The average N-Gain score for the control class is 28.43%, which is significantly lower, placing it in the "less effective" category (below the 40% threshold). The control class's scores also varied from a minimum N-Gain (%) of -33% to 86%, further emphasizing the differences in educational outcomes between the two classes.

Discussion

Practicing the Quantum Teaching learning model enables students to enhance their HOTS in Fiqh learning. Students can explore concepts in Fiqh material together through discussion. This learning helps them relate these concepts to their life experiences, deepening their understanding of applying these values in various situations. Before the treatment was administered, students were given a pretest to complete. After the pretest scores were collected, the lowest score in both classes was 30.

Meanwhile, the maximum score in the experimental class was 70, and in the control class it was 70. The average score for the experimental class was 48.75, while for the control class it was 49.22. From these results, it can be concluded that the initial abilities of the two sample classes before the intervention were the same, so different interventions could be applied. After the treatment was administered, the posttest results showed that the lowest score in the experimental class was 70, with the maximum score being 100. While in the control class, it was 40, with the maximum score being 90. The average score in the experimental class was 83.9, while in the control class it was 65.

Thus, there is a significant difference between the experimental and control classes. Therefore, learning with the Quantum Teaching model shows greater results. Based on the N-Gain scores, the average score of the experimental class was higher than that of the control class. That difference indicates that the HOTS skills of students who received the Quantum Teaching model were better than those who received expository learning. That is because in Quantum Teaching, students find it easier to understand the material as they are provided with experiences or examples through visual media or directly.

Meanwhile, in conventional teaching, the teacher directly teaches the material to the students. Students only listen, pay attention, and take notes on what the teacher says, without discovering the concepts of the material being studied independently. As a result, students still struggle to restate the concepts. Implementing the Quantum Teaching learning model in the Fiqh subject for X class grade students at MAN 4 Bantul has greatly enhanced students' knowledge of the learning material. This model emphasizes creating an enjoyable, meaningful, and contextual learning environment, directly impacting increased student engagement in the learning process (Azzahra et al., 2025). Quantum Learning makes this happen, with active interaction between teachers and students and interaction between students occurring naturally in various creative strategies. In terms of learning evaluation, there was an increase in the average score (68.49), indicating a clearer understanding of the basic concepts of Fiqh.

This success is likely the result of Quantum Learning practices that integrate emotional and cognitive components into learning (DePorter et al., 2014). That is particularly important in Fiqh, where it is necessary to revisit the teachings of Islam with a deep understanding. Enthusiasm in the learning process shows an increase in student motivation. Participation in the Quantum Learning Model effectively encouraged almost all students to participate in class discussions and exercises. No students were passive; they were vocal and asked questions about the Fiqh material. It confirms that students learn best when their learning styles are met and the classroom is an environment that supports the development of academic confidence. This model can help foster a conducive learning environment to help students develop critical thinking skills.

A significant improvement followed the application of this model in the quantitative data of the pretest and posttest results. That proves that the material developed using the Quantum Teaching model (which shifts from a behavioristic learning paradigm to 'deep' learning based on religious values) can be highly relevant to the teaching program teachers offer to enable children to learn. This intervention indicates that the Quantum Teaching model can be applied to low interest in Fiqh subjects and academic performance. This model enhances cognitive aspects and students' positive attitudes toward religious material. Therefore, this model is suitable for teaching Fiqh in secondary education. Continuous implementation and teacher training are important steps toward the long-term sustainability of this model.

This study's results align with Hikmah et al.'s research, which proved that Quantum Teaching with the TANDUR model produced better mathematics learning outcomes than conventional teaching methods. These results are consistent with a t-test at a 5% significance level using SPSS 16 (Hikmah et al., 2020). These findings support the notion that the Quantum Teaching approach, which is based on the TANDUR principle, can create a better, meaningful, and joyful learning environment for students.

Mahmud et al. used the Quantum Teaching learning model and found that students' learning outcomes were moderate, with an average score of 71.6 (Mahmud et al., 2023). MAN 4 Bantul supports this statement in the research conducted. On average, students achieved a score of 83.9 in quantum teaching. Overall, the study's results indicate that, although there are variations in the average performance of students categorized by performance category, Quantum Teaching significantly improves average ability or reduces variability even when students are assigned higher or lower pre-treatment rankings across many parameters. Researchers note that clinical differences indicate factors influencing implementation.

Retnowati's research results show that the Quantum Teaching model has an 80% success rate in improving student abilities (Retnowati, 2020). However, in a study conducted at MAN 4 Bantul, the average percentage of student concept readiness using Quantum Teaching was 68.49%. This difference in success rates is likely due to differences in institutional context, student characteristics, and the technical implementation of the learning model. However, both studies indicate that Quantum Teaching positively impacts students' higher-order thinking skills (HOTS).

In line with Harahap and Marwiyah's research, which used the Quantum Teaching model in science learning experiments, this study shows that Quantum Teaching affects science learning outcomes, with an average posttest score of 88.88 (Harahap & Marwiyah, 2023). Similarly, research at MAN 4 Bantul using the Quantum Teaching model on Fiqih HOTS skills was also significant, considering the average posttest score of this study was 83.9 for the experimental class.

Putri et al. also researched to obtain the second posttest results for science learning in the experimental class. The results showed that the Quantum Teaching model improves science learning outcomes (Putri et al., 2020). Regarding the HOTS test for the Fikih subject at MAN 4 Bantul, the average score obtained was 83.9 with a range of 70-100. Based on this data, Fiqh learning is also effective when applying Quantum Teaching.

The Quantum Teaching learning model applied in this study has proven capable of creating a fun and active learning environment, and can be oriented towards forming higher-order thinking skills (Anandari et al., 2024; Ardiansyah & Akbar, 2024). The theoretical framework during the learning process includes emotional, physical, and intellectual elements (Stavrianos, 2023). In this learning concept, students function as the leading actors (Ruijuan et al., 2023), meaning that students must actively search for and construct knowledge. It also aligns with constructivist theory, allowing for the best possible student engagement (Kumar Shah, 2019).

This Fiqh learning activity also involves students in critical and reflective thinking about issues in the context of everyday life, because Fiqh is a field that requires an understanding of concepts and the application of values (Listrianti et al., 2025; Siregar & Hasibuan, 2025). Furthermore, students explore Islamic religious issues in greater depth through group discussions. Therefore, this teaching and learning process also develops students' analytical, synthesis, and evaluation skills, which are the main HOTS skills (Mukhlis et al., 2023). Thus, Quantum Teaching not only changes the learning approach but also changes the way students view Fiqh lessons.

Significant differences in posttest results between the experimental and control classes reinforce empirical evidence that Quantum Teaching positively impacts student learning achievement (Windayani & Widyasanti, 2025). The experimental class showed higher improvements in average and N-Gain scores compared to the control class, which still used the lecture method. That indicates that conventional learning tends to be less effective in accommodating students' cognitive needs in higher-order thinking (Eliana & Wati, 2024). Therefore, innovative approaches such as Quantum Teaching are strategic solutions to improve the quality of learning in madrasahs.

Furthermore, the true competence of models such as Quantum Teaching is demonstrated in students who can better retain the values of their Fiqh lessons more contextually. Making religious teachings real through real-life experiences makes the information more meaningful and relevant to students. That is important because the objectives of Islamic education lie in its cognitive, affective, and psychomotor aspects (Fanani et al., 2025). In other words, Quantum Teaching addresses all three domains and the importance of education that responds to societal changes.

Based on the research results in this paper, its contribution to educational literature can also be enhanced, particularly for developing new learning models for HOTS and their application in madrasahs. Major studies on the effectiveness of Quantum Learning have primarily focused on normative sciences, making these findings a new contribution to religious education. Based on this research, it can be concluded that modern learning strategies (*Fiqh*) can be practically applied to value- and ethics-based subjects (Rahmi et al., 2023). Therefore, the Quantum Learning model can be considered an alternative in developing a more interactive, critical, and meaningful learning process.

From the study results, it can be inferred that the quantum learning model is better regarding its impact on improving HOTS than conventional learning. This difference may indicate that the active quality of the Quantum Learning model is in line with students' deep cognitive processing, which achieves a much better analytical element. In addition, following the research hypothesis, the applied Quantum Learning model can improve students' HOTS skills, especially in Fiqh subjects at MAN 4 Bantul. Therefore, teachers should consider implementing their new method as an alternative to enhance students' problem-solving and analytical thinking abilities. In conclusion, the positive implementation of the Quantum Learning model on HOTS development highlights the importance of integrating contemporary pedagogy with traditional approaches into the educational system.

Conclusion

Based on the results of research conducted at MAN 4 Bantul, it can be concluded that applying the Quantum Teaching learning model effectively improves students' higher-order thinking skills in Fiqh subjects. That is evident from the differences in pretest and posttest results in the experimental and control classes. The average N-Gain score for the experimental class was 68.49%, indicating higher effectiveness than the control class, which only achieved a score of 28.43%. These findings suggest that learning designed to be interactive, contextual, and involving active student participation, as in the Quantum Teaching model, can create a more meaningful learning environment and encourage students' analytical abilities.

This study's implication is the importance of teacher training in mastering innovative learning approaches to improve the quality of the learning process in the classroom. However, this study has a limited sample scope, which is restricted to one school and one subject, so the results cannot be generalized widely. This study is expected to serve as a reference for developing other innovative learning models focused on strengthening higher-order thinking skills and a foundation for further research with a broader scope and more diverse variables.

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