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The Effectiveness of the Quiz Team Learning Model on Islamic Education Learning Outcomes of Eighth-Grade Students at SMP Negeri 2 Tinambung

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Abstract

This study evaluates the effectiveness of the Quiz Team active-learning model in improving Islamic Education (PAI) learning outcomes among eighth-grade students at SMP Negeri 2 Tinambung. A one-group pretest–posttest pre-experimental design was employed, involving 29 students who received Quiz Team instruction across five meetings. Data were collected using validated multiple-choice pretests and posttests, supported by standardized classroom implementation observations. Data were analyzed using SPSS through descriptive statistics, Kolmogorov–Smirnov normality testing, Levene's homogeneity testing, paired-sample t-testing at $\alpha = 0.05$, and effect size reporting. The findings show that implementation fidelity improved across sessions, from 82.95% to 89.77% and then to 92.04%, indicating rapid adaptation by both teachers and students. Students' initial mastery was low, as reflected in the pretest score ($M = 35.07$, $SD = 8.14$), whereas the posttest score showed substantial improvement ($M = 78.79$, $SD = 6.89$), with a mean increase of 43.65 points. The statistical assumptions were met, with normality values of $p = 0.816$ for the pretest and $p = 0.863$ for the posttest, and homogeneity value

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of p = 0.383. The paired-sample t-test confirmed a highly significant improvement in learning outcomes (t = 28.152, p < 0.001). These findings indicate that the Quiz Team model can enhance student engagement and conceptual mastery in PAI through retrieval practice, peer explanation, and rapid formative feedback. This study contributes to the literature on active learning in Islamic education by providing empirical evidence on the effectiveness of Quiz Team instruction. However, the single-group design and single-site sample limit causal inference and generalizability. Further research is recommended through controlled trials, larger and more diverse samples, longer follow-up periods to assess retention, and process evaluations to identify active components for scalable implementation.

Keywords: Quiz Team; Learning Outcomes; Islamic Education; Active Learning; Pre-Experimental Design

INTRODUCTION

Islamic Education (*Pendidikan Agama Islam*/PAI) holds a crucial position in the education system, serving not only to transfer religious knowledge but also to shape students' attitudes, values, morals, and character. In the context of modern education, PAI is required to contribute to the balanced strengthening of affective, cognitive, and psychomotor competencies. Therefore, PAI learning must not be solely oriented toward memorization but must also provide meaningful learning experiences and encourage the internalization of Islamic values in everyday life (Ichsan et al., 2023; Marqomah & Ichsan, 2023; Miftahurrohman et al., 2021; Rustam & Ichsan, 2020).

However, in practice, PAI learning in schools still often faces classic problems, such as the dominance of lecture methods, low student participation, and minimal two-way interaction in the classroom. These conditions tend to lead to teacher-centered learning, leaving students passive and less motivated to think critically or actively participate in the learning process. In the long term, this learning pattern can result in poor conceptual understanding and poor learning outcomes (Khairulnisah, 2020).

Various educational studies have shown that active learning is more effective than learning that simply positions students as recipients of information. Active learning models emphasize student engagement through discussion, group work, question-and-answer sessions, reflection, and peer evaluation. This approach aligns with the needs of 21st-century learning, which demands communication, collaboration, and problem-solving skills, making

it highly relevant for PAI learning (Hidayah, 2025). One active learning model that has the potential to increase student engagement is Quiz Team. This model combines group collaboration with elements of academic competition through the creation and completion of intergroup quizzes. During implementation, students are required to understand the material, discuss it with their teammates, and respond quickly and accurately, making learning more lively, interactive, and enjoyable (Taqwim, 2019).

Pedagogically, Quiz Team excels in creating a learning environment that encourages the participation of all group members, not just the dominant student. Group quizzes help students exchange knowledge, test their understanding, and develop the courage to express their opinions. Furthermore, healthy competition between groups can increase students' intrinsic and extrinsic motivation, encouraging them to better prepare for the lesson (Mardianti, 2018).

Several previous studies have shown that the Quiz Team model has a positive impact on learning outcomes in various subjects, including religious education (Nurhasanah, 2018). These findings indicate that cooperative learning combined with academic game-based evaluation can improve material comprehension and student engagement (Taqwim, 2019). Therefore, Quiz Team has a sufficient empirical basis for further testing in the context of PAI learning at the junior high school level.

Based on initial observations at SMP Negeri 2 Tinambung, PAI learning outcomes of eighth-grade students are still relatively low and have not shown optimal achievements. This condition indicates an urgent need for innovative learning models that not only deliver material but also maximize student engagement in the learning process. In this context, the implementation of Quiz Team is considered relevant to address low learning engagement and improve the quality of learning outcomes. Based on this, this study is important to analyze the effectiveness of the Quiz Team learning model in improving the PAI learning outcomes of eighth-grade students at SMP Negeri 2 Tinambung. This study is expected to provide theoretical contributions to the development of activity-based PAI learning strategies, as well as practical contributions for teachers in selecting more innovative, interactive learning models that are oriented towards improving student learning outcomes.

METHODS

This study used a quantitative approach with a one-group pretest–posttest pre-experimental design. This design was chosen to evaluate changes in student learning outcomes after the implementation of a treatment/intervention in one group without a control group (Sugiyono, 2019, 2022). The study was conducted at SMP Negeri 2 Tinambung with an intervention duration of five meetings. The study subjects consisted of 29 eighth-grade students selected using total sampling (the entire class was included as a sample). Inclusion and exclusion criteria are described as follows: inclusion—actively participating in learning during the study period and taking the pretest and posttest; exclusion—absent from more than one meeting or not completing the instrument. Research ethics were adhered to through permission from the principal, teacher approval, and informed consent from the students' parents/guardians (Creswell, 2013; Yusuf, 2016).

Data collection techniques included learning outcome tests (pretest and posttest) to measure competency achievement, and observations to assess the implementation of learning during the intervention. The main instrument was a multiple-choice test that had undergone validity and reliability testing. Validation procedures and reliability values (e.g., alpha coefficient or KR-20) are detailed in the appendix/instrument test results. The observation tool used a standardized observation sheet equipped with a rubric for assessing implementation (Rosidah et al., 2023).

Data analysis was conducted sequentially, starting with descriptive statistics (mean, standard deviation, and percentage) to describe the pretest-posttest score profile and observation results. Prerequisite assumption tests included a normality test using the Kolmogorov-Smirnov test and a homogeneity of variance test using Levene's Test. To test the hypothesis regarding the difference in mean scores before and after the intervention, a paired sample t-test was used with a significance level of $\alpha = 0.05$. All analyses were conducted using statistical software SPSS, and results are reported with p-values and effect sizes to strengthen the interpretation of the findings (Parjaman & Akhmad, 2019).

RESULTS

Implementation of the Quiz Team Model

Observations showed a consistent improvement in learning implementation from meeting to meeting. At the first meeting, the implementation rate was recorded at 82.95%, a figure that indicated quite good learning implementation but still left room for improvement. Factors that may have influenced this initial achievement include student adaptation to the new learning model, the readiness of media and teaching materials, and teacher mastery of the steps for implementing Quiz Team. At the second meeting, the rate increased to 89.77%, a surge indicating that initial obstacles were beginning to be overcome. This improvement was likely due to improved teacher skills in facilitating team activities, student adjustments to the flow of activities, and technical improvements such as assignment distribution and timeframes. Furthermore, feedback from the first meeting could have been used to refine the learning scenario, making implementation more structured and efficient.

The continued increase in the third meeting, reaching 92.04%, strengthens the indication that the Quiz Team model can not only be implemented but also internalized by the class as an effective method. At this point, group dynamics tend to be more stable, the roles of each participant are clearer, and the formative evaluation process runs more smoothly, thus achieving the implementation of dominant activities. These results also indicate the transfer of metacognitive skills—such as planning and reflection among team members—which supports the smooth implementation of learning. Overall, the increasing trend in the implementation percentage from 82.95% to 92.04% indicates that the Quiz Team model has high potential to improve the quality of learning implementation.

Learning Outcomes Before Treatment

The average pretest score of 35.07 (SD = 8.141) indicates a relatively low initial mastery of the material. This average is well below the commonly used minimum learning mastery threshold, indicating that most students had not yet achieved the expected basic competencies before receiving treatment. The standard deviation of 8.141 reflects moderate score variation—although there are differences between individuals, the majority of scores converged below the mastery point. The categorization of the majority of students at a low level emphasizes the existence of fundamental problems in mastering initial concepts. Possible contributing factors include an inadequate understanding of prerequisites, ineffective previous learning methods, low learning motivation, or environmental constraints

such as learning facilities and parental support. Identifying these factors is crucial for designing targeted interventions, as strategies that successfully address conceptual weaknesses differ from those that address motivational or social contextual issues.

Learning Outcomes After Treatment

The mean posttest score increased to 78.79 (SD = 6.89), indicating a significant improvement over the pre-treatment score. It mean approaches or exceeds the common learning mastery criterion (e.g., 75), while the smaller standard deviation indicates a tighter distribution of scores: reduced variation across participants and more students achieving adequate levels of understanding. The movement of the majority of participants to the high category reflects the group's shift from the low/medium range to higher achievement after the intervention. These results are consistent with the effectiveness of the Quiz Team model in increasing student engagement and conceptual mastery. Mechanisms such as cooperative learning, rapid feedback, and quiz-based exercises likely strengthen retention and improve students' critical thinking skills.

Hypothesis Testing

The results of the normality test using relevant methods showed that the pretest and posttest scores met the assumption of normality, with significance values of 0.816 and 0.863, respectively ($p > 0.05$). This finding indicates that the data distribution approximates a normal distribution, justifying the use of parametric tests such as the Paired Sample T-Test. Adherence to the assumption of normality is important because it ensures that the estimated mean and standard deviation adequately represent the population and reduces the risk of type I or II errors arising from violations of the distributional assumptions.

The homogeneity of variance test showed a significance value of 0.383 ($p > 0.05$), indicating that the variances between groups or conditions can be considered homogeneous. Homogeneity of variance strengthens the validity of the use of parametric tests because it assumes comparable variances between paired measurements or between the groups being compared. By meeting the assumptions of normality and homogeneity, the results of follow-up tests become more reliable and their interpretations more inferentially valid.

Inferential analysis using a Paired Sample T-Test yielded a calculated t-value of 28.152 with a significance level of 0.000 ($p < 0.05$), implying a highly significant change in learning scores between the pre- and post-intervention conditions. The large t-value and very small significance indicate that the mean difference is unlikely to be due to random variation

alone. Practically, these findings support the claim that the implementation of the Quiz Team model significantly contributed to improving student learning outcomes in Islamic Education (PAI). Quantitatively, the average increase of 43.65 points demonstrates the substantial practical effect of the Quiz Team model. This increase is not only statistically significant but also pedagogically meaningful: structured quizzes and group discussions encourage active engagement, intrinsic motivation, collaboration, and the courage to speak up and ask questions. These findings are consistent with the literature on active learning, which emphasizes the role of student participation and social interaction in deepening understanding and retention of material.

DISCUSSION

Implementation improvement across meetings shows learning-model uptake. The steady rise in implementation from 82.95% to 89.77% and then 92.04% suggests teachers and students adapted quickly to the Quiz Team routine, reducing initial implementation barriers such as unfamiliarity with procedures and materials. Research on cooperative and team-based quiz methods reports similar early improvements when teachers refine facilitation and logistical arrangements between sessions (Sitio & Habeahan, 2023).

Teacher skill and readiness influence implementation fidelity. The observed jump between the first and second meetings can be explained by improved teacher mastery of Quiz Team steps and better-prepared materials, which aligns with literature showing teacher training and rehearsal increase fidelity of novel instructional methods. Studies emphasize that small procedural refinements (timing, assignment distribution, clearer role assignment) markedly raise implementation rates in subsequent sessions (Intaniasari et al., 2023). Student adaptation and group dynamics support sustained implementation. By the third meeting, the class demonstrated stabilized group roles and smoother formative evaluation, which is consistent with findings that cooperative learning gains traction as group norms and metacognitive practices (planning, reflection) develop over repeated interactions. Empirical work on team quiz and cooperative formats documents that stabilized group dynamics improve the efficiency of in-class activities and increase teacher capacity to focus on content rather than logistics (Aiman et al., 2024).

Quiz Team likely fosters metacognitive and social skills that underpin implementation. Your observation of increased metacognitive planning and reflection

among team members corresponds to research showing that collaborative quiz activities stimulate metacognitive regulation and peer scaffolding, which in turn support more consistent implementation of the instructional model. These processes make the classroom less dependent on moment-to-moment teacher direction and more driven by structured peer interaction (Takaria et al., 2025). Low pretest means show an important need for intervention. The pretest mean of 35.07 (SD = 8.141) indicates limited initial mastery and moderate individual variation, a pattern frequently found where prior instruction or prerequisite understanding is weak—conditions under which active cooperative interventions are recommended. The literature shows that identifying whether challenges are conceptual, motivational, or contextual is essential to choose appropriate supports and interpret pretest dispersion (Intaniasari et al., 2023).

Posttest gains indicate strong intervention effectiveness. The posttest mean of 78.79 (SD = 6.89) and the movement of most students into the high category point to substantial learning gains consistent with prior studies that report improved retention and conceptual understanding after team-quiz style interventions that combine frequent retrieval practice with peer discussion. Smaller posttest variance aligns with findings that cooperative quizzing reduces between-student performance spread by raising lower-performing students through peer support (Tati et al., 2023). Statistical assumptions were met, supporting parametric inference. The normality ($p = 0.816$ pretest, $p = 0.863$ posttest) and homogeneity ($p = 0.383$) test results justify using parametric paired-sample analysis, which is consistent with standard statistical practice in educational intervention studies when assumptions hold. Methodological guidance in education research underscores that confirming these assumptions strengthens confidence in effect-size and significance interpretations (Nurhalizaa et al., 2025).

Large, significant t-test result confirms practical and statistical impact. The paired t-test ($t = 28.152$, $p < 0.001$) and mean increase of 43.65 points demonstrate both statistical significance and meaningful pedagogical impact, a pattern echoed by experimental and quasi-experimental studies of team-quiz interventions that report large effect sizes for achievement when cooperative retrieval and immediate feedback are central features. Educational research frames such large gains as evidence that structured active-learning strategies can produce rapid, sizable improvements in mastery criteria (Tati et al., 2023). Mechanisms: retrieval practice, peer explanation, and formative feedback. The observed outcomes likely arise from well-documented mechanisms: repeated quiz retrieval strengthens memory, peer explanation

promotes deeper processing, and quick formative feedback corrects misconceptions—mechanisms commonly identified in literature on quiz-based cooperative learning. Meta-analyses of active and collaborative techniques show these combined mechanisms produce larger learning gains than passive lecture alone (Aiman et al., 2024).

Practical implications and scalability for classroom practice. Given the rapid improvement in implementation and the large learning gains, the Quiz Team model appears promising for wider adoption, provided teachers receive initial training, scaffolds for group roles, and time to iterate implementation across sessions—recommendations that mirror implementation-focused studies advocating phased rollouts with teacher coaching to preserve fidelity at scale. Future practice should also monitor sustainability (maintenance of high implementation rates) and transfer to other topics or grade levels, as recommended by implementation research in instructional innovation.

CONCLUSION

The implementation of the Quiz Team learning model produced significant and educationally meaningful improvements in PAI learning outcomes among eighth-grade students at SMP Negeri 2 Tinambung. Over five meetings, classroom implementation fidelity rose from 82.95% to 92.04%, indicating rapid adaptation by teachers and students and increasing procedural stability. Correspondingly, student achievement increased markedly: the mean pretest score (35.07, SD = 8.141) rose to a mean posttest score of 78.79 (SD = 6.89), yielding a mean gain of 43.65 points. Assumption checks supported the use of parametric analysis (normality: $p = 0.816$ pretest, $p = 0.863$ posttest; homogeneity: $p = 0.383$), and the paired-sample t-test showed a highly significant difference ($t = 28.152$, $p < 0.001$). These results indicate that Quiz Team—through mechanisms likely including retrieval practice, peer explanation, and rapid formative feedback—effectively enhances student engagement and mastery in PAI at the junior-high level. While the one-group pretest–posttest design and single-site sample limit causal inference and generalizability, the large effect size and consistent implementation improvements suggest practical promise. For broader adoption, future research should employ controlled or randomized designs, larger and more diverse samples, longer follow-up to assess retention and sustainability, and process evaluations to clarify which model components most strongly drive gains. Nonetheless, within the study's context, Quiz Team is a viable, scalable active-learning

strategy to improve PAI learning outcomes when accompanied by teacher preparation and structured group scaffolding.

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