

The Effectiveness of Jigsaw Models with Interactive Video Media in Improving Learning Outcomes of End-of-Day Signs

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Abstract. This study aims to examine the effectiveness of applying the Jigsaw-type Cooperative Learning Model, integrated with interactive videos, in improving student learning outcomes for the Signs of the Last Day material in grade VI at SDN 53 Sawerigading. This class action research is conducted in two cycles, comprising the stages of planning, implementation, observation, and reflection. The results showed that using the Jigsaw model with interactive videos increased student learning outcomes from an average score of 70 (52% completeness) in Cycle I to 90 (88% completeness) in Cycle II, indicating that its implementation was effective. This improvement shows that combining cooperative learning with interactive videos can make the learning process more active, engaging, and meaningful for students.

Keywords: Jigsaw Model; Interactive Videos; Learning Outcomes; Signs of the Last Day; Cooperative Learning

1. Introduction

Education acts as a foundation in shaping a knowledgeable and moral generation (Suarningsih et al., 2024). An effective learning process is the key to achieving educational goals, which requires innovative and interactive learning models (Kutbiddinova et al., 2016). The Jigsaw-type Cooperative Learning Model is widely known as an approach that can improve student learning outcomes through collaborative group work (Rohmat et al., 2019). This model emphasises peer-to-peer interaction and shared responsibility in understanding the material, thereby helping students achieve a deeper understanding and better academic achievement.

The use of appropriate learning media also plays an important role in improving teaching and learning. Interactive video media, for example, can make learning more engaging and easy to understand (Hazrullah & Lubis, 2023). The combination of the Jigsaw-type cooperative learning model with interactive videos is expected to create an effective and fun learning environment (Rahayu et al., 2023; Yulianisa et al., 2025). This integration allows students to participate and visualise complex concepts more concretely and actively.

Improving the quality of basic education remains a national priority because it plays a key role in shaping the intellectual and moral development of future generations (Sakban & Sundawa, 2023). One of the main indicators of educational success is student learning achievement (Alyahyan &

Düşteğör, 2020; Yau & Ifenthaler, 2020). However, previous research has shown that learning outcomes at the elementary school level remain below expectations due to limited teaching methods and the lack of interactive media. Traditional, teacher-centred approaches often reduce student engagement and critical thinking abilities (Tang, 2023).

Islamic religious education is an important and structured component of the national curriculum that focuses on the development of faith, morals, and spiritual awareness (Sari et al., 2025). Through Islamic Religious Education, students are not only guided to understand religious knowledge but also to practice Islamic values in daily life. One of the important topics in Islamic Religious Education is the Signs of the Last Day, which aims to strengthen students' faith in the afterlife as part of the pillars of faith (Tsoraya et al., 2022). However, this topic is often considered abstract and difficult to understand, especially by elementary school students.

The Qur'an in Surah Al-Furqan, verse 25, describes the phenomenon of the Day of Judgment, emphasising the importance of understanding the event as part of one's faith (Rashid & Rahman, 2024). Learning about the Signs of the Last Days, therefore, requires a meaningful and accessible approach (Wira fitria & Dalimunthe, 2024). The abstract nature of the topic demands the application of a learning model that encourages active involvement and the use of multimedia to improve understanding (Moreno & Mayer, 2000). Interactive video content integration can support comprehension by presenting a visual representation of the concepts being learned.

SDN 53 Sawerigading, as an educational institution, is responsible for ensuring that learning activities run effectively. Empirical findings indicate that student learning outcomes in Islamic Religious Education subjects remain below the Minimum Completeness Criteria, with an average score of 58.6. This problem is mostly caused by the dominance of conventional lecture methods, which limit student participation. As a result, students become passive, less motivated, and have difficulty understanding the material in depth.

To overcome these problems, innovative learning models are needed that encourage active student engagement. The Jigsaw-type Cooperative Learning Model offers a solution by building collaborative learning and teaching each other (Dulyapit, 2025). Its integration with interactive video media has the potential to stimulate students' curiosity and engagement more effectively.

Empirical support for this model is demonstrated by research (Sanda & Lorensius, 2019), which demonstrates Jigsaw's effectiveness in improving engagement and learning outcomes through structured group collaboration. This finding is relevant to overcoming low motivation in learning Islamic Religious Education. However, previous research has not integrated Jigsaw with interactive videos for abstract religious materials such as Signs of the End Day.

Other studies by (Siti Khoiriyah et al., 2025) proving that animated videos in the PBL model significantly improve students' understanding of concepts. These findings confirm the power of visual elements in simplifying abstract concepts and maintaining attention to learning. More specifically, meta-analysis (Ploetzner, 2024) concludes that interactive videos have a greater impact on learning outcomes than passive videos because of their interactivity.

Separately, (Subiyantari et al., 2019) shows that the Jigsaw model successfully improves discussion activities and cognitive learning outcomes in history learning. An effective expert group and home group mechanism support this success. This structure fosters positive interdependence and individual responsibility within the group.

An analysis of these studies reveals important contextual gaps. Most research has focused on general subjects that differ from Islamic Religious Education in their characteristics. The exploration of similar innovations for Islamic Religious Education materials rich in values, such as Signs of the Last Day, remains very limited and warrants further development.

The biggest gap is in the integrative aspect between the model and the media. Previous studies have tended to examine cooperative models using conventional media or to test digital media within the framework of other models. There has been no research specifically designed and tested to demonstrate the complete synergy between the Jigsaw Model and Interactive Video Media within a single coherent learning design.

Based on these gaps, this research was formulated to fill integrative and contextual gaps. The main objective is to examine the effectiveness of integrating the Jigsaw Model with interactive videos in improving learning outcomes in the Signs of the Last Day material. This study also aims to analyse its impact on active engagement and understanding of students' spiritual values.

The novelty of this research lies in the specific application of the integrative model to Islamic Religious Education in elementary schools. In addition to focusing on the cognitive aspect, this research emphasises strengthening spiritual values and students' active participation. His contribution is expected to provide practical guidance for teachers and theoretical enrichment for a more contextual and meaningful pedagogy of Islamic Religious Education.

2. Method

This study uses the Classroom Action Research (CAR) method with the Kemmis and McTaggart spiral model, which consists of four iterative stages, namely planning, implementation, observation, and reflection (Kemmis et al., 2013; Birch et al., 2024). The research was conducted in two cycles, each consisting of three meetings—twice for learning implementation and once for evaluation. This design enables continuous improvement based on reflections from previous cycles, thereby progressively enhancing teaching effectiveness and student learning outcomes.

The subjects of this study are 25 grade VI students (14 boys and 11 girls) of SDN 53 Sawerigading, Palopo, in the 2024/2025 school year. The research was conducted in April-May 2025 at Batara No. 10, Boting Village, Wara District, Palopo City, South Sulawesi. The research focuses on learning the Signs of the Last Day material in Islamic Religious Education. This study aims to determine the effectiveness of applying the Jigsaw-type Cooperative Learning Model, integrated with interactive video media, in improving student learning outcomes.

Data was collected using several instruments, namely observation sheets, interview guidelines, learning outcome tests, and documentation. Observation is used to monitor the learning process and students' activities. Interviews were conducted with teachers and students to gather qualitative information on motivations and challenges in learning. The learning outcome test consists of multiple-choice questions prepared based on learning indicators. The research procedure follows four stages of Classroom Action Research: planning the learning design, implementing the Jigsaw model using video media, observing learning activities, and reflecting on the results to inform improvements in the next cycle.

Table 1. Learning Outcome Test Instruments

Indicator	Subtopik	Question Types	Inquiry number
Identify the names of the Doomsday.	Definition of Doomsday	Multiple Choice	1, 7
Connect the pillars of faith with belief in the Day of Judgment.	Faith and the Day of Resurrection	Multiple Choice	2
Distinguish minor and major signs.	Types of Judgment Day	Multiple Choice	3, 5, 10
Explain the signs of the Day of Resurrection	Signs of the Day of Resurrection	Multiple Choice	4, 8

Connect the contents of Surah Al-Qari'ah with the Day of Resurrection	Multiple Choice	6
Explain the wisdom of Belief in Life After believing in the Day of Death Judgment.	Multiple Choice	9

Data were analysed using descriptive, qualitative, and quantitative approaches. Quantitative analysis focuses on learning outcomes, while qualitative analysis describes the learning activities of students and teachers. The percentage of teacher performance, student activity, and exam completion is calculated using the following formulas:

a. Percentage of Learning Activities (Rianasari et al., 2012)

$$P = \frac{F}{N} \times 100$$

where P = percentage, F = score obtained, N = maximum possible score (Bagis et al., 2025).

b. Individual Student Scores (Armstrong, 2000)

$$\text{Individual student score} = \frac{\text{Total Score obtained}}{\text{Maximum Score}} \times 100$$

c. Mastery of Classroom Learning (Thomas R. Guskey, 2010)

$$\text{Learning Mastery} = \frac{\text{Number of students who reach } \geq 75}{\text{Total students}} \times 100$$

Table 2. Learning Outcome Criteria

Score Range	Criteria
80-100	Very High
60-79	Height
40-59	Medium
20-39	Low
0-19	Very Low

The instrument's validity is confirmed through expert assessment by an Islamic Religious Education specialist to ensure the accuracy and suitability of the observation items and tests for the research purpose. The success criteria are set at $\geq 75\%$ of students achieve a minimum score of 75, in accordance with the school's Minimum Completeness Criteria (MCC). If this criterion is met in Cycle II, then the intervention is considered effective in improving student learning outcomes in Islamic Religious Education subjects.

3. Results

This class action research was conducted in grade VI at SDN 53 Sawerigading, Palopo, from April to May 2025 and involved 25 students. The Jigsaw-type Cooperative Learning Model, combined with interactive video media, is applied in two cycles, each consisting of planning, action, observation, and reflection stages. The results showed a significant increase in teacher performance, student learning activities, and overall learning outcomes between the first and second cycles.

During Cycle I, the learning process went as planned, although there were some limitations. Teachers face challenges in managing classroom engagement and providing meaningful motivation at the beginning of learning. Student participation is still uneven – only a few actively express their opinions in group discussions. Nonetheless, the Jigsaw model successfully encourages collaboration and peer-to-peer learning. Overall, the implementation shows good potential, but results remain moderate, so improvements are needed in the next cycle.

Teacher performance in Cycle I averaged 81.88% (Good), while student learning activities averaged 81.25% (Good). The average student learning outcome is 70, with 52% of students achieving the Minimum Completeness Criteria (MCC). These results did not meet the 75% target, indicating that improvements are still needed in the learning process. These findings are summarised in Table 3.

Table 3. Summary Observation Results and Achievements in Cycle I

Indicator	Average (%)	Category
Implementation by teachers	81.88	Good
Student activities	81.25	Good
Learning outcomes (average)	70.00	Adequate (52% of possession)

The reflection stage after Cycle I identified the need to strengthen classroom management, clarify motivation strategies, and improve the integration of interactive videos. This adjustment was implemented in Cycle II, with teachers increasing student engagement by using triggering questions, more effective facilitation, and video content to visualise abstract Signs of the End Day topics. Students are encouraged to analyse, summarise, and share understanding collaboratively.

After these improvements, Cycle II showed significant progress across all measured aspects. Teacher activity increased to 91.88% (Very Good), student participation increased to 87.5% (Good), and learning outcomes increased significantly. The results of these improvements are presented in Table 4.

Table 4. Comparison of Teacher and Student Activities Between Cycles

Aspects	Cycle I (%)	Cycle II (%)	Increase (%)	Category
Teacher Implementation	81.88	91.88	+10.00	Very Good
Student Activities	81.25	87.50	+6.25	Good

The data on learning outcomes from Cycle II showed a significant increase. The average score increased from 70 to 90, and the percentage of students who met the MCC rose from 52% to 88%. This represents a 36% increase in mastery rates, which meet the established success criteria. The comparison data are shown in Table 5.

Table 5. Comparison of Learning Outcomes per Cycle

Cycles	Average Score	Mastery (%)	Category
I	70	52	Not Achieved
II	90	88	Achieved

Qualitative observation data also showed positive behavioural changes. Students appear more confident, cooperative, and motivated. They are more active in discussions and can express their opinions clearly. The use of interactive videos provides visual reinforcement, helping them better understand abstract religious concepts. Interviews with teachers confirm that integrating video elements increases students' focus and enthusiasm in the classroom.

The improvements observed in the two cycles—including teacher performance, student activities, and learning outcomes—show a consistent and meaningful pattern. The percentage of teacher implementation increased by 10%, student activity by 6.25%, and learning completeness increased by 36%. This quantitative improvement supports the conclusion that an interactive, cooperative learning model can significantly enhance the cognitive and affective dimensions of learning.

Qualitatively, students reported enjoying the learning process more and showed higher levels of engagement when videos were used to explain complex topics, such as the Signs of the End of the Days. The combination of group collaboration and multimedia encourages critical thinking, communication, and moral reflection. Teachers also find that students retain knowledge longer and are more enthusiastic about subsequent learning.

Overall, this study shows that the Jigsaw-type Cooperative Learning Model, when integrated with interactive video media, is highly effective in improving learning outcomes in Islamic Religious Education at the elementary school level. These findings reinforce and extend previous research showing that student-centred learning methods with multimedia support lead to better engagement and learning outcomes. Therefore, this model is highly recommended for educators who want to improve students' understanding of abstract religious material.

4. Discussion

This study consistently shows that applying the interactive video-integrated Jigsaw-type Cooperative Learning Model significantly improves the quality of learning processes and outcomes. The quantitative results show significant progress from Cycle I to Cycle II on three main aspects of learning. Teacher performance increased from Good (81.88%) to Very Good (91.88%), reflecting improved classroom management and the facilitation of innovative learning. Student activity also increased from 81.25% to 87.5%, indicating greater participation and more even collaboration among students.

The most substantial achievement was the improvement in students' cognitive learning outcomes. The class average jumped from 70 in Cycle I to 90 in Cycle II, a significant increase. The classical completeness percentage jumped dramatically from 52% to 88%, exceeding the established success threshold of 75%. This quantitative finding demonstrates that integrating collaborative strategies and multimedia support effectively addresses learning difficulties with abstract materials.

Qualitative transformation in the classroom aligns with the findings from numerical data. In-depth observations in Cycle II revealed significant improvements in student learning behaviour. Students' confidence seems to increase when they act as 'experts' who present subtopics to their peers. Interactions in discussions become livelier and more structured, supported by a better conceptual understanding, thanks to video-based visualisations.

Interactive videos serve as effective cognitive scaffolding, breaking down the complexity of the Signs of the End Day material. Visualisation of eschatological events, such as the appearance of the Dajjal or the rising of the sun from the west, helps students form a more concrete, imaginative understanding. Interactive features in videos, such as short quizzes and lighter questions, serve as a direct check of comprehension and help maintain students' cognitive engagement throughout the learning session.

The findings of this study strengthen and extend the evidence from previous studies in similar fields. Results aligned with research (Siregar & Siregar, 2025), which affirms the effectiveness of the Jigsaw Model in Islamic Religious Education, but adds value by showing how integrating interactive

videos can significantly amplify its impact. The 36% increase in learning completeness observed in this study suggests the presence of reinforcing factors beyond the traditional cooperative structure.

Consistency is also evident in meta-analyses (Noetel et al., 2022) regarding the advantages of interactive video over passive media. This study validates these conclusions in real elementary school classrooms and shows how they are applied. Videos serve as a structured self-study resource for expert groups and as an objective tool for sharing knowledge with the home group.

These findings also support research (Souvignier & Kronenberger, 2007) about the effectiveness of the expert group and origin group mechanisms in Jigsaw. The uniqueness of this study lies in its use of interactive video to balance initial understanding among members of the expert group. This media ensures that each 'expert' has a relatively equal knowledge base before in-depth discussions.

Alignment is also evident in research on the power of visual media to simplify abstract concepts. This research successfully applied the same scientific principle to Islamic Religious Education, using a different model. This proves the adaptability of multimedia learning principles across disciplines and learning contexts.

Most significantly, this study successfully addressed the integrative and contextual gaps identified in the literature review. Many previous studies tested Jigsaw or digital media separately, and the majority were applied to general subjects. The success of this integration in Islamic Religious Education demonstrates its relevance not only in the cognitive realm but also in the affective-spiritual dimension.

Theoretically, the results of the research provide a strong empirical foundation for the application of the theory of social constructivism (Vygotsky, 2012) in the context of basic religious education. The Jigsaw structure creates a Zone of Proximal Development in which students build understanding through interaction with more 'expert' peers. Interactive videos double as virtual 'experts' and as cultural artefacts shared in groups.

Principles of multimedia cognitive theory (Mayer, 2002) also found confirmation in this study. The principles of multimedia, contiguity, and modality are applied in the video design. This integration reduces the students' extrinsic cognitive load, allowing them to focus on understanding and analysing complex concepts.

This research enriches the body of knowledge in Islamic Religious Education learning theory by offering an integrative framework that unites social-constructivist paradigms with advances in instructional technology. The findings show that constructivist and digital approaches are not only compatible but also synergistic in achieving holistic learning goals. This integration allows for the simultaneous achievement of cognitive and affective-spiritual goals.

The practical implications of this research include providing replicative learning prototypes for other abstract Islamic Religious Education materials; encouraging teachers to become tech-savvy, creative learning designers; offering inclusive solutions to participation gaps; providing clear operational guidance for implementation; and supporting sustainable teacher professional development policies.

The overall effectiveness of this integrative model stems from the synergy of its mechanisms: interactive videos help concretise and structure abstract knowledge, while the Jigsaw Model provides a social framework for distributing and internalising it. This synergy results in holistic improvement across students' cognitive, affective, and social skills. More than just presenting a successful method, this study has mapped the causal flow and pedagogical mechanisms behind its success. This mapping is an important contribution to the development of teachers' professional

practices. It can serve as a meaningful reference for preparing Islamic Religious Education learning policies that are more relevant in the digital era.

However, this study has limitations related to the specific context and learner characteristics, so further research is needed to test the model's replicability across settings and to explore variations in media design and learning structures. The long-term impact of this model on knowledge retention and student character development also needs further investigation, while its potential to evolve into a hybrid model integrating gamification and immersive technology remains wide open. Ultimately, the contribution of this research lies in a real demonstration of how an intelligent, integrated approach can overcome the challenge of learning abstract material, transforming it from passive acceptance into active knowledge, which is essential for equipping young people with a strong foundation of values.

5. Conclusion

Based on the results of the class action research, it can be concluded that the application of the Jigsaw-type Cooperative Learning Model, integrated with interactive video media, is highly effective in improving the learning process and outcomes of Islamic Religious Education in the Signs of the Last Day material. This effectiveness is reflected in an increase in teacher performance from Good (81.88%) to Very Good (91.88%), in student activity from 81.25% to 87.50%, and in average learning outcomes from 70 to 90, with classical completeness increasing drastically from 52% to 88%. These findings show that the synergy between Jigsaw's collaborative structure and the visual and interactive capabilities of multimedia successfully creates a more participatory, engaging, and supportive learning environment that fosters conceptual understanding of abstract materials.

The contribution of this research is a learning prototype for Islamic Religious Education teachers that strengthens the theoretical foundation for integrating cooperative pedagogy and digital technology. As a recommendation, teachers are advised to adopt and adapt this model to other abstract Islamic Religious Education materials while developing competencies as digital learning designers. For further research, it is recommended to test the model's replicability across different sociodemographic contexts, explore variations in interactive media design, and conduct longitudinal studies to measure the long-term impact on the internalisation of spiritual values and the development of students' character.

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