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THE EFFECTIVENESS OF PHOTOVOICE-BASED JIGSAW LEARNING MODEL IN IMPROVING STUDENT LEARNING OUTCOMES IN ISLAMIC CULTURAL HISTORY (SKI) SUBJECTS

Mardiana[1]* **Nusrotus Sa'idah**[2]
[1,2,] Universitas Islam Nahdlatul Ulama Jepara, Indonesia
*e-mail: marrrdiana331@gmail.com

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ABSTRACT
The purpose of this study is to answer the question: Is the Photovoice-based Jigsaw learning model effective in improving student learning outcomes in Islamic Cultural History (SKI) subjects? The background of this study is the low learning outcomes of students due to the dominance of lecture methods that do not actively involve students. The integration of the Jigsaw model and Photovoice media offers a collaborative and visually reflective approach that has not been widely applied in SKI learning, making it a novelty in this study. This study uses a quantitative approach with a quasi-experimental design of the posttest-only control group type. The sample consists of class 7A (experimental class) and 7D (control class) at MTs N 4 Demak. Data analysis using an independent t-test shows a significant difference between the two groups (t = 6.222; p = 0.000). The average score of the experimental class was higher than that of the control class, with an effect size of 1.69, indicating a significant impact. These results prove that the Photovoice-based Jigsaw learning model is effective in improving student learning outcomes and contributes to strengthening the theory of collaborative learning and visual media in the context of religious education.

INTRODUCTION

Education plays an important role in shaping students' intelligence and character. In the era of globalization marked by the rapid advancement of information and technology, education must become more creative to meet the demands of the modern world. The implementation of the Merdeka Curriculum currently implemented in Indonesia emphasizes student-centered, collaborative, and contextual learning with real life(Kemdikbud, 2022). This requires educators to develop learning models that can accommodate the needs and potential of students as a whole. One approach relevant to the Merdeka Curriculum's spirit is the cooperative learning. This model encourages cooperation in heterogeneous groups, builds tolerance attitudes, and improves critical thinking skills(Mawardah et al., 2025). One effective cooperative learning type is Jigsaw, where students are divided into expert groups to study a certain part of the material and then share it back in the original group(Lubis & Harahap, 2016). In addition to enhancing learning outcomes, this methodology helps students become more responsible and proficient communicators. The Jigsaw learning model is interesting if the material consists of several subchapters(Berkah, 2018); this model prioritizes group cooperation to understand the material(Nurhadi, 2019). Jigsaw is designed to help students feel more responsible for

their own and others' learning(Harefa et al., 2022). In addition to learning the material, students must be prepared to teach it to their friends.

The advantages of the Jigsaw model include (a) eases the teacher's work because there are already expert groups assigned as tutors to explain the material to their friends, (b) the material can be understood in a shorter time, and (c) teaching students to be more active and brave in expressing their opinions(Gusmalinda, 2022). In addition to having advantages, Jigsaw also has weaknesses, including (a) active students will dominate more, (b) smart students tend to feel bored, (c) the assignment of group members to become a team of experts often does not match the ability with the competencies that must be learned, (d) and Jigsaw learning requires a longer time to condition the space well(Hayati, 2017). These shortcomings may be addressed by including media in the learning model. The application of learning media can increase student interest, curiosity, and learning motivation and facilitate the delivery of learning materials (Pagarra et al., 2022). Learning media can also help students understand concepts well, help students gather information, and make it easier to convey the information obtained. This developing technology can be utilized as learning media. One innovation that can be used is the Photovoice approach, which is an approach that involves students taking and reflecting on photos related to learning material to be discussed together(Harimurti, 2022). Indeed, Photovoice can be categorized as a method and a learning medium, depending on how it is used in a context.

As a method, Photovoice is a visual research technique in which participants take photographs that document their experiences and perspectives(Veterini et al., 2024). As a medium, Photovoice can be categorized as a visual medium that serves as a tool learning. Photovoice is also called photo elicitation or photo capture, which means taking a picture or any image that means something deeply(Cahyanti & Nuroh, 2023a). This Photovoice can also be authentic evidence of increasing students' awareness of their surroundings and provide a picture of real conditions that can be realized quickly. Using images as a reflection and analysis tool, students can explore and interpret various aspects of history in more depth, which ultimately improves their critical thinking skills because Photovoice media requires someone to argue through the photos they get. (Nisak & Suprapto, 2022)

Learning the History of Islamic Culture (SKI) is very necessary to use the right learning model and media so that students easily remember the material taught. Because learning history must be fun, students' enthusiasm for exploring history is higher. If learning history is done monotonously, such as lecturing alone, students will be bored and lose their enthusiasm for learning(Anshory et al., 2020). If this continues, students will lose interest in learning SKI, which, in principle, is very important for the Islamic generation. The teaching of Islamic Cultural History (SKI) requires a more contextual and enjoyable approach so that students do not merely memorize historical facts but also understand the values contained within them. Unfortunately, observations and interviews at MTs N 4 Demak indicate that the SKI learning process remains conventional and dominated by lecture-based methods. This has led to low student engagement and learning outcomes that are largely below the Minimum Competency Criteria (KKM).

The main problem in this study is the low learning outcomes of students in SKI subjects due to teaching methods that are not varied and contextual. Therefore, a learning model is needed that can combine active collaboration among students (Jigsaw) with the power of reflective visual media (Photovoice). The research gap that needs to be addressed is the lack of studies that specifically examine the effectiveness of integrating the Photovoice-based Jigsaw model in SKI learning at the MTs level. Previous studies have shown that the Jigsaw learning model and the application of Photovoice (separately) are effective in learning. For example, research conducted by Berkah shows that the Jigsaw learning model plays a positive role in fostering interest in learning history in vocational schools, but this study did not explore the use of visual media such as Photovoice (Berkah, 2018).

A study by Fitriyana Hasibuan also proves that the Jigsaw model can improve student learning outcomes, but this study does not discuss the integration of reflective learning media (Hasibuan, 2022). Meanwhile, research by Cahyanti (Cahyanti & Nuroh, 2023) highlights the effectiveness of Photovoice in improving elementary school students' writing skills, but does not link it to cooperative learning or the SKI context. The three studies above demonstrate the effectiveness of each approach separately, but there has been no research combining both approaches into a comprehensive learning model for SKI subjects at the MTs level. This gap is what this study aims to bridge. The significance of this study lies in its contribution to the development of an innovative learning model that not only improves student learning outcomes but also equips them with critical, reflective, and collaborative thinking skills relevant to the needs of 21st-century education.

Therefore, researchers are interested in conducting research related to the effectiveness of the photovoice-based jigsaw learning model in improving student learning outcomes in SKI subjects at MTs N 4 Demak. Researchers want to prove whether the Photovoice-based Jigsaw learning model is effective in improving student learning outcomes? And what are the steps for implementing this learning model in SKI subjects? The objectives of this study are (a) to test the effectiveness of the photovoice-based jigsaw learning model in improving student learning outcomes in SKI at MTs N 4 Demak, and (b) to describe the steps for its implementation in the classroom learning context.

METHODS

This study uses an experimental design and a quantitative methodology. This study utilized the Posttest-Only Control Group Design, a quasi-experimental design that only uses a learning outcome test after treatment (posttest) without being preceded by a pre-test. This design was chosen to avoid the influence of the pre-test on student learning behavior, which can cause bias in learning outcomes. In addition, this design is also based on practical considerations, namely the limited time for conducting research at school and maintaining the learning process's naturalness.

Table 2. Research Design

Group	Sample	Treatment	Post-test
Experiment	R	X	O_1
Control	R	-	O_2

R = random sampling
X = use of *Photovoice-based* Jigsaw learning model
\- = conventional learning
O_1 = experimental group postest
O_2 = control group postest

The participants in this study are all seventh-grade students of MTs N 4 Demak, which will be presented in the following table:

Table 1. Population

Class	Number of Students
Specialty Class	
7 Science	30
7A Tahfidz	32
7B Tahfidz	31
Regular Class	
7A	27
7B	33
7C	35
7D	27
7E	32

The samples in this study were regular classes 7A and 7D at MTs N 4 Demak, which were selected using purposive sampling. Class 7A, consisting of 27 students, was the experimental class that received the Photovoice-based Jigsaw learning model treatment, while class 7D, consisting of 27 students, was the control class that used the conventional learning model.

The selection of samples was based on considerations of academic ability equality and relatively homogeneous student characteristics compared to other classes. Science and tahfidz classes were not included in the sample because they tend to have higher academic abilities and greater interest in religious subjects, which could potentially affect the purity of the research results. On the other hand, regular classes were chosen because they better represent the average conditions of students and are more relevant for testing the effectiveness of learning models in general. In addition, based on academic data, classes 7A and 7D have balanced levels of ability and learning engagement, making them suitable as experimental and control groups.

Data collection in this study was conducted using several techniques. First, learning achievement tests were used to measure students' understanding before and after the treatment, using multiple-choice questions that had been tested for validity and reliability. Second, observation was used to record student activities during learning, particularly their involvement in group discussions and use of Photovoice media. Third, documentation was used to record students' work, photos of activities, and archives of the learning process that supported qualitative data.

This study used a written test instrument consisting of 50 multiple-choice questions. The instrument was first tested for validity and reliability. The validity and reliability tests were conducted in class 7C with a total of 35 students as respondents.

After testing normality and homogeneity, the data were analyzed using an independent sample t-test to test the effectiveness of the Photovoice-based Jigsaw learning model in improving student learning outcomes in SKI subjects. Thus, the results of this analysis will show whether the Photovoice-based Jigsaw cooperative learning model is more effective than conventional methods in improving students' understanding of SKI subjects.

This research was conducted in accordance with the ethical principles of educational research. Prior to implementation, the researcher submitted an official letter of permission to MTs N 4 Demak as the research location and explained the purpose, objectives, and activities to be carried out. Students and teachers were informed of their rights as participants, including the right to participate voluntarily and without coercion (Murdiyanto, 2020).

All collected data is guaranteed to be confidential and used solely for scientific purposes. Student identities are anonymized to protect privacy. In the photovoice activity, visual documentation was first approved by the participants and the school to ensure that the activity did not violate students' privacy rights and aligned with norms applicable in the educational environment.

RESULTS AND DISCUSSION

Photovoice-Based Jigsaw Implementation

The *Photovoice-based* Jigsaw learning model can be implemented with the following steps:

(a) Origin group preparation and division. Students are divided into several heterogeneous origin groups**.** Each group member will study one subtopic from different materials (for example, the leadership of Abu Bakar As-Shiddiq, Umar bin Khattab, Utsman bin Affan, and Ali bin Abi Talib).

Figure 1. Initial Group Formation

(b) Expert group formation. Each student from the original group joins other students studying the same subtopic **t**o made an specialist group. In specialist groups, students discusion the material's content and determine the main ideas that will be visualized through *Photovoice* media.

(c) *Photovoice* project. In expert groups, students are asked to find or take pictures relevant to the material studied using the available cell phones, then add a short narrative explaining the picture's meaning in the context of the leadership values of Khulafaur Rasyidin.

(d) return to home group and presentation. Students return to their home groups and present their *Photovoice* results. Each member is responsible for explaining the part of the material they have learned and their visual documentation.

Figure 2. Return To Home Group

(e) Discussion and reflection. The teacher facilitates class discussions to deepen students' understanding of the material. The teacher also provides feedback on the *Photovoice* results and student presentations.

(f) Evaluation. Students evaluate in the form of cognitive questions to find out learning outcomes.

Instrument Validity

The purpose of the validity test step is to gauge whether the instrument used in the study is correct. The question item is considered valid if the count value exceeds the table. In the validity test, the sample used was 35 respondents. To determine the value of rtable, the formula df = N-nr is used, which means df = 35-2 = 33. From the table of significant correlation coefficient values of 5%, it is known that the value of tables 0,344. Based on statistical calculations with the help of Microsoft Excel 2019 and SPSS software, the adequate items and those that must be eliminated are summarized based on the research instrument grids in Table 3.

Table 3. Instrument Grid Validity

Indicator	Valid	Invalid
Identify the names of the Khulafaur Rashidin caliphs and their nicknames	4, 5, 19	3, 10, 12, 29, 30
Identify the leadership period of Khulafaur Rashidin	22, 38	21
Describe the policies and achievements, during the leadership of Khulafaur Rashidin	9, 11, 18, 26, 33, 36, 41, 46, 47	1, 6, 7, 16, 17, 25, 27, 28, 32, 44, 45, 48
Describe the conflicts or wars that occurred during the Khulafaur Rasyidin period.	14,20, 49	2, 13, 15, 23, 24, 31, 34, 37, 40, 43
Analyze the exemplary value of the Khulafaur Rashidin caliphs.	39, 42, 50	8, 35

Based on the table above, of the 50 items, 20 items were declared valid and worthy of testing. In comparison, 30 items were not worth testing. As stated in the attachment, the validity and invalid items were determined by comparing the recount with the table. If the count exceeds the table, the

item is declared valid, and vice versa. Furthermore, invalid question items are dropped, considering that each valid question item already represents an indicator in the operational concept.

Reliability

Reliability testing determines if an instrument can be trusted as a data collection tool. The reliability test of the learning outcomes instrument was carried out by utilizing SPSS for Windows version 16 alpha method.

Table 4. Reliability Analysis

Cronbach's Alpha	N of Items
.830	20

The reliability test outcomes show that the count value is greater than table 0,830>0,344, which means the research instrument is reliable. Referring to the classification of the reliability coefficient range, the reliability of the learning outcomes instrument is in a very high category, indicating that the instrument used is very good and can be trusted to gather data.

Normality Test

Table 5. Normality Test Results

	Kode Kelas	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Nilai postes	**1**	.196	27	.009	.946	27	.174
	2	.167	27	.052	.937	27	.100

a. Lilliefors Significance Correction

In light of the analysis's findings, a significance value of 0,174 was obtained for the experimental class and 0,100 for the control class. The data in both classes can be considered regularly distributed since both significance values are higher than the significance level of 0.05.

Homogeneity Test

Table 6. Homogeneity Test Results

Levene Statistic	df1	df2	Sig.
.304	1	52	.584

The homogeneity test was conducted to ascertain whether the data variance between the experimental and control classes was homogeneous. This test was conducted using *Levene's Test* through the SPSS program. The test results show that the significance value (Sig.) exceeds the significance level of 0,05, 0,584. Thus, it can be concluded that both groups have homogeneous variances. This indicates that both groups have equal initial conditions in terms of variance, so further analysis, such as the t-test, can be carried out with the assumption of homogeneity met.

Hypothesis Test

After both data are proven to be normally distributed and homogeneous, proceed with hypothesis testing using the t-test for independent samples. This test establishes whether the learning outcomes of students in the experimental and control groups differ significantly.

Table 6. Hypothesis Test

Independent Sample T-test			
		Equal variances assumed	**Equal variances not assumed**
Levene's Test for Equality	F	.304	
of Variances	Sig.	.584	
t-test for Equality	t	6.222	6.222
of Means	df	52	51.242
	Sig.(2-tailed)	.000	.000
	Mean Difference	11.481	11.481
	Std. Error Difference	1.845	1.845
95% Confidence Interval of the Difference	Lower	7.778	7.777
	Upper	15.185	15.186

Considering the outcomes of the SPSS analysis, the t-count value is 6,222, and the significance value (Sig. 2-tailed) is 0,000 in the *Equal variances assumed* row. Because the significance level of 0.05 is greater than the significance value (0,000 < 0,05), H_0 is rejected, and H_a is accepted; based on this data, student learning outcomes in experimental and control classes have significant differences. This shows that student learning outcomes can be improved by using *Photovoice-based* Jigsaw cooperative learning.

***Effect Size* Value**

Effect size (Cohen's d) determines how much influence the Photovoice-based Jigsaw learning model has on student learning outcomes. The calculation results show that the average posttest result of the experimental group is 86,48, the average posttest result of the control group is 75, the standard deviation of the experimental group is 7,18, and the standard deviation of the control group is 6,35. By using the *pooled standard deviation* formula, the *SD_pooled* value = 6,78 was obtained. Additionally, the following formula is used to determine the value of *Cohen's d*:

$$d = \frac{M_1 - M_2}{SD_{Pooled}} = \frac{86{,}48 - 75}{6{,}78} = 1{,}69$$

Based on Cohen's interpretation, Cohen's d value of 1.69 falls into the large effect category (Sugathan & Jacob, 2021), indicating that the use of the Photovoice-based Jigsaw learning model has a very strong impact on improving student learning outcomes compared to conventional learning methods. These findings reinforce the results of Hasibuan's study (Hasibuan, 2022), which reported a significant improvement in history learning outcomes among students who learned using the Jigsaw model, although it did not explicitly mention the effect size. This study also goes beyond the findings of Cahyanti and Nuroh (Cahyanti & Nuroh, 2023a), who stated that photovoice is effective in improving writing skills, but it was only used as a single medium. However, the effect size of 1.69 in this study indicates that the integration of these two approaches the cooperative Jigsaw model and the reflective Photovoice medium can produce a much stronger synergistic effect on learning outcomes.

Thus, the Cohen's d value of 1.69 confirms that the integration of the Jigsaw model and Photovoice media not only contributes to learning outcomes but also provides new empirical evidence in the form of clear quantitative measures of the combined influence of both approaches in the context of Islamic Cultural History (SKI) learning at the MTs level. This constitutes an important contribution to the literature on innovative learning, particularly in the subject of Islamic Cultural History (SKI) at the MTs level.

DISCUSSION

Photovoice-Based Jigsaw Learning Model in Islamic Cultural History (SKI) learning

The Jigsaw learning model is one approach that has demonstrated successful in enhancing student studying result, especially in studying contexts that emphasize cooperation, individual responsibility, and positive interdependence (Ade & Hasan, 2017). In this model, students are divided into small groups, where each member is responsible for learning and conveying a certain part of the material learned to their groupmates (Harefa et al., 2022). Each group member is responsible for delivering the material in turn.

In addition, jigsaw helps develop social skills, such as communication, responsibility, and leadership, because students must act as teachers for their peers(Kahar et al., 2020). This approach encourages social interaction, active engagement, and a deeper understanding of the material because students learn for themselves and are responsible for understanding their group members. The advantages of this model are that it involves all students in learning as well as teaching other students (Ali, 2021), material can be understood more easily, and teaches students to be more active and dare to argue (Gusmalinda, 2022). In this case, students can work together to learn more actively and provide opportunities for students to interact with each other. The implementation of Photovoice into the Jigsaw model provides a richer and more contextualized learning dimension. Photovoice is a participatory approach that allows students to express their understanding through photography(Tarumingkeng, 2024). In the context of learning, Photovoice encourages students to reflect on their experiences and relate them to the subject matter, thus enhancing engagement and deeper understanding.

The Photovoice process invites students should record and consider what they have learned through photo media, which can help improve their critical thinking skills(Hidayat et al., 2019). (Cahyanti & Nuroh, 2023b). Photovoice helps students build and reveal their knowledge they have from things they observe in everyday life. Applying the Jigsaw learning model improves student outcomes (Heriwan & Taufina, 2020), it can improve students' critical thinking skills (Alfiyah & Widiyono, 2024; Maarif et al., 2023), especially when combined with an approach based on creative media such as Photovoice (Veterini, 2024). In SKI learning, students can work in groups to study a specific topic (Jigsaw), then use photography to express their understanding of the topic (Photovoice). This approach improves students' conceptual understanding and encourages them to develop critical thinking skills.

The Photovoice-based Jigsaw learning model in this study integrates collaborative work with visual media produced directly by students. This model is aligned with the principles of differentiated learning, where each student is allowed to learn according to his/her learning style (Purnawanto, 2023). Visually inclined students are greatly helped by Photovoice, while students with verbal and interpersonal strengths can develop through discussions in Jigsaw groups. SKI learning often contains historical narratives and figures from the past. Photovoice is an effective medium to bridge the past and the present context. Students not only read or listen to historical stories but also visualize the values of leadership, struggle, and Islamic values through photographs they make themselves (Illahi & Supriyadi, 2024). This can increase students' affective and cognitive engagement in understanding the material. Utilizing visual media relevant to students' daily lives will make SKI material more contextual and easy to understand.

Student Learning Outcomes

Learning outcomes are obtained after learning (Andryannisa et al., 2023). Learning achievement can show students' success in learning, where learning achievement is a description of student learning outcomes in participating in the instructing and studying process at the level they follow. Based on Bloom's Taxonomy theory (Mahmudi et al., 2022) learning outcomes can be achieved through cognitive, affective, and psychomotor categories. This study's learning outcomes are limited to the cognitive domain, which is measured through a multiple-choice test instrument. The questions tested in the experimental and control classes were 20 questions related to the Leadership of Khulafaur Rasyidin.

The independent t-test analysis yielded a significance value (Sig. 2-tailed) of 0.000 and a t-count value of 6.222. According to this finding, the learning outcomes of the experimental and control classes were significantly different. Both groups have an effect size value of 1.69, with the mean score of the experimental group (86.48) higher than the control group (75). These findings indicate that applying the Photovoice-based Jigsaw model effectively improves student studying result and support collaboration and the growth of critical thinking abilities in SKI education.

This research findings align with several previous studies, such as research conducted by Suryani (Suryani, 2021) the findings are in the form of the success of the Jigsaw model in increasing student interest and learning outcomes in the material Wary of Threats to the Position of the Republic of Indonesia. A similar study by Simaremare (Simaremare et al., 2021) also showed that Jigsaw learning could foster student motivation and achievement in learning basic concepts of the Indonesian language on the material of the vocabulary formation process.

In addition, the study by Ningsih also showed that applying the Jigsaw learning model played a good role in improving learning outcomes and student interest in SKI subjects(Ningsih et al., 2022). Another study by Kasdriyanto(Kasdriyanto et al., 2023) revealed that the Jigsaw learning model positively impacts the reading skills of first-grade elementary school students. A study (Nisak & Suprapto, 2022) in a study entitled "Analysis of Students' Scientific Argumentation Ability with the Use of Photovoice Media on Light Refraction Material". The study proved that the application of Photovoice as a medium improved students' scientific argumentation skills. Similar results were also found by Putra & Gunansyah, (2023), his research's findings show that there is an impact of using Photovoice media with a cooperative learning model of Group Investigation type on the social studies learning outcomes of students in the material of Indonesiaku rich culture class IV SDN Kebraon II Surabaya.

From the findings above, jigsaw learning has been proven to be effective in improving student learning outcomes in all subjects. The success of this learning model is supported by constructivist theory, which states that learning will be more meaningful if students actively construct their own knowledge through experience and social interaction (Arif et al., 2024; Sayfullooh et al., 2023). In this context, the interactions that occur during Jigsaw group discussions and the process of creating

Photovoice works provide students with opportunities to construct their knowledge in a more active and meaningful way. From a pedagogical perspective, the Photovoice-based Jigsaw model also reflects the principles of experiential learning as proposed by Kolb. In this learning process, students actively engage in learning through observation, reflection, and the creation of photos relevant to the learning material, which they then discuss in groups (Morris, 2019). This encourages students' emotional and intellectual engagement and enhances their understanding of the material being studied.

In addition, Slavin's theory of cooperative learning (M. Irfan Saputra et al., 2024) emphasizes that small group learning structures such as Jigsaw can foster positive interdependence and individual accountability, two important components in increasing student engagement and learning outcomes. Participation in group discussions and the responsibility to convey information to group members drive intrinsic motivation and deep understanding. This process reflects the higher-order thinking stages in Bloom's revised taxonomy (Arif, 2019; Nafiati, 2021), such as analyzing, evaluating, and creating, all of which can be stimulated during group discussions or when students compile and present their Photovoice results. Thus, learning is not only cognitive but also affective and reflective.

The integration of Photovoice in this model also reflects differentiated learning, where students with visual learning styles find it easier to understand concepts through photos, while students with verbal and interpersonal tendencies are helped through discussion and presentation processes. This principle tailors learning to the needs and potential of individual students (Jesica Dwi Rahmayanti & Muhamad Arif, 2021; Purnawanto, 2023). Thus, the application of the Photovoice-based Jigsaw model has been proven to be not only empirically effective, but also has a strong theoretical foundation in supporting the achievement of cognitive learning outcomes as well as students' social and critical thinking skills.

However, this study has several limitations that need to be considered. First, there are limitations in the sampling technique. The researcher used purposive sampling by selecting two regular classes (7A and 7D) from the population of grade 7 at MTs N 4 Demak, which consists of advanced, tahfidz, and regular classes. This selection was made to maintain equality in initial academic ability between classes, as the advanced and tahfidz classes have significantly different characteristics, both academically and in terms of interest in religious studies. However, this limits the generalizability of the research results because it only represents regular class students and does not include the characteristics of advanced or tahfidz classes.

Second, contextual limitations. The research was conducted in one school in a specific area, so the results are heavily influenced by local factors such as school culture, teacher competence (Arif, 2025), and the availability of supporting facilities (cameras, smartphones). In a broader context, the implementation of Photovoice may not be optimal if students are not familiar with technology or do not have access to photographic equipment. Third, limitations in measuring learning outcomes. This study only measured learning outcomes in the cognitive domain through multiple-choice tests. However, Photovoice has great potential in developing students' affective dimensions and social-emotional skills, which are not captured by this quantitative instrument. Further research needs to develop instruments that can capture the holistic impact of this model (Arif et al., 2023). Overall, this study contributes theoretically and practically to 21st-century learning. From a theoretical perspective, this study reinforces the relevance of a visual-based cooperative approach in the context of narrative learning such as SKI. From a practical perspective, this model is worthy of implementation as an innovative learning strategy that not only effectively improves learning outcomes but also fosters 21st-century skills such as critical thinking, teamwork, communication, and visual literacy.

CONCLUSION

Based on the study results, it can be concluded that the Photovoice-based Jigsaw model is demonstrated to be successful in raising student studying result in SKI subjects at MTs N 4 Demak. Hypothesis testing (independent t-tests) obtained a t-count value of 6.222 and a significance value 0.000. This is reinforced by the mean value of the experimental group (86.48), which is higher than the control group (75), with an effect size value of 1.69. These results show a cu up large difference between the studying result of the two groups. Thus, the Photovoice-based Jigsaw learning model can be used as an alternative innovative learning strategy in improving student learning outcomes on SKI subject matter.

For teachers, these findings suggest that the implementation of the Photovoice-based Jigsaw learning model can be an innovative alternative strategy to improve student understanding, especially in narrative-historical subjects such as SKI. This model not only supports cognitive achievement but also develops students' social skills, critical thinking, and reflective abilities. Teachers are advised to begin exploring the integration of creative media such as photography as a tool for student expression in learning. This finding also provides important input for curriculum developers to design teaching tools that provide space for differentiated, collaborative, and visually-based learning. A flexible curriculum that gives teachers the freedom to apply contextual project-based approaches such as Photovoice will be more relevant to the principles of Merdeka Belajar (Freedom of Learning). This study has limitations in terms of population scope, as it only involved one school and focused on the cognitive domain. Further research is recommended to examine the effectiveness of this model in various educational contexts, across subjects, and to measure students' affective and psychomotor domains. Additionally, it is important to further explore the impact of using Photovoice on enhancing empathy, character values, and social participation among students in Islamic values-based learning.

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