



The Effect of Puzzle Games on Improving Students' Learning Outcomes in the Subject of Social Studies

Indana Sulfa⁽¹⁾, Muhammad Hadiatur Rahman⁽²⁾,

^{(1), (2)}, Institut Agama Islam Negeri Madura,

⁽¹⁾.sulfaindana313@gmail.com, ⁽²⁾.hadiatur@iainmadura.ac.id.

Article Info

History Article

Received: June 2, 2025

Revised: Sept 2, 2025

Accepted: Sept 29, 2025

Keywords:

*Influence, Game Puzzle,
Learning Outcomes*

Abstract

Puzzles are educational games designed to train critical thinking skills, problem solving, and improve students' memory. This study has two objectives. First, to explore the influence of puzzle games in improving students' learning outcomes in Social Studies subjects in class R2 Social at MTsN 3 Pamekasan in the 2024/2025 academic year. The second is to determine the significance of puzzle games in improving students' learning outcomes in the IPS subject in R2 Social class at MTsN 3 Pamekasan in the 2024/2025 academic year. The research method used in this study is a quantitative approach with a pre-experimental design in the form of a one-group pre-test post-test design. This is an experimental design that uses only one group as a sample and involves measuring before and after the intervention. Based on the results of the study, it was found that the sig value was $0.000 < 0.05$, indicating a significant effect on student learning outcomes. Therefore, H_0 is rejected and H_a is accepted. In addition, N-Gain analysis was used to analyse the learning outcomes, and the significance of the puzzle game in class R2 Social increased by 74.1573%. The average pre-test score for the R2 social class at MTsN 3 Pamekasan was 56.88, and the average post-test score was 86.67. The difference between the mean pre-test and post-test scores for the R2 social class was 29.79.

2025 Institut Agama Islam Negeri Madura

✉Address:

Tadris Ilmu Pengetahuan Sosial Department,
Institut Agama Islam Negeri Madura, Indonesia.
E-mail: sociale@iainmadura.ac.id.

E-ISSN: 3047 -1885

<https://doi.org/10.19105/sociale.v2i2.19893>



Introduction

Education plays a vital role in improving the quality of human resources. The success of education depends on the effectiveness of the learning process that takes place in the classroom. In the learning process, teaching aids are one of the important components that can support students' understanding of the material presented. Learning resources serve as tools to help convey information, capture students' attention, and boost their learning motivation (Pagarra Hamzah et al., 2022). Therefore, the effective use of teaching media is expected to contribute to improving students' learning outcomes.

Learning outcomes are the main indicator of the effectiveness of learning. Learning outcomes are the process of determining the value or level of success or achievement of students in understanding and mastering the material taught through assessment or measurement of learning outcomes (Dimiyati & Mudjiono, 2013). Learning outcomes consist of three main aspects, namely cognitive, affective, and psychomotor (Yulianto, 2021). Optimal learning outcomes can be achieved if students are able to understand the material well, have the motivation to learn, and get interesting learning experiences. However, in reality there are still many students who have difficulty in understanding the subject matter, especially in subjects that require visualization, such as social studies.

One of the problems often faced in the world of education is the low learning outcomes of students due to their lack of involvement in the learning process and the lack of use of innovative learning media and in accordance with student needs. Teacher-centered learning often makes students feel bored and less motivated to understand the material being taught (Maviro, 2017a). As a result, understanding of concepts is low and affects the results of learning evaluations. In this case, the use of interactive learning media can be a solution to increase student engagement and motivation.

Puzzle learning media is one alternative that can be used to improve student learning outcomes. Puzzle is an educational game designed to train critical thinking skills, solve problems, and improve student memory (Mahardikha et al., n.d.). Children can learn better through direct experience and activities that involve exploration. Thus, the use of puzzles in learning can help students understand concepts in a more fun and interactive way.

This is confirmed by Muttiara's research which states that the use of puzzles as media during learning can make students more active and motivated in learning, as well as teacher activities become more directed and increase and student learning outcomes increase. The use of puzzle media makes it easier for students to understand learning materials. In the study, student learning outcomes in cycle I amounted to 3.90% with Good criteria in cycle II amounted to 4.46% with Very Good criteria. In cycle I with 70% completeness results then experienced an increase in completeness of 17% in cycle II with a percentage of learning completeness of 87% (Muttiara, 2023).

The difference between this research and previous research lies in the type of puzzle media used. Most of the previous studies utilized picture puzzles, while this study applied word puzzles. This media demands more concentration from students, so it can help improve their memory and cognitive abilities during the learning process. Puzzle media in particular, is able to make students more focused in understanding the material because they feel challenged to complete the game correctly.

Based on the results of the preliminary research conducted with the social studies teacher at MTsN 3 Pamekasan, he revealed that in learning social studies, the methods used are lectures and discussions, and the learning media used include textbooks and LKPD. However, although these methods and media have been applied, there are still problems among students of class R2 Social. Many students have difficulty achieving the expected grades in social studies subjects due to lack of activeness in participating in learning. In addition, students feel bored when the teacher gives assignments in the form of tests, so that the learning outcomes obtained are not optimal, as evidenced by students' UTS scores that do not reach the minimum standard.

From the initial observations made at MTsN 3 Pamekasan in the R2 Social class with a total of 24 students, data on social studies learning outcomes in the odd semester were obtained as follows: in the R2 Social class there are 5 students who get scores above 80, 5 students get scores above 70, and 4 students get scores of 60, and 10 students get scores below 60.

Therefore, researchers are interested in carrying out this research to overcome the problems faced by students of class R2 Social by applying Puzzle learning media during learning, with the aim of improving student learning outcomes in social studies subjects. Based on this, researchers are interested in conducting research with the title

“The effect of puzzle games on improving students’ learning outcomes in the subject of Social Studies”.

This research is important to conduct because puzzle games have the potential to enhance learning motivation, foster critical thinking skills, and serve as an alternative innovative learning strategy in social studies. Through this approach, students’ learning outcomes are expected to improve while also contributing to the development of more effective teaching methods.

Method

This research is a quantitative study that uses experimental methods. The experimental technique itself is a method of study conducted through experiments not only based on perceptual data used to determine the effect of a treatment (independent variable) on the outcome variable (dependent) under controlled conditions during the treatment process (Sugiyono, 2024). The type of research used was pre-experimental research design with One-Group Pre-test Post-test Design. This design was chosen because the study involved only one class, namely the experimental class, by comparing the results of the pre-test and post-test.

The population used in this study was all eighth-grade students at MTsN 3 Pamekasan, using a sample of 24 students from class R2 Social. The sample was selected using purposive sampling, which is a method of determining samples based on certain criteria or considerations of the population members determined by the researcher in this study. The researcher chose the R2 Social class as the sample in this study because it is a social class that is in line with the objectives of this study, and the students in this class demonstrate a need for more engaging and interactive learning methods. The researcher designated the social class as the experimental class, with a composition of 10 students with low ability, 9 students with moderate ability, and 5 students with high ability.

The data collection technique used in this study was a test, which was given to students in the form of multiple-choice questions related to social studies material on ocean exploration, colonialism, and imperialism in Indonesia, consisting of 20 questions and given to students individually. The tests to be conducted were pre-treatment tests and post-treatment tests. This study used parametric statistical tests in the form of a

Paired Sample t-Test and N-gain. The research instrument was implemented at MTsN 3 Pamekasan class R2 Research 2. The validity analysis results showed that all questions were valid based on the Product Moment test, with a calculated r value greater than the table r value (0.361). Additionally, the reliability test using Cronbach's Alpha formula yielded a value of 0.934, indicating that the instrument has a very high level of reliability.

Discussion

Definition of Learning Media

Media is a tool or means of conveying information or material to students, which can stimulate their minds, abilities, and skills, making learning more interesting and ensuring that the material conveyed through the media is easier for students to understand.

The word “media” comes from the Latin word “medius,” which means intermediary or conveyor. Therefore, media can be defined as a tool that conveys messages from the sender to the receiver. Media can be in the form of materials or tools. According to Miarso in Giri Wiarto's book, media is anything that can be used to convey messages and stimulate students' thoughts, feelings, attention, and learning abilities (Wiarto, 2016). Based on this definition, it can be concluded that learning media are tools or means used to convey information and as teaching aids to create interesting and enjoyable learning experiences.

Definition of Media Puzzle

Media Puzzle as a learning medium is a tool that aims to train students' ability to think logically, understand various concepts, and expand their vocabulary through activities of arranging separate words. This medium can come in physical form, such as letters or words printed on cardboard or paper, or in digital format through applications or software. Through its interactive nature, word puzzles become one of the educational solutions that are not only educational but also enjoyable.

Media puzzles are games that require patience and perseverance in putting them together, whether they involve words or pictures. Playing puzzles often will help students become accustomed to being diligent, calm, and patient in completing tasks. The use of media puzzles aims to sharpen thinking skills, train patience, and accustom oneself

to the ability to share. Media puzzles are suitable for training thinking speed and facing challenges.

Definition of Learning Outcomes

In general, Abdurrahman explains that learning outcomes are the abilities acquired by a child after participating in the learning process. He argues that learning success is achieved when a child is able to fulfill the predetermined learning or instructional objectives (Abdurrahman, 1999).

According to Dirgantara Wicaksono and Iswan, learning outcomes are a crucial aspect in assessing student success. Learning outcomes refer to the achievements obtained by students after undergoing the learning process, which includes cognitive, affective, and psychomotor aspects (Wicaksono & Iswan, 2019). Student learning outcomes reflect academic achievements obtained through exams, assignments, and active participation in answering and asking questions. In the academic world, there is a view that educational success is not only measured by the grades listed on report cards or diplomas, but can also be evaluated through student learning outcomes in cognitive aspects.

Research Result

From the results of research conducted in class R2 Social as an experimental class which in its research uses puzzle game media, it produces the following values:

Table 1. R2 Social class pre-test and post-test assessment table

No	statistics	Class R2 Social	
		Pre-test	Post-test
1	Number of Respondents	24	24
2	Highest Score	95	100
3	Lowest Score	30	60
4	Mean	56.88	86.67
5	Median	55	85
6	Mode	55	85 and 100
Mean Different = 29,79			

Based on the table above, the results of the pre-test and post-test assessment of R2 Social class students at MTsN 3 Pamekasan. The number of respondents was 24 students for both tests. During the pre-test, the highest score obtained by students was 95 and the highest post-test score was 100. While the lowest value in the pre-test was 30

and the post-test value was 45. The mean value of the pre-test was 56.88, and the mean value of the post-test was 72.29 which showed an increase of 29.79 points in the mean difference. In addition, the median and mode values also showed a significant increase, where the median value increased from 55 to 72.5, and the mode increased from 55 to 85. These results indicate that most students experienced an increase in learning outcomes after treatment.

The following is a diagram illustrating the lowest and highest scores on the pre-test and post-test of the R2 Social class.

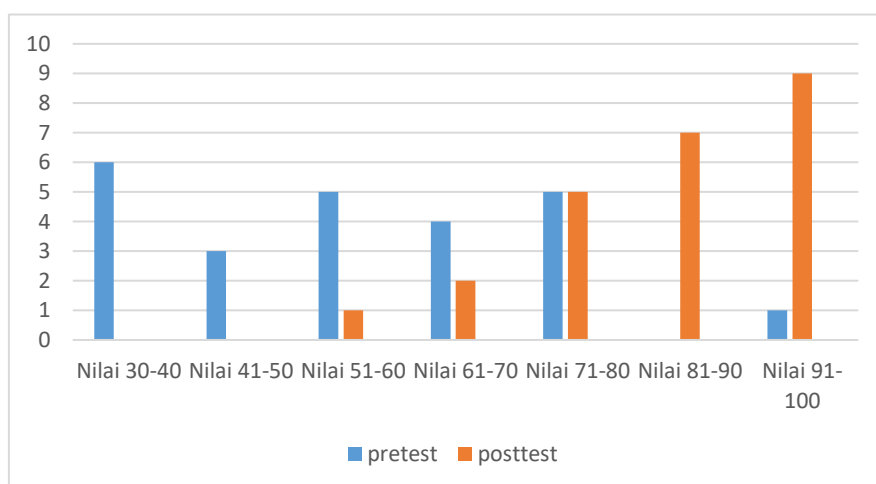


Figure 1. diagram illustrating the lowest and highest scores

At the time of the pre-test of the R2 Social class, it can be seen in the diagram above that the score range of 30-40 there are 6 people, the range of 41-50 there are 3 people, the range of scores 51-60 there are 5 people, and the range of scores 61-70 there are 4 people. The pre-test scores in the R2 Social class were low because only 6 people scored above the KKTP (Criteria for Achieving Learning Objectives). After being given a stimulus by using puzzle games as learning media, the post-test scores showed an increase, with a value range of 51-60 there was 1 person, a value range of 61-70 there were 2 people, a value range of 71-80 there were 5 people, a value range of 81-90 there were 7 people, and a value range of 91-100 there were 9 people. After the stimulus is given, it can be said that most of the 21 students in the R2 Social class managed to get scores above the KKTP. Based on the table above, of the 24 respondents who served as samples, the difference between the pre-test and post-test scores of the R2 Social class was 29.79.

From the data obtained, to determine whether there is a difference in social studies learning outcomes among students in class R2 Social at MTsN 3 Pamekasan before and after the treatment in the form of puzzle games, it is necessary to prove this using statistical testing with a paired sample t-test, where the results of the paired sample t-test are as follows:

Table 2. Paired Sample t-Test Results

		Paired Samples Test							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	pre-test learning outcomes - post-test learning outcomes	-29.792	11.081	2.262	-34.471	-25.113	-13.171	23	.000

Based on the paired sample t-test output table, the sig (2-tailed) value is 0.000 < 0.05, it can be concluded that there is a significant difference in the use of puzzle media on learning outcomes in Social Studies Class R2 Social subjects at MTsN 3 Pamekasan. Thus, H_0 is rejected and H_a is accepted.

In addition, to determine the effectiveness of using puzzle games as learning media in improving student learning outcomes in Social Studies for grade R2 at MTsN 3 Pamekasan, a statistical test called N-Gain was used, with the following results:

Table 3. N-Gain test table

	N	Descriptive Statistics			Std. Deviation
		Minimum	Maximum	Mean	
ngain_score	24	.33	1.00	.7416	.18419
ngain_persentase	24	33.33	100.00	74.1573	18.41919
Valid N (listwise)	24				

Based on the results of the N-Gain test above, it shows that the R2 Social class using puzzle games as learning media has increased by 74.1573%. It can be concluded that the use of puzzle game media is quite effective in improving student learning outcomes.

The interpretation of the effectiveness of N-Gain according to Moh. Irma Sukarelawan. et al. is as follows:

Table 4. The interpretation of the effectiveness of N-Gain

Percentage (%)	Interpretation
<40	Not Effective
40-55	Less Effective
56-75	Moderately Effective
>76	Effective

Based on this, it can be concluded that the R2 Social class, which used puzzle games as a medium, with an average increase of 74.1573%, was quite effective in improving student learning outcomes before and after the treatment.

The Effect of Puzzle Games in Improving Student Learning Outcomes in Social Studies Class R2 Social Subjects at MTsN 3 Pamekasan

Learning media is a means or tool for conveying information from communicators (teachers) to communicators (students) as recipients to develop communication skills between teachers and students in order to create optimal conditions for students in the learning process (Saleh et al., 2023). Students can also capture knowledge accurately and deeply, develop cognitive abilities and shape students' personalities. Therefore, it is necessary to use learning media that is creative, innovative, and in accordance with the needs of students so that it will create a pleasant atmosphere.

Puzzle learning media is an alternative media for learning social studies that is fun and interactive, because this media can stimulate activeness, increase student involvement in the learning process. This media also encourages cooperation and fosters curiosity in a more relaxed and fun learning atmosphere.

According to Sudjana, learning outcomes are the abilities that students have after receiving their learning experience, both covering knowledge, skills, attitudes, and values that can be measured and observed (Motoh et al., 2022). In this study, the main domain focus to be achieved is the cognitive learning outcomes domain. The cognitive domain focuses on the ability to think and intellectual knowledge which consists of several

aspects, such as remembering, understanding, applying, analyzing, evaluating, and creating. These levels are represented with symbols C1, C2, C3, C4, C5, and C6.

The results of using puzzle games as learning media show that students are more enthusiastic in learning so as to provide a more accurate understanding of the material that has been learned. Therefore, this media has the potential to be an innovative solution in presenting a more interesting learning experience, while encouraging increased motivation and enthusiasm in achieving optimal learning outcomes.

The use of puzzle learning media proved to be quite effective in improving students' cognitive achievement, including those with low initial understanding, as shown by the increase in the lowest score from 30 in the pre-test to 60 in the post-test. This shows that this media is not only quite effective for students who already understand the material, but also provides significant support for students with low levels of initial understanding.

Based on the results of the paired sample t-test, which showed a significant value of $0.000 < 0.05$ probability limit. Thus, H_0 is rejected and H_a is accepted, which means there is a significant difference between before and after the treatment.

In other words, puzzle games can be categorized as innovative learning media in the context of modern education, because they are quite capable of increasing student learning achievement individually and in groups, while offering learning experiences that are interactive, fun, and responsive to the diversity of student needs.

Significance of Puzzle Games in Improving Student Learning Outcomes

Puzzle games are an innovative medium because they combine the elements of play with the learning process (Nugraha et al., n.d.). Puzzles not only serve as a learning tool, but also as an innovative strategy to meet the diverse learning styles of students in the modern era of education.

Based on research by Anirisa Latut Torikil Maviro, using puzzle games as media is able to encourage active student involvement, develop critical thinking and problem solving skills, and create a more collaborative, fun and challenging learning atmosphere, so as to increase motivation in understanding the material more deeply (Maviro, 2017b).

Overall, the analysis shows that the use of puzzle games as learning media is quite effective in improving student learning outcomes, both individual and group, and can be

applied as an innovative learning method in modern education. This media provides feedback in helping students understand the material better.

Research conducted on the R2 Social class as an experimental class, showed that the application of puzzle games had a positive impact on improving student learning outcomes. In the study: The average value of students' pre-test before the application of puzzle media was 56.88 and after using puzzle media, the average value increased to 85.67, the amount of difference between the pre-test and post-test was 29.79.

From the results of the N-Gain test conducted, it is known that the R2 Social class after using the puzzle media has increased by 74.1573%. this shows that puzzle media is quite effective compared to conventional learning media. As described in research by Fakhruna Saif from the N-Gain score data, the increase in learning outcomes in the R2 Social class by applying puzzles as media is in a fairly high classification with a percentage of 75.89% (Saif, 2020).

Thus, puzzle games are able to help students understand the material better, and create innovative learning experiences that are relevant to modern educational needs, as well as fun and challenging learning experiences.

Conclusion

Based on the research that has been done and the problems have also been formulated, the authors make a conclusion from the results that have been obtained as follows:

The learning outcomes of R2 Social class students at MTsN 3 Pamekasan on social studies subjects with the material of ocean exploration, colonialism and imperialism in Indonesia using puzzle media show that the significance value (sig.) obtained $0.000 < 0.05$, then the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted. Thus, the hypothesis stating that there is a significant influence between the use of puzzle games on improving student learning outcomes in social studies subjects in class R2 Social MTsN 3 Pamekasan is accepted.

The significance of the use of puzzle media in improving student learning outcomes in social studies class R2 Social at MTsN 3 Pamekasan using N-Gain analysis is known that it has increased by 74.1573%. this shows that puzzle learning media is effective enough to improve student learning outcomes.

Suggestion

Future researchers are expected to be able to utilize puzzle learning media in future research, as well as continue the development of studies using various other learning media. Future researchers are advised to integrate the use of puzzles with other collaborative and innovative learning methods, in order to create a more varied learning process and increase student involvement and comfort in learning.

References

- Abdurrahman, M. (1999). *Pendidikan Bagi Anak Berkesulitan Belajar* (1st ed.). Rineka cipta.
- Dimiyati, & Mudjiono. (2013). *Belajar dan Pembelajaran*. PT Rineka Cipta.
- Mahardikha, Asrori, & Yuniarni, D. (n.d.). Permainan Edukatif dengan Media Puzzle Mengembangkan Kemampuan Kognitif Anak Usia 4-5 Tahun TK Islamiyah. *Universitas Tanjungpura*.
- Maviro, T. L. A. (2017b). Penggunaan Media Puzzle Untuk Meningkatkan Hasil Belajar Siswa Pada Pembelajaran IPS di Kelas IV Min Lambaro Aceh Besar. *Universitas Islam Negeri Ar-Raniry Darussalam Banda Aceh*.
- Motoh, C. T., Hamna, & Kristina. (2022). Penggunaan Video Tutorial Untuk Meningkatkan Hasil Belajar IPS Siswa Kelas VII SMP Negeri 3 Tolitoli. *Jurnal Teknologi Pendidikan Madako*, 1(1).
- Muttiara. (2023). Penerapan Media Puzzle dapat Meningkatkan Hasil Belajar Siswa Pada Mata Pelajaran IPS Kelas IX.1 SMP Negeri 12 Parepare Tahun Pelajaran 2019/2020. *ISTIQURA'*, 10(2).
- Nugraha, P. A., Purwiyastuti, W., & Listyani. (n.d.). Penggunaan Puzzle Sebagai Media Inovatif dalam Pembelajaran IPS SD Kelas III. *Jurnal Pendidikan Ilmu Pengetahuan Sosial Indonesia*, 10(1).
- Pagarra Hamzah, Syawaluddin Ahmad, Krismanto Wawan, & Sayidiman. (2022). *MEDIA PEMBELAJARAN* (1st ed.). Badan Penerbit UNM.
- Saif, F. (2020). Pengaruh Pembelajaran Teams Games Tournaments Menggunakan Media Puzzle Pada Materi Organisasi Pergerakan Nasional Terhadap Hasil Belajar IPS Siswa Kelas VIII SMP Negeri 8 Binjai Tahun Pelajaran 2019-2020. *UNIVERSITAS ISLAM NEGERI SUMATERA UTARA*.
- Saleh, S., Syahrudin, Saleh, S., Azis, I., & Sahabudin. (2023). *Media Pembelajaran* (1st ed.). EUREKA MEDIA AKSARA.
- Sugiyono. (2024). *metode penelitian eksperimen* (R. Fadliah, Ed.; 1st ed.). ALFABETA, CV.

- Wiarto, G. (2016). *Media Pembelajaran Dalam Pendidikan Jasmani* . Laksitas.
- Wicaksono, D., & Iswan. (2019). Upaya Meningkatkan Hasil Belajar Peserta Didik Melalui Penerapan Model Pembelajaran Berbasis Masalah di Kelas IV Sekolah Dasar Muhammadiyah 12 Pamulang, Banten. *HOLISTIKA : Jurnal Ilmiah PGSD III*, 2.
- Yulianto, A. (2021). Penerapan Model Kooperatif Tipe TPS (Think Pair Share) Untuk Meningkatkan Hasil Belajar Siswa di Kelas VI SDN 42 Kota Bima. *PENDIKDAS: Jurnal Pendidikan Sekolah Dasar*, 1(2).

