

MONOPOLY POP-UP MEDIA AS INSTRUCTIONAL INNOVATION FOR GRADE V ELEMENTARY IPAS LEARNING

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Abstract

The low learning outcomes in IPAS at the elementary school level indicate the need for learning media capable of increasing student engagement in the learning process. Although various game-based media have been widely developed, media that integrate the Monopoly game with pop-up visualizations for IPAS learning are still rarely used. This study aims to determine the effect of the Monopop (Monopoly Pop-Up) media on the IPAS learning outcomes of fifth-grade students at SD Negeri 1 Kasugengan Kidul. The study employed a quantitative approach using a pre-experimental one-group pretest-posttest design involving 29 students. Data were collected using multiple-choice tests that met validity and reliability criteria and were then analyzed using the Shapiro-Wilk test, the paired-sample t-test, and the N-Gain measure. The results showed a significant difference between learning outcomes before and after the use of the Monopop medium ($\text{Sig.} = 0.000 < 0.05$), with an average N-Gain of 0.6356, which falls into the moderate category. These findings indicate that the Monopop (Monopoly Pop-Up) medium is effective in improving IPAS learning outcomes through more active, interactive, and collaborative learning. The contribution of this study lies in the development of a Game-Based Learning medium that integrates elements of the Monopoly game and pop-up visualizations into a single learning medium. In practice, the Monopop (Monopoly Pop-Up) medium can serve as an alternative for elementary school teachers to support student-centered IPAS learning and create more meaningful learning experiences.

Keywords: Monopoly Pop-Up Media; Learning Outcomes; Natural and Social Sciences; Game Based Learning; Elementary School.

Abstrak

Rendahnya hasil belajar IPAS di sekolah dasar menunjukkan perlunya media pembelajaran yang mampu meningkatkan keterlibatan siswa dalam proses belajar. Meskipun berbagai media berbasis permainan telah banyak dikembangkan, media yang mengintegrasikan permainan monopoli dengan visualisasi pop-up untuk pembelajaran IPAS masih jarang diterapkan. Penelitian ini bertujuan untuk mengetahui pengaruh media Monopop (Monopoli Pop-Up) terhadap hasil belajar IPAS siswa kelas V SD Negeri 1 Kasugengan Kidul. Penelitian menggunakan pendekatan kuantitatif dengan desain Pre-Experimental One Group Pretest-Posttest yang melibatkan 29 siswa. Data dikumpulkan menggunakan tes pilihan ganda yang memenuhi kriteria valid dan reliabel, kemudian dianalisis menggunakan uji Shapiro Wilk, Paired Sample T-test, dan N-Gain. Hasil penelitian menunjukkan bahwa terdapat perbedaan yang signifikan antara hasil belajar sebelum dan sesudah penggunaan media Monopop ($\text{Sig.} = 0.000 < 0,05$), dengan rata-rata N-Gain sebesar 0,6356 yang termasuk kategori sedang. Temuan ini menunjukkan bahwa media Monopop (Monopoly Pop-Up) efektif meningkatkan hasil belajar IPAS melalui pembelajaran yang lebih aktif, interaktif dan kolaboratif. Kontribusi penelitian ini terletak pada pengembangan media berbasis Game Based Learning yang mengintegrasikan unsur permainan monopoli dan visualisasi pop-up dalam satu media pembelajaran. Secara praktis, media Monopop (Monopoly Pop-Up) dapat menjadi alternatif bagi guru sekolah dasar untuk mendukung pembelajaran IPAS yang berpusat pada siswa dan menciptakan pengalaman belajar yang lebih bermakna.

Kata Kunci: Media Monopoli Pop-Up, Hasil Belajar; Ilmu Pengetahuan Alam dan Sosial; Game Based Learning; Sekolah Dasar.

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Introduction

Education is a conscious and planned effort to create an environment that fosters active student learning and develops students' potential so that they acquire religious and spiritual strength, self-control, character, intelligence, noble moral values, and skills that benefit both themselves and society (Abd Rahman et al., 2022). Education plays a crucial role in determining the quality of the workforce; it contributes to improving the quality of human resources through the learning process (Marhamah et al., 2024). In the field of education, the existence of a curriculum is essential to ensure the achievement of educational functions and objectives. In line with the times, the government, through the Ministry of Education, Culture, Research, and Technology (Kemendikbud Ristek), introduced the Merdeka Curriculum in 2022 as a new policy within the national education system. Twenty-first-century education requires students not only to understand the subject matter but also to possess the skills to solve problems they may face in the future. The problem-solving process is closely tied to ways of thinking, thus requiring higher-order thinking (Novella, P., et al., 2024). In the 21st century, learning focuses on developing creative thinking, critical thinking and problem-solving, communication, and collaboration.

Learning outcomes are defined as the evaluation conducted on students after they have gone through the learning process, which involves assessing students' knowledge, attitudes, and skills, as well as the behavioral changes that occur (Fernando et al., 2024). In line with this view, according to Febryanti et al. (2024), learning outcomes refer to the abilities students possess after undergoing the learning process, which can be measured through the aspects of knowledge, understanding, application, analysis, and synthesis gained from learning experiences; there are three domains of learning outcomes: cognitive, affective, and psychomotor. Ideal learning outcomes in the Merdeka Curriculum are not determined solely by academic achievement but also by the attainment of Learning Outcomes (CP) that integrate knowledge, skills, and attitudes, in line with the reinforcement of the Pancasila Student Profile. Based on research conducted by Ismayanah et al. (2025), ideal student learning outcomes occur when students successfully meet the predetermined Learning Objective Achievement Criteria and are able to apply the knowledge they have acquired in their daily lives.

Natural Sciences is a branch of science that studies natural phenomena using a systematic approach, through observation, experimentation, and drawing conclusions (Aini, S. Q., et al., 2025). The implementation of the Merdeka Curriculum has brought about changes in elementary education, particularly by integrating the Natural and Social Sciences subject. The integration of these two subject areas aims to enhance students' motivation to understand and interact with their natural and social environments in a comprehensive manner (Bestiyana et al., 2024). Based on international data, Indonesia participates in the PISA (Programme for International Student Assessment) assessment organized by the Organization for Economic Cooperation and Development (OECD). According to the 2022 PISA results, Indonesia scored 383 in science. This indicates that Indonesia still lags behind other ASEAN countries and is below the OECD average. Furthermore, according to a study conducted by Luthfi et al. (2023) on the evaluation of science literacy-based learning implementation in Madrasah Ibtidaiyah, students' science learning outcomes remain very poor, with a score of 52.36% in the outcomes category. The evaluation involved 20 Madrasah Ibtidaiyah in West Java, and the data indicate that some students are not yet able to apply scientific concepts in their daily lives.

Ideally, IPAS instruction at the elementary school level is expected to achieve learning outcomes aligned with the KKTP; however, the reality on the ground reveals a gap. Based on

findings from SD Negeri 1 Kasugengan Kidul, the IPAS learning outcomes for fifth-grade students remain low. Interviews with fifth-grade teachers revealed that the average score on the Odd Semester Daily Tests was 61, while the established Learning Objective Achievement Criteria is 75. Based on this data, 24.4% (7 students) have achieved learning mastery, while 75.86% (22 students) have not yet achieved learning mastery. This situation indicates that the majority of students have not yet mastered the expected competencies in IPAS instruction. Observation results show that the learning process is still dominated by lecture-based methods and limited use of media, resulting in suboptimal student engagement. Additionally, an interview with one fifth-grade student revealed that IPAS lessons are perceived as uninteresting and boring due to the minimal use of interactive learning media, causing students to struggle with understanding the presented material. These conditions highlight the need for innovative learning media that actively engage students, improve learning outcomes, and help visualize science concepts in a more concrete and engaging way.

To address these issues, learning media are needed that can actively engage students and provide meaningful learning experiences. This aligns with constructivist theory, which states that during the learning process, students are required to remain active in expanding their knowledge. Students are also taught to take responsibility for what they acquire on their own through the learning process. Their creativity and active engagement will greatly help them become self-reliant in their cognitive development (Arafah et al., 2023). Furthermore, Morris (2025) states that constructivism emphasizes that students should not be passive recipients of information but must actively participate in the learning process to build understanding through interaction with their environment and engagement in activities that require experimentation, asking questions, and discovery. The use of the Monopop (Monopoly Pop-Up) medium is also supported by the Cognitive Theory of Multimedia Learning (CTML) developed by Mayer (2024), which explains that CTML focuses on how learners engage in meaningful learning from academic material that integrates text and images; this theory emphasizes various techniques that can foster appropriate cognitive processes during the learning process. Therefore, the characteristics of the Monopop medium which integrates text, images, colors, and pop-up elements enable students to acquire information both verbally and visually, thereby enhancing their understanding of IPAS concepts.

In line with theoretical foundations, there is a need for learning media that can support active learning and help students build conceptual understanding more effectively. One approach that can be applied is the use of Monopop media a learning tool that combines elements of educational games with concrete visual media. Monopop enables students to grasp IPAS concepts directly through educational games, making learning more meaningful. Monopop (Monopoly Pop-Up) offers several advantages: it creates an enjoyable learning experience by combining learning with play; it provides a more realistic learning experience through engaging pop-up displays; it enhances active student interaction; and it increases the appeal of the learning process, making it easier for students to focus on the material. Furthermore, the Monopop (Monopoly Pop-Up) media can improve learning outcomes because students become more active, enthusiastic, and able to easily understand material presented visually and interactively, making the information they receive easier to remember and comprehend.

Several previous studies have demonstrated the effectiveness of Monopoly and Pop-Up Books in improving learning outcomes. A study conducted by Sidabalok et al. (2024), titled "The Effect of Monopoly Media on the Learning Outcomes of Fourth-Grade Students at GKPS No. 1 Private Elementary School in Pematangsiantar," found that Monopoly media

significantly improved learning outcomes, as evidenced by an increase in the average score from 57.5 on the pre-test to 82.1 on the post-test. Furthermore, a study conducted by Nazhirah et al. (2024), titled “The Effect of Pop-Up Books -Up Books on Student Learning Outcomes in Ecosystem Lessons in Grade 5 at Beureuneun Public Elementary School No. 1” demonstrates the impact of pop-up books in learning; it was shown that the experimental class using pop-up books had a post-test average score of 73.4, while the control class had an average score of 60. The results of a study conducted by Majma et al. (2025) indicate that the implementation of the TGT model aided by PoliPop media can improve student learning outcomes and influence student engagement in learning. In line with these findings, Anindya et al. (2022) demonstrated that the use of the PUMKABUJA (Pop-Up Monopoly of Cultural Diversity on the Island of Java) medium was effective, as evidenced by a post-test average score of 86.25% and a classical learning mastery rate of 90%, which falls within the “highly effective” criteria. Furthermore, research conducted by Syafira (2024) showed that the Pop-Up Monopoly learning tool she developed met excellent criteria for validity and practicality, making it suitable for use as a learning tool for teaching the Human Digestive System in elementary school.

Based on previous research, Monopoly-based media has been proven to improve learning outcomes and student engagement in the learning process, while pop-up media helps students understand concepts through more concrete visual presentations. Several studies have also developed media that integrate Monopoly and pop-up elements, such as Polipop and Monopoly Pop-Up. However, most of these studies have focused on the development and feasibility of the media through the Research and Development (R&D) method. Research examining the effect of using Monopoly Pop-Up media on elementary school students' IPAS learning outcomes remains relatively limited. Most previous studies have focused on media development and testing the validity, practicality, and feasibility of the media; consequently, empirical evidence regarding the effect of using such media on student learning outcomes is still scarce, particularly in IPAS instruction at the elementary school level.

Based on a review of previous research, game-based learning media and interactive visual media have been extensively developed to support the learning process in elementary schools. Most studies still emphasize the development and feasibility of these media, while research examining the effectiveness of using the Monopop media on student learning outcomes remains relatively limited. Therefore, this study aims to investigate the impact of using the Monopop (Monopoly Pop-Up) media on the IPAS learning outcomes of fifth-grade elementary school students as an effort to add to the empirical evidence regarding the use of innovative learning media.

The novelty of this study lies in the use of Monopop (Pop-Up) as an innovative learning medium that integrates elements of the Monopoly game and three-dimensional visualization (pop-up) into IPAS instruction in elementary schools. Unlike previous studies, which have largely focused on media development, this study specifically examines the use of the Monopop medium for the “Human Digestive System” unit in IPAS instruction at elementary schools through a quantitative approach using a one-group pretest-posttest design. Furthermore, this study emphasizes the analysis of changes in learning outcomes before and after the use of the Monopop medium a tool that integrates elements of the Monopoly game with three-dimensional visualization (pop-up). Therefore, this study is expected to provide empirical contributions toward the utilization of innovative media in improving the quality of IPAS instruction in elementary schools.

This study focuses on the issue of low IPAS learning outcomes, one of the causes of which is the limited and uninnovative use of learning media. This situation results in students being less actively engaged in the teaching-learning process and failing to understand the material well. Therefore, more engaging learning media are needed to help students understand the material more easily. Consequently, the researcher is interested in improving IPAS learning by using the Monopop (Monopoly Pop-Up) medium as one alternative innovative learning medium. Based on these issues, the research question for this study is: "Does the Monopop (Monopoly Pop-Up) medium have an effect on the IPAS learning outcomes of fifth-grade elementary school students?"

Research Methods

This study used a quantitative method with a pre-experimental design specifically, a one-group pretest-posttest design to analyze the effect of using the Monopop (Monopoly Pop-Up) teaching aid on IPAS learning outcomes. This design was chosen because it allowed the researcher to compare learning outcomes before and after the intervention by administering pretest and posttest questions to the same group. Changes in learning outcomes resulting from the use of the Monopop media can be identified more systematically. However, this design has limitations because it does not include a control group for comparison; consequently, the research results may be influenced by factors outside the intervention, such as changes in the subjects' conditions during the study or learning experiences gained from other sources that could affect the findings.

The research procedure was carried out in three stages: preparation, implementation, and data analysis. During the preparation stage, the researcher developed instructional materials, designed assessment instruments based on the IPAS learning outcomes and indicators, created an instrument rubric, and prepared the Monopop media. The research instruments were first validated by experts, including faculty members specializing in elementary education and teachers with experience as elementary school practitioners, to ensure the instruments' alignment with the indicators and materials used in the study.

The implementation stage began with the administration of a pretest to assess students' initial abilities before the intervention was administered. Next, learning activities were conducted using the Monopop medium as the primary learning tool. After the learning process was completed, students took a posttest to collect data on their learning outcomes following the intervention. The final stage involved data analysis aimed at determining the effect of using the Monopop (Monopoly Pop-Up) medium on students' IPAS learning outcomes.

The subjects in this study were all fifth-grade students at SD Negeri 1 Kasugengan Kidul, totaling 29 students. The sampling technique used was saturation sampling, or total sampling a method that involves including all members of the population as the study sample. Thus, all 29 fifth-grade students were included as the sample in this study.

The data analysis techniques used included a normality test, hypothesis testing, and the N-Gain test. The normality test was conducted using the Shapiro-Wilk test and indicated that the research data were normally distributed. Therefore, hypothesis testing proceeded using a paired-sample t-test to analyze differences in learning outcomes before and after using the Monopop medium. Furthermore, the N-Gain test was used to measure the level of improvement in students' learning outcomes after they were exposed to instruction using the Monopop medium.

Before being used in the study, the instruments had to be tested first to ensure their suitability and quality for data collection. The instruments used consisted of 15 multiple-choice items that had been tested for validity, reliability, and discriminant power test.

Table 1. Validity Test

No	Corrected item-Total Correlation	Tabel Values	Description
1.	0,704	0,361	Valid
2.	0,689	0,361	Valid
3.	0,766	0,361	Valid
4.	0,560	0,361	Valid
5.	0,534	0,361	Valid
6.	0,517	0,361	Valid
7	0,608	0,361	Valid
8	0,512	0,361	Valid
9	0,656	0,361	Valid
10	0,737	0,361	Valid
11	0,778	0,361	Valid
12	0,694	0,361	Valid
13	0,849	0,361	Valid
14	0,640	0,361	Valid
15	0,632	0,361	Valid

To determine the validity of the test items, the researcher calculated the critical value of r for $N = 30$. The critical value of r is determined using the formula $df = N - 2$; the critical value of r for $N = 30$ at a 5% significance level is 0.361. Based on the table above, the test validity results indicate that the test is valid, since the calculated r value is greater than the critical value of r . Therefore, the learning outcome instrument for IPAS instruction can be used for this study. Based on the analysis results presented in Table 1, all test items have calculated r values greater than the critical r value (0.361).

In this study, the reliability test used Cronbach's alpha via SPSS Version 22 software.

Table 2. Reability Test**Reliability Statistics**

Cronbach's Alpha	N of Items
.905	15

Based on the results with a sample size of $N=30$, the Cronbach's Alpha value was 0.905 for the 15 items. Since this value is greater than 0.60, the instrument is considered reliable or consistent. Furthermore, the Cronbach's Alpha value falls within the range of 0.80–1.00, placing it in the category of very high reliability or indicating a very strong correlation.

Next, a discriminant validity test was conducted to determine the ability of each test item to distinguish between students with high and low levels of mastery of the material.

Table 3. Discriminant Power Test

Question Number	Value	Description
1	0,5	Good
2	1	Very Good
3	0,875	Very Good
4	0,75	Very Good
5	0,875	Very Good
6	0,375	Enough

7	0,5	Good
8	0,25	Enough
9	0,5	Good
10	0,625	Good
11	0,75	Very Good
12	0,875	Very Good
13	1	Very Good
14	0,75	Very Good
15	0,75	Very Good

Based on the results of the discriminant analysis of the 15 test items, there were 2 items categorized as “enough” (items 6 and 8), 4 items were categorized as “good” (items 1, 7, 9, and 10), and 9 items were categorized as “very good” (items 2, 3, 4, 5, 11, 12, 13, 14, and 15). These results indicate that most test items are effective in distinguishing between students with high and low mastery of the material, making the instrument suitable for measuring student learning outcomes in IPAS instruction.

Result and Discussion

This study was conducted at Kasugengan Kidul Elementary School 1 during the even semester of the 2025/2026 academic year, involving 29 fifth-grade students as research subjects. The purpose of this study was to determine the effect of using the Monopop (Monopoly Pop-Up) teaching aid on students' science learning outcomes regarding the human digestive system. Data collection was carried out in two stages: a pretest administered before instruction using the Monopop media to assess students' initial abilities, and a posttest administered after instruction to assess students' learning outcomes following the intervention.

The results of this study indicate that the Monopop media had a significant effect on IPAS learning outcomes. This is evident from the fifth-grade students' average pretest score of 63.41, indicating that the results were still relatively low. After the intervention, the average posttest score increased to 87.20. This increase indicates a change in students' learning outcomes following the intervention. These findings are further supported by statistical tests, which revealed a significant difference between students' learning outcomes before and after the implementation of the Monopop medium. Therefore, the results of this study indicate that the use of the Monopop (Monopoly Pop-Up) teaching aid has an effect on fifth-grade students' IPAS learning outcomes on the topic of the Human Digestive System.

Before testing the hypotheses, a normality test was first conducted on the pretest and posttest data to determine whether the research data were normally distributed or not. The normality test was performed using the Shapiro-Wilk method because the sample size was less than 50 respondents. The normality test criteria state that the data are considered normally distributed if the significance value obtained is greater than 0.05 (Sig. value > 0.05). The results of the normality test are presented in Table 4.

Table 4. Normality Test

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Pretest	,155	29	,072	,946	29	,145
Posttest	,160	29	,054	,931	29	,057

Based on Table 4, the analysis results show that the significance value for the pretest data is 0.145, while the significance value for the posttest data is 0.057. Both significance values are greater than the significance level of 0.05 (Sig. > 0.05), so it can be concluded that the students' learning outcome data from the pretest and posttest are normally distributed. Thus,

the research data meet the assumption of normality, allowing the study to proceed to hypothesis testing using a parametric test.

Based on the normality test, the pretest and posttest data indicate a normal distribution. Therefore, a parametric hypothesis test was subsequently conducted using a paired-sample t-test. This hypothesis test aims to analyze the comparison of the mean student learning achievement scores between before (pretest) and after (posttest) the use of the learning media.

Tabel 5. Hypothesis Testing (Paired Sample t-test)

Paired Differences								
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	df	Sig. (2-tailed)
				Lower	Upper			
Pretest - Posttest	-23,783	10,522	1,954	-27,785	-19,780	-12,172	28	0,000

Based on the table above, the significance value (Sig., 2-tailed) is $0.000 < 0.05$, so H_a is accepted and H_o is rejected. Furthermore, the calculated t-value of -12.172 is greater than the critical t-value of 2.048 at a significance level of 0.05 with 28 degrees of freedom (df). Thus, it can be concluded that there is a significant difference between students' learning outcomes before and after the implementation of the Monopop (Monopoly Pop-Up) medium.

Furthermore, based on the effect size calculation using Cohen's d formula, a value of 2.26 was obtained. This value exceeds the 0.80 criterion, thus falling into the "large effect" category. These results indicate that the use of the Monopop (Monopoly Pop-Up) media not only produced a statistically significant difference but also had a very large effect on improving the IPAS learning outcomes of fifth-grade students. Thus, the Monopop (Monopoly Pop-Up) media can be used as an effective learning tool to support the learning process.

Furthermore, an N-Gain test was conducted to measure the improvement in students' learning outcomes after using the Monopop medium (Pop-Up Medium). This analysis was performed by comparing pretest and posttest scores to determine the medium's effectiveness in improving students' learning outcomes.

Tabel 6. Normalized gain (N-Gain)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std.Deviation
Ngain_Skor	29	.19	1.00	.6356	.21459
Ngain_Persen	29	19.16	100.00	63.5558	21.45851
Valid N (listwise)	29				

Based on Table 6, the calculation results show that the average N-Gain value is 0.6356. This value falls into the moderate category because it lies within the index range of $0.3 \leq g \leq 0.7$. Meanwhile, the average N-Gain percentage obtained was 63%, indicating that the use of the Monopop medium is fairly effective, consistent with the interpretation range of 56–75%.

The research results show that the use of the Monopop (Monopoli Pop-Up) medium has a significant effect on the IPAS learning outcomes of fifth-grade students on the topic of the Human Digestive System. The increase in the average score from 63.41 on the pretest to 87.20 on the posttest, along with an N-Gain value of 0.6356 which falls into the moderate category

indicates that the Monopop medium helps students understand the material better. This study demonstrates that learning that integrates game elements with visual media can create a more engaging, interactive, and meaningful learning experience, thereby improving students' learning outcomes. This aligns with research conducted by Amalia & Astuti (2023), which showed that game-based learning media can increase student engagement, create an enjoyable learning experience, and have a positive impact on science learning outcomes in elementary school.

These findings can be explained through the constructivist theory proposed by Lev Vygotsky (1978), which states that knowledge is constructed through social interaction, discussion, and collaboration among students. This theory is supported by research by Prayogi & Puspita (2025), which found that the application of constructivist-based games-based learning in elementary school science education creates an interactive, enjoyable, and meaningful learning environment where students are not merely recipients of information but active participants who construct their own knowledge through direct experience. During lessons using Monopop, students not only listened to the teacher's explanations but also discussed in groups, read material cards, answered question cards, and collaborated to complete the game. These activities provided students with opportunities to exchange opinions, correct answers, and collectively build conceptual understanding, thereby making the material on the human digestive system easier to grasp.

Furthermore, research findings consistent with Mayer's (2024) Cognitive Theory of Multimedia Learning (CTML) indicate that learning is more effective when information is presented through a combination of text, images, and complementary activities. These findings are supported by research by Cavanagh & Kiersch (2023), which demonstrates that the use of multimedia designed according to CTML principles can help students build better mental representations through the integration of text, images, narration, and learning activities. In line with the research findings of Knoster & Goodboy (2023), these results indicate that instructional designs following CTML principles can help students understand the material more effectively. Based on the above theory and consistent with this study, the Monopop medium integrates pop-up boards, content cards, question cards, and game-based activities into a single learning unit. The presentation of material through three-dimensional illustrations on the pop-up board and content cards helps students process visual and verbal information simultaneously, while the question cards and game-based activities encourage students to actively process information through discussion. In addition to helping integrate verbal and visual information, the Monopop medium also assists students because the abstract concept of the human digestive system is presented in the form of more concrete three-dimensional illustrations. Consequently, students can more easily connect new information with their prior knowledge, making the learning process more effective.

The effectiveness of the Monopop (Monopoly Pop-Up) medium can be explained through the Game-Based Learning approach, which positions games as a means to enhance learning outcomes and student engagement in the learning process. Game elements such as question cards, game rules, and rewards help increase students' interest in learning throughout the learning process. Research conducted by Okra (2023) shows that educational game-based learning media developed for fifth-grade elementary school science lessons has a very high validity score of 0.97 and received a user rating of 94.15, falling into the "very good" category. These results indicate that game-based learning media is considered suitable for elementary school students because it provides engaging, interactive, and user-friendly learning experiences. In line with this research, Elvira & Hadiansah (2025) demonstrated that the implementation of Game-Based Learning (GBL) assisted by Wordwall in science education can enhance

elementary school students' learning motivation and creative thinking skills. Game-based activities encourage students to actively engage in the learning process, making learning more engaging and student-centered. Another study conducted by Dela et al. (2025) found that the use of the GBL model proved effective in improving students' cognitive learning outcomes and was able to create a more enjoyable and meaningful learning environment.

The pedagogical characteristics of Monopop (Monopoly Pop-Up) also contribute to improving student learning outcomes. This medium integrates pop-up elements into the game board, challenge cards, content cards, and game pieces, all designed to create an interactive and enjoyable learning experience. The game board presents a three-dimensional visualization of the human digestive system, helping students transform abstract concepts into concrete, easily understandable ideas. Content cards serve as a source of information to help students grasp the key concepts being studied, while challenge cards are used to assess and reinforce students' understanding through problem-solving activities. Meanwhile, the use of game pieces encourages active student engagement, interaction among group members, and collaborative learning throughout the learning process. Through direct engagement in the game, students gain a more meaningful learning experience compared to conventional, teacher-centered instruction. Students do not merely memorize concepts but also gain a deeper understanding of the human digestive organs and processes through play, discussion, and problem-solving with their group members. Therefore, the use of the Monopop (Monopoly Pop-Up) game is able to improve learning outcomes, active participation, and students' conceptual understanding, which ultimately leads to improved IPAS learning outcomes. These characteristics also support the implementation of the Merdeka Curriculum, which emphasizes student-centered learning. Teachers act as facilitators, while students become active participants who construct knowledge through exploration, collaboration, and problem-solving. The findings of this study align with those of Majma et al. (2025), as both demonstrate that game-based media can improve student learning outcomes.

This similarity is likely because both studies employed play-based activities that encouraged students' active engagement during the learning process. However, there are differences: the study by Majma et al. used the Team Games Tournament model supported by PoliPop, whereas this study utilized the Monopop (Monopoly Pop-Up) medium in IPAS instruction on the human digestive system. These differences in subject matter, instructional models, and research subjects may have influenced the extent of the improvement in learning outcomes observed. Syafira's (2024) study placed greater emphasis on the validity and practicality of the Monopoly Pop-Up medium, whereas this study examined the medium's effectiveness in improving student learning outcomes. Although they have different focuses, both studies indicate that the Monopoly Pop-Up medium is suitable for use as a learning tool because it supports a more engaging and interactive learning process.

The practical implications of this study suggest that the Monopop (Monopoly Pop-Up) medium can serve as an alternative IPAS learning medium that supports active learning in elementary schools. Teachers can utilize this medium to increase student engagement through guided play activities, while schools can adopt the Monopop (Monopoly Pop-Up) medium as one of the learning innovations supporting the implementation of the Merdeka Curriculum. In addition to improving learning outcomes, this medium also has the potential to develop students' communication, collaboration, and problem-solving skills.

This study has several limitations. First, the sample size consisted of only 29 students from a single school, so the results cannot yet be generalized to a broader population. Second,

the study used a one-group pretest-posttest design without a control group, so the improvement in learning outcomes cannot yet be compared to learning using other media. Third, the study was limited to the Human Digestive System topic; therefore, the effectiveness of the Monopop (Monopoly Pop-Up) media for other IPAS topics still needs to be demonstrated through further research.

Given these limitations, future research is recommended to use an experimental design that includes a control group, a larger sample size, and be conducted across several schools with different characteristics to ensure the study results have better generalizability. Additionally, future research could examine the impact of the Monopop (Monopoly Pop-Up) medium on students' learning motivation, critical thinking skills, creativity, and collaboration skills.

Conclusion

Based on the research findings, it can be concluded that the Monopop (Monopoly Pop-Up) learning medium has an impact on the IPAS learning outcomes of fifth-grade students regarding the Human Digestive System. The use of this medium fosters more active, interactive, and meaningful learning through a combination of game elements, visualization, and collaborative learning, thereby helping students better understand the concepts. These findings contribute to strengthening the use of instructional media based on Game-Based Learning, constructivism, and the Cognitive Theory of Multimedia Learning (CTML) as effective approaches to improving the quality of IPAS instruction in elementary schools. In practice, the Monopop (Monopoly Pop-Up) media can serve as an alternative instructional tool for teachers to support student-centered learning in accordance with the implementation of the Merdeka Curriculum.

This study has limitations because it involved only one school with a limited sample size and used a one-group pretest-posttest design without a control group. Therefore, future research is recommended to use an experimental design with a control group, involve a broader sample from various schools, and test the effectiveness of the Monopop (Monopoly Pop-Up) medium on IPAS material as well as other aspects of learning to obtain more comprehensive findings.

References

- Abd Rahman, B. P., Munandar, S. A., Fitriani, A., Karlina, Y., & Yumriani, Y. (2022). Pengertian Pendidikan, Ilmu Pendidikan dan Unsur-Unsur Pendidikan. *Al-Urwatul Wutsqa: Kajian Pendidikan Islam*, 2(1), 1–8. <https://journal.unismuh.ac.id/index.php/alurwatul>
- Ahmad Sulaeman Nagib Ridlwan, & Suparto. (2025). Analisis Kebijakan Kurikulum Merdeka Belajar, Upaya Pemerintah Dalam Meningkatkan Kualitas Pendidikan di Indonesia. *QOUBA : Jurnal Pendidikan*, 2(1), 119–126. <https://doi.org/10.61104/qb.v2i1.300>
- Aini, S.Q., Asyiah, N., Huda. M.K. (2025). Pengaruh Model Inkuiri Terbimbing Berbantuan Media Google Site Terhadap Kemampuan Berpikir Kritis Siswa pada Mata pelajaran IPAS. *Pendas: Jurnal Ilmiah Pendidikan Dasar* 10(3). <https://doi.org/10.23969/jp.v10i03.30089>
- Anindita, D., & Wardani, N. S. (2025). "Pengembangan Media Pop-Up Book Untuk Meningkatkan Hasil Belajar Tematik." *Scholaria: Jurnal Pendidikan Dan Kebudayaan*, 15(1), 76–83. <https://doi.org/10.24246/j.js.2025.v15.i1.p76-83>
- Amalia, R., & Astuti, R. (2023). Use of Educational Games to Improve Science Learning

- Outcomes of Elementary School Students: Penggunaan Game Edukatif Untuk Meningkatkan Hasil Belajar IPA Siswa Sekolah Dasar. *Academia Open*, 8(1), 10–21070. <https://doi.org/10.21070/acopen.8.2023.5100>
- Arafah, A. A., Sukriadi, S., & Samsuddin, A. F. (2023). Implikasi teori belajar konstruktivisme pada pembelajaran matematika. *Jurnal Pendidikan MIPA*, 13(2), 358–366. <https://doi.org/10.37630/jpm.v13i2.946>
- Bestiyana, D., Susilawati, Jajuli. (2024). Pengaruh Model Problem Based Learning (Pbl) Menggunakan Media Wordwall Terhadap Motivasi Belajar Ips Siswa Kelas V Sekolah Dasar Pada Kurikulum Merdeka. *Didaktik : Jurnal Ilmiah PGSD FKIP Universitas Mandiri*, 10 (03), 55-64.
- Cavanagh, T. M., & Kiersch, C. (2023). Using commonly-available technologies to create online multimedia lessons through the application of the Cognitive Theory of Multimedia Learning. *Educational Technology Research and Development*, 71(3), 1033–1053. <https://doi.org/10.1007/s11423-022-10181-1>.
- Elvira, V., & Hadiansah, D. (2025). Pengaruh Model Pembelajaran Game Based Learning Wordwall Terhadap Motivasi Dan Berpikir Kreatif Siswa Pembelajaran Ips Kelas V Sekolah Dasar. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 10(04), 260–271. <https://doi.org/10.23969/jp.v10i04.42170>
- Fadil, K., Apriliani, R., & Kasman, R. (2023). Pengaruh Media Pembelajaran Pop-Up Book Terhadap Minat Belajar Siswa Pada Mata Pelajaran IPA. *Jurnal Evaluasi Dan Pembelajaran*, 5(1), 46–55. <https://doi.org/10.52647/jep.v5i1.78>
- Febryanti, R., Huda, M. K., Wahyuningsih, A. (2024). Pengaruh Media Pop Up Book Terhadap Hasil Belajar Siswa pada Mata Pelajaran Matematika Kelas IV di SDN 3 Sumber. *J-Ceki: Jurnal Cendekia Ilmiah*, 3(5), 3715–3722.
- Fernando, Y., Andriani, P., & Syam. H., (2024). Pentingnya Motivasi Belajar Dalam Meningkatkan Hasil Belajar Siswa. *ALFIHRIS: Jurnal Inspirasi Pendidikan*, 2(3), 61–68. <https://doi.org/10.59246/alfihris.v2i3.843>
- Ismayanah, R., Susilawati., & Yulianawati, D. (2025). Peningkatan Hasil Belajar Peserta Didik Melalui Penerapan Model Problem Based Learning Berbantuan Video Animasi Pada Materi Sistem Tata Surya di Kelas VI SDN 1 Curug. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 10(04), 578–591. <https://doi.org/10.23969/jp.v10i04.31970>
- Knoster, K. C., & Goodboy, A. K. (2023). A zoom teaching experiment using CTML principles of multimedia design. *Communication Quarterly*, 71(4), 367–389. <https://doi.org/10.1080/01463373.2023.2203829>
- Luthfi, N., Herianingtyas, R., Wafiqni, N., Syarif, U. I. N., & Jakarta, H. (2023). *Evaluation Of The Implementation of Science Literacy- Based Learning in Madrasah Ibtidaiyah* Keywords : evaluation ; Madrasah Ibtidaiyah ; science literacy INTRODUCTION The Ministry of Religion is currently contributing to the achievement of education deve. 15(1). <https://doi.org/10.14421/albidayah/v15i1.1001>
- Mayer, R. E. (2024). The past, present, and future of the cognitive theory of multimedia learning. *Educational Psychology Review*, 36(1), 8. <https://doi.org/10.1007/s10648-023-09842-1>

- Marhamah, S., Nur Asyiah, M. Khozinul H. (2024). Pengaruh Model Discovery Learning Berbantuan Media Audio Visual Terhadap Hasil Belajar Siswa Kelas V Pada Materi Sistem Pernapasan Manusia di SDN 1 Panambangan. *Cendikia: Jurnal Pendidikan dan Pengajaran* 2(9), 213–220. <https://jurnal.kolibi.org/index.php/cendikia/article/view/2838>
- Morris, D. L. (2025). Rethinking science education practices: Shifting from investigation-centric to comprehensive inquiry-based instruction. *Education Sciences*, 15(1), 73. <https://doi.org/10.3390/educsci15010073>.
- Nazhirah, N., Israwati, I., & Tursinawati, T. (2024). "Pengaruh media pop-up book terhadap hasil belajar siswa pada materi ekosistem di kelas v sd negeri 1 beureunuen." *Jurnal Tunas Bangsa*, 11(1), 44–56. <https://doi.org/10.46244/tunasbangsa.v11i1.2600>
- Novella, P., Susilawati., Djajuli. (2024). Pengaruh Model Problem Based Learning Berbantuan Media Assemblr Edu terhadap Kemampuan Pemecahan Masalah Siswa Kelas V. *Jurnal Syntax Admiration* 5(10), 4074–4080. <https://doi.org/10.46799/jsa.v5i10.1522>
- Okra, R. (2023). The development of educational game-based learning media in natural science subject for elementary school students. *Jurnal Inovasi Teknologi Pendidikan*, 10(2), 122–132. <https://doi.org/10.21831/jitp.v10i2.54890>
- Prayogi, O., & Puspita, R. D. (2025). Implementation of Constructivism-Based Game-Based Learning Model in Science Learning for Grade IV. *Jurnal Profesi Pendidikan*, 4(1), 107–114. <https://doi.org/10.22460/jpp.v4i1.27441>
- Saputri, A., & Wahyuningsih, T. (2025). "Pengembangan Media Pembelajaran MOTIKA (Monopoli Matematika) Berbasis Game Edukasi pada Materi Bangun Datar Kelas IV Sekolah Dasar." *JURNAL PENDIDIKAN MIPA*, 15(3), 1307–1312. <https://doi.org/10.37630/jpm.v15i3.3362>
- Sidabalok, N. E., Sijabat, J. M., Munthe, I., & Pakpahan, N. N. (2024). "Pengaruh Media Permainan Monopoli Terhadap Hasil Belajar IPA Siswa Kelas IV SD Swasta GKPS NO 1 Pemantangsiantar." *Diklat Review: Jurnal Manajemen Pendidikan Dan Pelatihan*, 8(3), 446–451. <https://doi.org/10.35446/diklatreview.v8i3.1913>
- Syafira, Fitri. (2024). "Pengembangan Pembelajaran Monopoli Pop-Up Pada Materi Sistem Pencernaan Manusia Kelas V SD Negeri 105277 Hamparan Perak." *Skripsi*. FKIP UMSU, Medan.
- Thalytha Majma Tsaqifa Taftazani, Najwa Pitriani, Najmira Nurul Azizah, Meyra An Najmi, L. P., & Dewi, Nazwa Pahira Sopiant, Muhammad Anji Rijal, A. L. A. (2025). *Pengaruh Penerapan Model TGT dengan Media PoliPop (Monopoli Pop- Up) terhadap Hasil Belajar IPA pada Siswa Kelas V Sekolah Dasar. 1*, 827–834. <https://doi.org/10.59435/menulis.v1i12.867>
- Yusuf, M. A., Saidah, K., & Wenda, D. D. W. I. N. U. R. (2023). Pengembangan Media Monopoly Berbentuk Pop-Up Untuk Meningkatkan Pemahaman Pada Materi Keberagaman Budaya Provinsi Jawa Timur di Kelas IV SDN Tiron 4. *Universitas Nusantara PGRI Kediri*.