



The effect of using organ system board media on IPAS learning outcomes of 5th-grade elementary school

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ABSTRACT

The low learning outcomes of students in the topic of the human digestive system in the IPAS subject of grade 5 at SDN Jatimurni VI Bekasi serve as the background for this study. The use of the organ systems board as a learning medium is proposed to improve students' conceptual understanding and learning outcomes. This study aims to examine the effect of using the organ systems board media on IPAS learning outcomes of 5th-grade students. The research employed a quantitative method with a quasi-experimental design involving two classes: an experimental class using the organ systems board media and a control class without it. Both groups were given pre-tests and post-tests. The results showed a significant difference in the average learning outcomes between the experimental and control classes. The post-test mean score of the experimental class was higher than that of the control class. It is concluded that the use of the organ systems board media has a significant positive effect on the IPAS learning outcomes of 5th-grade students at SDN Jatimurni VI Bekasi.

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ABSTRAK

Rendahnya hasil belajar peserta didik dalam materi sistem pencernaan manusia pada mata pelajaran IPAS kelas 5 SDN Jaimurni VI Bekasi menjadi latar belakang dalam penelitian ini. Untuk mengatasi permasalahan tersebut, media pembelajaran papan sistem organ diusulkan sebagai solusi untuk meningkatkan pemahaman konsep dan hasil belajar peserta didik. Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan media papan sistem organ terhadap hasil belajar IPAS peserta didik kelas 5 SDN Jatimurni VI Bekasi. Metode yang digunakan adalah metode kuantitatif dengan desain quasi experimental design yang melibatkan dua kelas, yaitu kelas eksperimen yang menggunakan media papan sistem organ dan kelas kontrol yang tidak menggunakan papan sistem organ. Kedua kelas diberikan instrumen pretest dan post test. Hasil penelitian menunjukkan adanya perbedaan signifikan antara nilai rata-rata hasil belajar kelas eksperimen dan kelas kontrol. Kesimpulan dari penelitian ini adalah bahwa penggunaan media papan sistem organ memberikan pengaruh signifikan terhadap peningkatan hasil belajar IPAS peserta didik kelas 5 SDN Jatimurni VI Bekasi.

Kata Kunci: IPAS; hasil belajar; papan sistem organ

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INTRODUCTION

Learning is a process that involves individuals in acquiring knowledge, skills, and positive values through the use of various learning resources. The continuity of the learning process involves two parties: teachers and students. Learning is also related to the development of knowledge and skills, as well as changes in students' character. Over time, the learning process has adapted to the changes brought by the evolving era. Previously monotonous learning concepts have now transformed and encompass a variety of approaches. These changes in learning concepts aim to enhance the success of achieving specific learning objectives. Teachers can use learning media to balance students' cognitive, affective, and psychomotor development, thereby ensuring that the intended learning outcomes are achieved (Sa'diyah et al., 2023).

In elementary education, the Natural and Social Sciences (IPAS) subject plays an important role in developing a foundational understanding of scientific and social concepts. In the context of the human digestive system, students are exposed to a limited range of instructional media used by teachers, as instruction often relies solely on textbooks and lectures, which are less effective at enhancing students' understanding. According to *Media Pembelajaran* by M. Sahib Saleh et al., children at the elementary school level typically demonstrate better comprehension when they can see or experience the objects being studied. IPAS material is relatively challenging but important because it relates directly to students' daily lives. However, IPAS cannot be taught through lectures alone; visual aids are necessary to explain the material. For example, in the context of the human digestive system, images of its organs are needed to help students understand the digestive process and recognize the shapes and names of the organs. Therefore, the development of learning media for the IPAS topic on the human digestive system is required (Puspa & Suniasih, 2022).

According to the book "*Media Pembelajaran*" by Hasan et al., learning media play a significant role in the teaching-learning process. In this process, teachers typically use learning media to encourage students to engage in learning and achieve more meaningful outcomes. Media also serves as an intermediary through which teachers present information that cannot be directly observed by students but can be represented indirectly (Syavira, 2021). Learning media function as sources of information for students, enabling them to acquire knowledge from the teacher and thereby enhancing learning materials and improving students' understanding. (Fadilah & Kanya, 2023).

The use of instructional media can enhance the effectiveness of the learning process and the explanation of lesson content. It is also believed that employing instructional media can make the learning process less forced and more enjoyable (Lubis et al., 2023). The availability of instructional media facilitates teachers' effective communication of lesson information (Winda et al., 2022). Teachers need to plan carefully when designing classroom learning and acknowledge the role of instructional media in the teaching and learning process. In general, the use of teaching aids helps teachers present material in a way that is engaging and easily understood by students. Therefore, teachers should consider relevant media theories and principles when designing or developing instructional media.

Learning is a process that involves a three-way interaction and the delivery of understanding among teachers, students, and instructional materials. Comprehension cannot occur without the support of communication tools or media. The use of media should be considered an essential aspect that requires teachers' attention in every learning activity. Therefore, teachers need to learn how to select and utilize instructional media effectively to optimize the achievement of learning objectives in the teaching and learning process (Wasiyah et al., 2023).

The use of interactive whiteboard technology can significantly enhance students' interest in learning. This improvement is reflected in increased student participation in learning activities, improved learning

outcomes, and positive feedback from students regarding the media used (Akmal & Syarifuddin, 2024; Wahyuni & Nasution, 2024). Interactive whiteboards not only make learning more engaging but also help students better understand the material (Rosyiddin et al., 2024). Learning media serve as tools that can be used optimally, enabling students to participate actively in the learning process. By using learning media, students can acquire knowledge through direct experience and hands-on activities (Ningsih et al., 2025).

The development of the learning media, conducted using a modified ADDIE model, has proven effective and suitable for use in the teaching and learning process (Hafshari & Arini, 2023). The media can be used at any time, thereby enhancing students' knowledge in IPAS on the topic of the human digestive process. It is expected that this media will facilitate easier learning of IPAS, particularly regarding the human digestive system. This study aims to examine the implementation of organ-system board learning media and its impact on students' learning outcomes in IPAS, as a solution to low achievement levels, with the expectation that it will encourage students to take an active role in the learning process. The use of supportive learning media, combined with a problem-based approach, can make material on the human digestive system easier to understand and more engaging for students (Kusumasari et al., 2024).

Based on the results of the initial observation conducted at SDN Jatimurni VI Bekasi, students' learning outcomes in the IPAS subject, particularly on the topic of the human digestive system, were low. This was confirmed by the class teacher, based on students' mid-semester IPAS assessment data, which showed that most students had not yet met the *Kriteria Ketuntasan Minimum* (KKM). The IPAS learning interaction was still considered low because the learning process remained teacher-centered, and there was limited active interaction between teachers and students. Based on these findings, this study will examine the effect of using an organ system board media on students' learning outcomes in IPAS at SDN Jatimurni VI.

LITERATURE REVIEW

Learning Media

Learning media are essential elements of the modern educational process. The development of information and communication technologies has broadened both the definition and the forms of learning media, ranging from conventional tools such as blackboards and books to digital technologies, including interactive applications, instructional videos, and web-based media. Learning media serve as vehicles for delivering information and messages that include learning objectives. It plays a crucial role in helping students acquire new knowledge, skills, and competencies (Rohima, 2023).

There are several types of learners. Visual learners find it easier to understand material when supported by visual aids such as diagrams, charts, and graphic organizers. In contrast, auditory learners comprehend explanations more effectively through written or spoken instruction. Kinesthetic learners prefer hands-on activities or engaging directly with their environment (Qasserras, 2024). Students are more motivated and actively engaged in the learning process when appropriate instructional media are used, thereby enhancing the effectiveness of lesson delivery. Using media in learning can help students gain a better understanding of concepts.

Learning media must be provided in schools and utilized effectively so that they: (1) help students better understand specific concepts, principles, and skills by using the most appropriate media for the instructional material; (2) offer diverse and varied learning opportunities, going beyond students' motivation and interest in learning; (3) encourage certain technological attitudes and abilities, fostering students' enthusiasm to use or operate specific media; (4) create memorable learning experiences for students; and (5) make learning messages or information easier to understand (Daniyati et al., 2023).

Educators must be able to design learning activities that are engaging, effective, creative, and enjoyable for their students. Student involvement during the learning process, their responses to the instruction, and their understanding of the material presented serve as indicators of the success of a learning activity (Afrilia et al., 2022). To select media that meet the field's requirements and conditions, it is necessary to ensure a minimum quality standard for each media type. Students will be motivated to make genuine efforts to connect various concepts by utilizing all their abilities through diverse learning strategies and media, including the media used in the learning cycle to achieve enlightening objectives (Husna & Supriyadi, 2023). The choice of instructional media also influences the learning process. Therefore, selecting appropriate learning materials is crucial for capturing students' interest and clarifying the key topics to be studied in subsequent learning activities.

Organ System Board Media

Visual learning media are effective tools for helping students understand abstract concepts (Arsyad et al., 2024). The organ system board is a visual learning medium that presents images and text related to the human digestive system. This medium takes the form of a board with visual elements, such as illustrations of body organs, which can be arranged in sequence to explain their functions (Fadhila et al., 2024). In the context of science and social integrated learning (IPAS), the organ system board helps simplify biological concepts, such as the digestive system, which may be difficult for some students to grasp because they are not directly observable in daily life. This media is designed to provide a concrete learning experience, allowing students not only to observe but also to interact directly with the learning material. The organ system board media are shown in **Figure 1**.

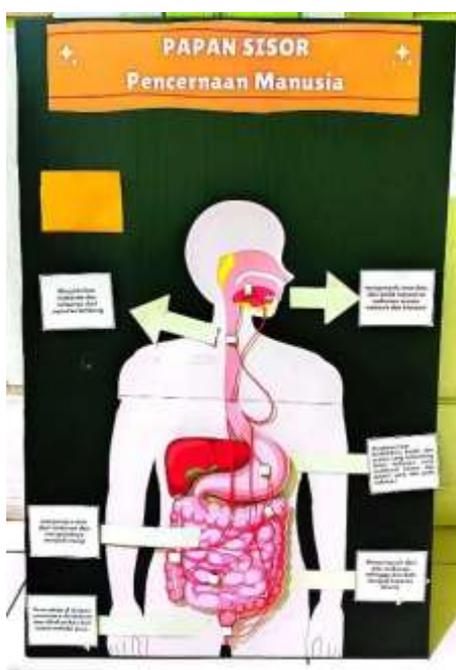


Figure 1. Organ system board media
Source: Author's Documentation 2025

Concrete media, such as an organ system board, can enhance conceptual understanding and help students connect theory to real-life experiences. Moreover, the use of an organ-systems board in science learning encourages students to be more active, collaborate in groups, and develop critical-thinking skills

through activities such as presentations and discussions. Students tend to be more focused and enthusiastic when interacting with visually engaging media compared to merely listening to lectures or reading textbooks. The use of interactive and visual media accelerates students' comprehension and minimizes boredom during the learning process.

The Concept of IPAS Learning

The *Kurikulum Merdeka*, implemented in Indonesia, introduces a new approach to learning in elementary schools: the integration of the Natural Sciences (IPA) and the Social Sciences (IPS) into a single subject, Natural and Social Sciences (IPAS). By combining concepts from both fields, this method aims to provide students with a more comprehensive and contextual learning experience. IPAS learning in elementary schools is intended to give students a thorough understanding of social and natural phenomena.

IPAS learning aims to enhance students' critical, creative, and collaborative thinking skills through inquiry- and project-based approaches. As a result, students are expected to be able to relate the knowledge they acquire to their daily lives and the surrounding environment. Students who receive science education have the opportunity to gain a deeper understanding of the world and to prepare for new challenges by studying themselves and their environment, as well as applying their knowledge in everyday life.

By learning about themselves and their surroundings and applying this knowledge in daily life, IPAS learning provides students with opportunities to understand the world better and prepare for new challenges. The integration of science (IPA) and social studies (IPS) can enhance student participation and motivation for learning. However, its implementation requires teacher training and adjustments to the learning materials (Ramadhan et al., 2024). IPAS learning is also expected to foster students' curiosity, honesty, and environmental awareness. The IPAS curriculum is necessary in daily life to meet human needs by resolving identifiable problems (Barkah et al., 2022).

Learning outcomes

To provide a linguistic understanding, the concept of learning outcomes will be explained. This concept consists of two words: "outcome" and "learning." According to the Indonesian Dictionary (KBBI), "outcome" has several meanings: (1) something that requires effort, and (2) income or acquisition. Learning produces various behaviors, such as knowledge, attitudes, skills, abilities, information, and values. These diverse behaviors, as learning outcomes, are referred to as capacities. Meanwhile, learning is a behavioral change elicited by experience (Cahyani, 2024). Learning is considered the primary activity within the entire educational process in schools (Fernando et al., 2024).

Learning outcomes are classified into three domains: cognitive, affective, and psychomotor (Putra, 2024). The cognitive domain includes six components of intellectual learning achievement: knowledge or recall, comprehension, application, analysis, synthesis, and evaluation. The affective domain consists of five levels: receiving, responding, valuing, organizing, and internalizing. The psychomotor domain focuses on learning outcomes related to skills and actions.

Learning outcomes articulate the primary goal of assessing the extent to which students succeed after participating in a learning activity. This level of success is then indicated using a scale of letters, words, or symbols (Masithoh, 2022). Learning activities are considered a process, while learning outcomes represent the final results of this process; therefore, learning achievements and learning activities cannot be separated (Istidah et al., 2022). Learning as a process of acquiring knowledge is widely practiced. In their role as educators, teachers strive to provide as much knowledge as possible, while students actively seek and absorb it. Memorization becomes the main focus of this teaching learning process. The success or failure in achieving educational objectives depends on how students experience the learning activities.

METHODS

This study employed a quantitative research design. The research steps in this study refer to a quantitative approach with a quasi-experimental design. This method allows the researcher to evaluate relationships among variables, even when not all factors can be fully controlled (Anastasia & Rindrayani, 2025). The process begins with problem identification, the formulation of theory and hypotheses, the determination of the research design, the selection of samples, data collection through pretests and posttests, the administration of treatments to the experimental group, and data analysis using statistical tests. All of these steps are conducted systematically to examine the effect of the learning media on students' learning outcomes, and the results indicate a significant effect. The quasi-experimental design applied in this study is a nonequivalent control group design.

Based on data obtained from the school, the total number of fifth-grade students at SDN Jatimurni VI was 50, comprising 25 students in Class 5A and 25 in Class 5B. The design included two classes: an experimental class that received the organ system board learning media and a control class that did not. The first session included a pretest comprising 10 multiple-choice questions to assess students' initial conditions. The second session consisted of learning activities conducted by the researcher. In the third session, the experimental class received treatment with the digestive system board media, whereas the control class did not. The fourth session involved a posttest using the same set of questions. After all sessions were completed, the researcher analyzed the collected data.

RESULTS AND DISCUSSION

The organ system board media is a visual learning tool that presents images and text related to the human digestive system. This medium takes the form of a board featuring visual elements, such as images of body organs, arranged in sequence according to the digestive process and accompanied by explanations of their functions. The project used in the IPAS learning in this study required students to sequence the human digestive process, describe the functions of each organ, and then present their work to the class in groups. The research data, based on the pretest and posttest scores of students from the experimental and control classes, are presented in **Table 1**.

Table 1. Descriptive Statistic Test Results

	N	Range	Minimum	Maximum	Mean	Std. Deviation
PreTest Control	25	50	40	90	69.60	14.855
PostTest Control	25	40	50	90	70.80	12.220
Pretest Eksperiment	25	50	50	100	79.20	13.204
PostTest Eksperiment	25	40	60	100	80.40	10.985
Valid N (listwise)	25					

Source: Research 2025

Based on **Table 1**, the average pretest score for IPAS in the control class was 69.60 (SD = 14.855), with a minimum of 40 and a maximum of 90. The average posttest score in the control class was 70.80 (SD = 12.220), with a minimum of 50 and a maximum of 90. Meanwhile, the average pretest score in the experimental class was 79.20, with a minimum of 50, a maximum of 100, and a standard deviation of 13.204, and the average posttest score in the experimental class was 80.40, with a minimum of 60, a maximum of 100, and a standard deviation of 10.985. From the table above, it can be concluded that the difference between the average posttest scores of the control and experimental classes was 9.6.

Normality Test and Homogeneity Test

Normality and homogeneity of variance tests are prerequisites for conducting a t-test. The Shapiro-Wilk test was used to assess normality, with a significance level of 0.05. If the significance value is greater than 0.05, the data are considered normally distributed; if the significance value is less than 0.05, the data are considered not normally distributed. The results of the normality test are presented in **Table 2**.

Table 2. Normality Test Results

Class	Kolmogorov-Smirnov ^a			Shapiro-Wilk			
	Statis- tic	df	Sig.	Statisti- c	df	Sig.	
Results	PreTest Control	.181	25	.034	.920	25	.052
	PostTest Control	.174	25	.049	.920	25	.051
	PreTest Eksperiment	.193	25	.017	.927	25	.073
	PostTest Eksperiment	.169	25	.064	.924	25	.063

Source: Research 2025

Based on **Table 2**, the normality test yields significance values. The Shapiro-Wilk test was used because the sample size is less than 100. Data are considered normally distributed if the significance value (sig) is greater than 0.05. The results indicate that all collected data are normally distributed: the pretest of the control class ($0.052 > 0.050$), the posttest of the control class ($0.051 > 0.050$), the pretest of the experimental class ($0.073 > 0.050$), and the posttest of the experimental class ($0.063 > 0.050$). Therefore, it can be concluded that all data are normally distributed.

Table 3. Homogeneity Test Results

		Levene Statistic	df1	df2	Sig.
Results	Based on Mean	1.294	3	96	.281
	Based on Median	1.260	3	96	.293
	Based on Median and with adjusted df	1.260	3	94.936	.293
	Based on the trimmed mean	1.226	3	96	.305

Source: Research 2025

Based on **Table 3** and the homogeneity test calculation, the significance value can be observed from the Based on Mean column, which shows $0.281 > 0.050$. Therefore, the data are homogeneous.

Hypothesis Testing

The hypothesis test used in this study was a parametric independent-samples t-test. This test was used to determine whether the mean difference between two paired samples was statistically significant.

Table 4. Independent Sample t-test Results

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
	Equal variances assumed	0,409	0,526	- 2,921	48	0,005	-9,6	3,286	-16,208	-2,992
Results	Equal variances not assumed.			- 2,921	47,46 5	0,005	-9,6	3,286	-16,21	-2,99

Source: Research 2025

The Independent Sample t-test was used to determine whether there is a difference in the mean scores of two independent samples. If the Sig. (2-tailed) A p-value less than 0.05 indicates a significant difference between the learning outcomes of the control and experimental classes. Based on Table 4, the statistical test using the Paired Sample t-test showed a significance value of $0.005 < 0.050$, indicating that H_0 is rejected and H_a is accepted. In this case, it can be concluded that the use of the organ system board media significantly affects the IPAS learning outcomes of fifth-grade elementary school students.

Effect Size Test

The effect size in this study was calculated using d'cohens's formula. The effect size test was conducted to quantify the magnitude of the difference between the treatment group (the experimental class) and the control group (the untreated class).

Table 5. Effect Size Test Results

Post Test	Mean	Std. Deviation	D'Cohen
Control Class	70.80	12.220	0.826239
Control Class	70.80	12.220	0.826239

Source: Research 2025

Based on the Effect Size calculation presented in Table 5, a Cohen's d value of 0.826239 was obtained, which is considered to indicate a medium effect. Therefore, it can be concluded that the Organ System Board media has a moderate impact on the IPAS learning outcomes of fifth-grade students at SDN Jatimurni VI, Bekasi.

Discussion

The study found that the use of an organ system board significantly affected the IPAS learning outcomes of fifth-grade students at SDN Jatimurni VI, Bekasi. This was evidenced by a t-test with $p < 0.05$, indicating a significant difference between the experimental and control classes. The difference between the experimental and control classes was further measured using Cohen's effect size, which yielded a value of 0.826, indicating that the observed difference had a moderate effect.

In the experimental class that received the organ system board media treatment, a significant improvement in learning outcomes was observed. As shown in Table 1, the average posttest score of the control class was 70.80. Meanwhile, the experimental class had an average pretest score of 79.20, and the average posttest score after the implementation of the organ system board media increased to 80.40, representing a 1.2-point improvement. Therefore, learning outcomes increased in both the control and experimental classes. Students' learning outcomes result from the interaction of various internal and external factors. Internal factors originate within students and affect their learning abilities, whereas external factors, such as influences from home, school, and society, also affect learning outcomes.

Learning outcomes can be assessed through evaluation activities that provide evidence of students' ability to achieve the learning objectives (Sulhan, 2020). The results of the study highlight the advantages of using instructional media, which include: first, students are more easily engaged with the learning material because it is presented through more interactive visual media as a learning tool; second, the use of instructional media can increase students' motivation to learn, as the organ system board media provides opportunities for students to visually follow the material while encouraging peer discussion about the displayed content; and third, instructional media can train students' thinking skills. By providing visual formats for students to observe, the limitations of their imagination are expanded beyond text alone, thereby enhancing students' creativity during learning activities (Nurhasanah et al., 2022). The use of instructional media has been shown to positively affect students' learning outcomes (Astiti et al., 2021).

The IPAS-based project used in this study required students to sequence the human digestive process, identify the functions of each organ, and then present their results to the class in groups. Sequencing the human digestive process makes learning interactive, as students actively apply their creativity and skills to the learning activities.

Learning media are means of conveying material and providing information to students, including stimuli that stimulate their thinking, emotions, attention, and readiness during the learning process (Salsabila et al., 2023). The use of the organ system board as a learning medium allows students to actively participate and collaborate in applying knowledge in groups to sequence the human digestive process, followed by presenting their findings to the class. This process enables students to acquire knowledge, thereby affecting their learning outcomes. Students' engagement during learning activities reflects the success of the instructional process (Afrilia et al., 2022).

According to "*Media Pembelajaran Efektif*" by Batubara, the use of appropriate media should support learning as an interactive process among students, teachers, and other learning resources. Research findings indicate that the use of organ-system board media has a positive effect on students' learning outcomes. Learning media can facilitate instruction and help students achieve learning objectives (Muryaningsih, 2021).

The learning model that utilizes concrete instructional materials has the advantage that the use of teaching aids greatly facilitates students' understanding of IPAS concepts. When students can see and manipulate objects, they are better able to connect theory to concrete experience, thereby enhancing their understanding. The use of an organ system board as a media tool influences fifth-grade students' learning outcomes in IPAS through a structured learning process that engages them in applying knowledge in groups, collaborating, and developing critical thinking skills.

CONCLUSION

Based on the results presented above, the use of the organ system board media has a significant effect on the science (IPAS) learning outcomes of fifth-grade students at SDN Jatimurni VI, Bekasi. This is evidenced by higher average learning outcomes for students in the experimental class that used the organ

system board media than for those in the control class that did not. The study also showed that the use of the organ system board significantly enhances students' understanding of the human digestive system. Overall, the implementation of the organ system board in science instruction has been shown to enhance interaction and engagement and to facilitate visual comprehension. However, the use of this medium requires careful planning and time management by the teacher, as well as students' readiness to participate in the learning process actively. For future research, it is recommended that the organ system board be tested with other science topics or at different grade levels to broaden its application.

AUTHOR'S NOTE

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REFERENCES

- Afrilia, L., Neviyarni, Arief, D., & Amini, R. (2022). Efektivitas media pembelajaran berbasis video animasi untuk meningkatkan motivasi belajar peserta didik kelas IV sekolah dasar. *Jurnal Cakrawala Pendas*, 8(3), 710-721.
- Akmal & Syarifuddin, H. (2024). Penerapan media papan interaktif dalam meningkatkan minat belajar peserta didik pada mata pelajaran teks argumentasi di SMKN 3 Gowa. *Didaktik: Jurnal Ilmiah PGSD FKIP Universitas Mandiri*, 10(3), 519-530.
- Anastasia, G. & Rindrayani, S. R. (2025). Metodologi penelitian quasi eksperimen. *Adiba: Journal of Education*, 5(2), 183-192.
- Arsyad, M., Mujahiddin, M., & Syakhrani, A. W. (2024). The efficiency of using visual learning media in improving the understanding of science concepts in elementary school students. *Indonesian Journal of Education (INJOE)*, 4(3), 775-787.
- Astiti, N. D., Mahadewi, L. P. P., & Suarjana, I. M. (2021). Faktor yang mempengaruhi hasil belajar IPA. *Mimbar Ilmu*, 26(2), 193-203.
- Barkah, L., Rini, C. P., & Amaliyah, A. (2022). Analisis pemahaman konsep IPA siswa kelas IV SDN Kalideres 09 Pagi. *Berajah Journal*, 2(2), 287-292.
- Cahyani, A. (2024). Improving science learning outcomes for class V students of SDN 2 Talesan with the implementation of the PJBL learning model through. *Jurnal Jarlitbang: Jaringan Penelitian Pengembangan Penerapan Inovasi Pendidikan*, 9(2), 137-144.
- Daniyati, A., Saputri, I. B., Wijaya, R., Septiyani, S. A., & Setiawan, U. (2023). Konsep dasar media pembelajaran. *Journal of Student Research (JSR)*, 1(1), 282-294.
- Fadhila, N., Rezkiti, S., & Djufri, E. (2024). Media board game "SICERIA " dalam pembelajaran IPAS kelas V sekolah dasar. *Trihayu: Jurnal Pendidikan Ke-SD-an*, 11(1), 89-102.
- Fadilah, A., & Kanya, N. A. (2023). Pengertian media, tujuan, fungsi, manfaat dan urgensi media pembelajaran. *Journal of Student Research (JSR)*, 1(2), 1-7.
- Fernando, Y., Andriani, P. & Syam, H. (2024). Pentingnya motivasi belajar dalam meningkatkan hasil belajar siswa. *Alfihris : Jurnal Inspirasi Pendidikan*, 2(3), 61-68.

- Hafshari, N. D., & Arini, N. W. (2023). Pengembangan media papan sipat-siput pada pembelajaran matematika untuk siswa kelas III sekolah dasar. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, 7(1), 467-479.
- Husna, K., & Supriyadi, S. (2023). Peranan manajemen media pembelajaran untuk meningkatkan motivasi belajar siswa. *AL-MIKRAJ Jurnal Studi Islam dan Humaniora*, 4(1), 981-990.
- Istidah, A., Suherman, U., & Holik, A. (2022). Peningkatan hasil belajar IPA tentang materi sifat-sifat cahaya melalui metode discovery learning. *Jurnal Pendiidkan Indonesia: Teori, Penelitian dan Inovasi*, 2(1), 31-40.
- Kusumasari, P. R., Margunayasa, I. G., & Lasmawan, I. W. (2024). Game edukasi berbasis pembelajaran berdiferensiasi pada materi sistem pencernaan manusia kelas V SD. *Jurnal Ilmiah Pendidikan Profesi Guru*, 7(1), 172-184.
- Lubis, L. H., Febriani, B., Yana, R. F., Azhar, A., & Darajat, M. (2023). The use of learning media and its effect on improving the quality of student learning outcomes. *International Journal Of Education, Social Studies, And Management (IJESSM)*, 3(2), 7-14.
- Masithoh, A. (2022). Pengaruh model pembelajaran jigsaw menggunakan media flipbook terhadap hasil belajar IPS kelas V SD. *Jurnal Belaindika (Pembelajaran dan Inovasi Pendidikan)*, 4(1), 21-27.
- Muryaningsih, S. (2021). Media pembelajaran berbahan loose part dalam pembelajaran eksak di MI Kedungwuluh Lor. *Jurnal Khazanah Pendidikan*, 15(1), 84-91.
- Ningsih, N. F., Suharni, S., Nial, P., Nasharuddin, N. (2025). Pengembangan media papan tempel pada materi struktur dan fungsi organ hewan dan tumbuhan untuk siswa kelas IV sekolah dasar. *Jurnal Inovasi Penelitian Ilmu Pendidikan Indonesia*, 2(2), 132-138.
- Nurhasanah, S. (2022). Pengembangan media pembelajaran papan pintar pada mata pelajaran IPA kelas IV SD negeri rejosari. *Linggau Journal Science Education (LJSE)*, 2(2), 174-183.
- Puspa, K. C. D & Suniasih, N. W. (2022). Media pembelajaran game edukasi berbasis website pada muatan IPA materi sistem pencernaan manusia kelas V SD. *Jurnal Media dan Teknologi Pendidikan*, 2(1), 32-40.
- Putra, R. P., & Surakarta, U. (2024). Objek evaluasi hasil belajar pendidikan agama Islam analisis taksonomi Bloom (kognitif, afektif, psikomotorik). *Edu Global: Jurnal Pendidikan Islam*, 5(1), 18-26.
- Qasserras, L. (2024). The role of visual learning aids across diverse learning styles in high school education. *European Journal of Applied Linguistics Studies*, 7(2). 68-81.
- Ramadhan, R., Rezki, B., & Prasetyo, T. (2024). Pembelajaran IPAS pada proses belajar sekolah dasar kelas 4. *Karimah Tauhid*, 3(7), 7457-7464.
- Rohima, N. (2023). Penggunaan media pembelajaran untuk meningkatkan keterampilan belajar pada siswa. *Seri Publikasi Pembelajaran*, 1(1), 1-12.
- Rosyiddin, A. A. Z., Fiqih, A., Hadiapurwa, A., Nugraha, H., & Komara, D. A. (2023). The effect of interactive PowerPoint media design on student learning interests. *Edcomtech: Jurnal Kajian Teknologi Pendidikan*, 8(1), 12-24.
- Sa'diyah, H., Aini, S., & Fajari, L. E. W. (2023). The effect of disciplinary board learning media based on the problem-based learning on the students' discipline and responsibility character improvement. *International Journal of Education, Information Technology and Others (IJEIT)*, 6(2), 427-437.
- Salsabila, U. H., Nabil, S. M., Arrashid, M. R., & Sari, R. (2023). Optimasi google drive sebagai media pembelajaran pendidikan agama islam. *Jurnal Wahana Pendidikan*, 10(1), 105-116.
- Sulhan, S. (2020). Penerapan model pembelajaran make a match untuk meningkatkan hasil belajar IPA materi organ peredaran darah dan fungsinya. *Jurnal Ilmiah Sekolah Dasar*, 4(1), 1-8.

- Syavira, N. (2021). Pengembangan media pembelajaran berbasis PowerPoint interaktif materi sistem pencernaan manusia untuk siswa kelas V SD. *Optika: Jurnal Pendidikan Fisika*, 5(1), 84-93.
- Wahyuni, R., & Nasution, H. A. (2024). Penggunaan media papan pintar terhadap hasil belajar matematika peserta didik SD. *Algoritma Journal of Mathematics Education (AJME)*, 6(2), 165-175.
- Wasiyah, W., Mariati, M., Fitriana, Y., & Bakara, T. (2023). Efektivitas penggunaan media pembelajaran terhadap aktivitas mengajar guru di kelas. *Edukasia: Jurnal Pendidikan dan Pembelajaran*, 4(1), 205-212.
- Winda, P., Pangestu, W. T., & Malaikosa, Y. M. L. (2022). Pengaruh penggunaan media pop-up book terhadap hasil belajar siswa kelas V di sekolah dasar. *Jurnal Holistika*, 6(1), 1-7.