



## Smart Apps Creator Application Learning Media as an Optimization of Digital Learning in Elementary Schools

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### ARTICLE INFO

Received: 9 August 2025  
 Revised: 12 August 2025  
 Accepted: 28 August 2025  
 Available online: 31 May 2026

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#### Keywords:

Smart Apps Creator,  
 ADDIE,  
 Interactive Learning

### ABSTRACT

Technological advancements in the Society 5.0 era encourage the education sector to create creative, interactive, and student-centered learning media. In the Elementary Science and Social Studies (IPAS) subject at the primary school level, one common issue is the low level of students' critical thinking skills, largely due to the continued use of conventional teaching methods. This study aims to develop a Smart Apps Creator-based learning media for the Human Digestive System topic for 5th-grade elementary school students, with a primary focus on enhancing critical thinking skills. This research is a Research and Development study that applies the ADDIE model, which consists of the stages: Analyze, Design, Develop, Implement, and Evaluate. The research subjects were 5th-grade students at SD Muhammadiyah Babat. Research instruments included expert validation sheets, student response questionnaires, and student activity questionnaires. The results showed that the media was categorized as highly valid, with expert validation scores of 93.3% from material experts, 90% from media experts, and 91.7% from design experts. The practicality of the media was also very high, with student response scores above 91%. Therefore, the Smart Apps Creator-based learning media is considered feasible and recommended as a supportive tool for IPAS learning to strengthen students' critical thinking skills.

Doi: <https://doi.org/10.24114/jt.v15i2.68346>

### 1. Introduction

The evolution of the industrial revolution from phase 4.0 toward Society 5.0—an idea proposed by Japan that integrates digital technologies such as the Internet of Things, Artificial Intelligence, and Big Data into human life to form a human-centered community—has brought significant changes in various sectors, including education (Hidayah et al., 2023). Education now requires a transformation of the learning system from a teacher-centered model to a student-centered approach, with a special focus on developing 21st-century skills such as critical thinking, creativity, collaboration, and digital literacy. This highlights the importance of innovation in learning through the use of interactive digital media that can foster active student engagement and align with students' learning styles (Dewi et al., 2023).

At the elementary school level, implementation still faces various challenges such as limited resources, lack of teacher training, and the scarcity of media suited to children's characteristics (Hotimah et al., 2020). Therefore, an approach and learning media are needed that not only rely on technology but also emphasize human values, creativity, and the meaningfulness of education, in line with the principles of Society 5.0. The use of interactive digital learning applications can be an innovative solution. One such solution that can address these challenges is the use of Smart Apps Creator (Syadida, 2022).

Smart Apps Creator is a software application designed to assist teachers and educational content developers in creating interactive applications without requiring programming skills. This tool makes it easier for teachers to create various types of interactive learning materials, including quizzes, simulations, interactive videos, and educational games. The main features of Smart Apps Creator include the ability to integrate text, images, videos, animations, and other multimedia elements in one platform (Syadida, 2022). The application enables teachers to produce content accessible on mobile devices such as smartphones and tablets, allowing



students to access learning materials anytime and anywhere. Smart Apps Creator is highly beneficial for teachers in creating dynamic and personalized learning experiences while supporting students to learn independently through interactive and engaging content (Puspitasari et al., 2022).

Based on findings from a preliminary survey conducted at SD Muhammadiyah Babat on November 25, 2024, it was revealed that the use of digital media in teaching and learning activities remains suboptimal. The learning process in the school has not yet fully reflected the developments of the Society 5.0 era, particularly in the IPAS subject for grade V. Smart Apps Creator is present to support technology-based learning designed to increase student participation and train thinking skills through engaging learning media.

There is a need for a learning approach and media that not only utilize modern technology but also integrate human values, creativity, and meaningful learning, in line with the principles of Society 5.0 a human-centered society that uses technology to improve quality of life (Sakti, 2025). In education, digital learning tools must address contemporary challenges while paying attention to the emotional, social, and intellectual needs of students, especially elementary school children who have distinctive learning styles and are highly responsive to visual and interactive stimuli (Maulana et al., 2025). This humanistic and flexible learning approach requires teachers to act not only as conveyors of material but also as designers of learning experiences that are engaging, enjoyable, and meaningful. Therefore, there is a need for tools or platforms that allow teachers to independently create interactive learning media without requiring complex technical skills, and one innovative solution that meets this need is the use of Smart Apps Creator.

Based on this background, the purpose of this research is to develop learning media in the form of a Smart Apps Creator application that enables students to learn more personally, explore diverse learning materials, and solve complex problems in the digital era.

## 2. Method

This study employed a Research and Development (R&D) approach aimed at producing Smart Apps Creator-based learning media that are valid, practical, and effective in improving the critical thinking skills of elementary school students. The development model used in this research was the ADDIE model, which consists of five main stages: Analyze, Design, Develop, Implement, and Evaluate. This model is considered systematic and effective for developing learning media that meet user needs (Huda et al., 2022).

The Analyze stage was carried out through a preliminary study involving classroom observations, interviews with teachers, and curriculum analysis. The objective of this stage was to identify student needs, obstacles in IPAS learning, and the potential for technology integration. The analysis revealed that learning was still dominated by lectures, and students had difficulty analyzing information as well as a lack of active engagement in the learning process (Handayani et al., 2021).

In the Design stage, the researcher developed a plan for the Smart Apps Creator-based media, which included the design of the application interface, navigation layout, material structure, storyboard, and learning evaluation. The media design followed the principles of multimedia learning to enhance attractiveness and learning effectiveness (Mayer, 2016). The development was aligned with the grade V IPAS curriculum on the topic of the human digestive system.

The Develop stage involved the initial production of the media using the Smart Apps Creator application. This application enables the integration of interactive elements such as animations, audio narration, evaluative quizzes, and digital simulations. The initial product was then validated by three experts: a content expert, a media expert, and an instructional design expert. Validation aimed to assess content feasibility, visual design, technical usability, and media integration. Revisions were made based on feedback from the validators to ensure the media met both pedagogical and technical criteria.

The Implementation stage was conducted in grade V at SD Muhammadiyah Babat. The media was used in direct classroom learning over two sessions. The instruments used to collect data included student response questionnaires, student activity questionnaires, and expert validation sheets (for media, design, and content). The use of the media in the classroom aimed to observe validity and practicality, as well as students' perceptions of the quality of the media.

**Table 1. Instrument**

Assessed Aspect	Instrument	Respondent
Validity	Validation sheet	Content, design, and media experts
Practicality	Student response questionnaire and student activity questionnaire	Fifth-grade students and observers



In this study, data were collected using three types of instruments: expert validation, student response questionnaires, and student activity questionnaires. Expert validation was conducted by subject matter experts, as well as design and media experts, to assess the content accuracy and the visual suitability of the Smart Apps Creator as a teaching medium. The student response questionnaire was used to determine how engaging the Smart Apps Creator was for students and how easily they could understand the content. Meanwhile, the student activity questionnaire was designed to evaluate the level of student participation during the learning process. These three instruments complemented each other in providing a comprehensive view of the quality and effectiveness of using the Smart Apps Creator in the learning process.

### 3. Results and Discussion

#### Results

The Smart Apps Creator media was developed for use in IPAS learning, specifically on the topic "The Human Digestive System" for fifth-grade elementary school students. The following section presents the data obtained.

#### Results of the Smart Apps Creator Media Development

##### 1. Smart Apps Creator Media Barcode

The Smart Apps Creator media barcode is a digital code, usually in the form of a QR code, designed to provide easy access to interactive learning media. When this code is scanned using a device such as a smartphone or tablet, the user is directed to a link to download the Smart Apps Creator application or directly to the learning media created using the application.

The media accessed can include interactive e-books, quizzes, simulations, or visual materials designed to support the teaching and learning process in a more engaging and interactive way. Once the application is downloaded and installed, users can open and use the media directly.



Figure 1. Barcode Media Smart Apps Creator

##### b. Smart Apps Creator Media Cover Display

When the Smart Apps Creator media is opened, the first page that appears is the cover display of the media. Students are directed to press the button to enter the main page or home menu of the Smart Apps Creator learning media.



Figure 2. Smart Apps Creator Media View

##### c. Home Display of the Smart Apps Creator Media

The Home menu serves as the main display of the Smart Apps Creator learning media, presenting a complete selection of menu options. On this page, users can access features such as Learning Outcomes (CP), Learning Objectives (TP), Learning Objectives



Flow (ATP), Media User Guide, Learning Materials, and Interactive Games. The menu is designed with a child-friendly interface and easy navigation, making it accessible for elementary school students.

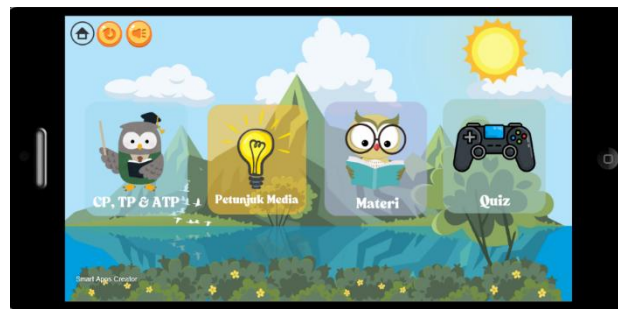


Figure 3. Home Media Smart Apps Creator display

d. Material Display

In this section, students will receive an interactive explanation of the human digestive system. When the Next button is pressed, an image of a plant will appear as an illustration, followed by an image of the human body showing small circles on parts of its digestive system.

Each circle can be clicked to display specific information about that part. For example, if the circle in the mouth area is clicked, an explanation will appear regarding the function of the mouth, how to maintain oral health, and various potential problems that may occur in the mouth. This interactive method makes it easier for students to understand the material in a more engaging and in-depth way.



Figure 4. Smart Apps Creator Media Material Display

e. Quiz Display

In the quiz section, students will receive multiple-choice questions with answer options A, B, C, and D. Each correct answer earns 10 points. The quiz has a time limit of 60 seconds for each question, requiring students to respond quickly and accurately. After all questions are answered, the final score will be displayed as the total points from the correct answers. If students answer all questions correctly, they will achieve the highest possible score.

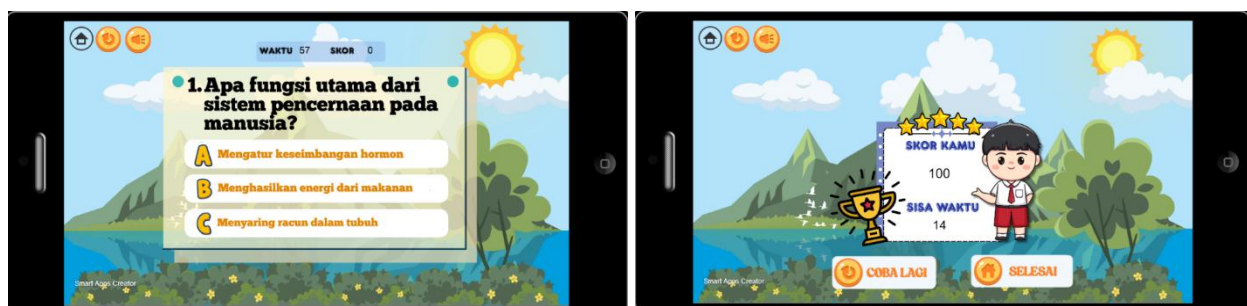


Figure 5. Quiz Media Smart Apps Creator View



## 2. Validity Results of the Smart Apps Creator Media

The validation of the Smart Apps Creator media is a crucial step in the media development process, involving various experts or professionals to evaluate and assess the validity and quality of the media created. The purpose of this process is to obtain useful feedback for improving the quality of the media and to determine the extent to which it meets the predetermined criteria. The following are the results of the expert validation that has been carried out:

### a. Material Validation Results

**Table 2. Material Validation Results**

Assessment Aspect	Expert 1 Score	Expert 2 Score	Total Average	Category
Curriculum	4.00	4.00	4.00	Highly Valid
Content/Material	4.00	4.00	4.00	Highly Valid
Language/Grammar	4.00	3.50	3.75	Highly Valid
Total Average			3.92	Highly Valid

The validation results of the learning media developed using Smart Apps Creator show an average score of 3.92 out of a maximum score of 4.00, based on assessments from two experts. The evaluation covered three main aspects: curriculum, content, and language use. The “Highly Valid” category indicates that this media has met all eligibility criteria in terms of curriculum, content, and language. Therefore, this learning media is considered suitable for use in teaching and learning activities, both as a teaching aid for teachers and as a self-learning tool for students.

### b. Validity Media

**Table 3. Media Validation Results**

Assessment Aspect	Expert 1 Score	Expert 2 Score	Total Average	Category
Visual Quality	3.75	3.50	3.63	Highly Valid
Software Engineering	4.00	4.00	4.00	Highly Valid
Implementation / Usability	4.00	3.50	3.75	Highly Valid
Overall Average			3.79	Highly Valid

The evaluation results of the learning media show an average score of 3.88 out of a maximum score of 4.00, which falls into the “Highly Valid” category. The three main aspects assessed include visual appearance, software development, and media performance. The visual quality was rated very good in terms of interface design, readability, color selection, and the arrangement of interactive elements. Based on these scores and feedback from the validators, this media is deemed highly suitable for use in interactive digital learning.

### c. Validity design

**Table 4. Design Validation Results**

Assessment Aspect	Expert 1 Score	Expert 2 Score	Total Average	Category
Visual Design	3.73	3.55	3.64	Highly Valid
Audio	4.00	4.00	4.00	Highly Valid
Animation	3.50	4.00	3.75	Highly Valid
Overall Average			3.80	Highly Valid

The validation results show that the visual design, audio, and animation elements of the media received relatively high scores from both evaluators. The overall average score reached 3.80 out of a total of 4.00, which falls into the “Highly Valid” category. The quality of the design, audio, and animation in the media is highly satisfactory and meets the expectations set by the validators. This media is considered suitable for use and capable of providing an optimal user experience in terms of visuals, sound quality, and supporting animations.



### 3. Practicality Results of the Smart Apps Creator Media

The assessment of the effectiveness of the Smart Apps Creator media was compiled based on data analysis obtained from observations conducted at SD Muhammadiyah 1 Babat Lamongan. The effectiveness of the Smart Apps Creator media was determined from observations made during the implementation of trials for the small group (trial 1) and the large group (trial 2), along with the student activity questionnaire. The measurement instrument consisted of questionnaires administered to students during both the small group (trial 1) and large group (trial 2) trials, in which the questionnaires were completed individually by each student after the learning session concluded.

#### a. Small Group Trial Results

The results of the study involving the small group (trial 1) were obtained by asking students to fill out a response questionnaire and an activity questionnaire. The students completed the response questionnaire individually, while the activity questionnaire was filled out by the observer. The data obtained from the student response questionnaires and student activity questionnaires during the small group trial (trial 1) are presented in the following table:

##### 1) Student Response Questionnaire Results

**Table 5. Results of the Small Group Student Response Questionnaire**

Student Number	Question										Mean
	1	2	3	4	5	6	7	8	9	10	
2	3	2	3	4	4	3	4	4	4	4	3.50
5	4	4	4	3	4	4	4	4	4	4	3.90
8	3	3	4	4	4	3	4	4	3	4	3.60
10	4	4	3	3	3	3	2	4	4	3	3.30
12	2	3	3	2	3	4	3	3	4	3	3.00
14	3	4	4	4	4	4	4	4	4	4	3.90
16	4	4	4	3	3	3	3	2	4	4	3.40
18	4	4	2	4	4	4	4	4	4	3	3.70
19	3	4	3	4	3	4	3	4	4	4	3.60
20	4	2	3	4	3	4	3	4	4	4	3.50
<b>Mean Total</b>											<b>3.54</b>

Based on the results shown in the table, the overall average score is 3.54 out of a maximum score of 4.00. When converted into a percentage, this equals 88.5%. This indicates that students' responses to the Smart Apps Creator media fall into the "very good" category.

##### 2) Student Activity Results

**Table 6. Results of Small Group Student Activities**

Name	Question										Total	Mean
	1	2	3	4	5	6	7	8	9	10		
AMMS	4	3	4	3	4	3	4	4	4	4	37	3.70
ITW	3	4	4	4	3	4	2	3	3	2	32	3.20
<b>Mean Total</b>											<b>69</b>	<b>3.45</b>

Based on the results obtained from the table, it can be seen that the overall average score is 3.45 out of the highest possible score of 4.00, which, when converted into a percentage, equals 86.25%. This score indicates that students' responses to the Smart Apps Creator media fall into the "good" category.

#### b. Large Group Trial Results

The large group trial (trial 2) is the next stage following the small group trial previously conducted in the classroom with more students involved. The purpose of the large group trial is to analyze the results of the small group trial and to obtain broader data by involving a greater number of students. In conducting the large group trial, data were collected through questionnaires filled out by students, as well as questionnaires assessing student activity. The results of the large group trial (trial 2) are presented in the table below.



### 3) Student Response Questionnaire Results

**Table 7. Results of the Large Group Student Response Questionnaire**

Student Number	Question										Mean	(%)
	1	2	3	4	5	6	7	8	9	10		
1	4	4	3	4	4	4	3	4	4	4	3,8	95%
2	3	3	4	4	4	3	4	4	4	4	3,7	92%
3	4	4	4	4	4	4	4	4	4	4	4	100%
4	4	4	4	4	4	4	4	4	4	4	4	97.5%
5	4	3	4	4	4	3	4	4	4	4	3,8	95.%
6	4	3	4	4	4	3	4	4	4	4	3,8	95%
7	4	4	4	3	4	4	3	4	4	4	3,8	95%
8	3	4	4	3	4	4	4	4	4	4	3,8	95%
9	4	4	4	4	4	4	4	4	4	4	4	100%
10	4	4	4	3	4	3	3	4	3	4	3,6	90%
11	3	3	3	4	3	4	3	4	3	4	3,4	85%
12	4	3	4	4	4	4	4	4	4	4	3,9	97.5%
13	4	4	4	4	4	4	4	4	4	4	4	100%
14	3	4	4	3	4	3	4	4	4	4	3,7	92.5%
15	4	4	4	4	4	4	4	4	4	4	4	100%
16	4	4	4	4	4	4	4	4	4	4	4	100%
17	4	3	4	3	3	4	3	4	4	4	3,6	90%
18	3	4	3	4	3	4	3	4	3	4	3,5	87.5%
19	4	4	4	4	4	4	4	4	3	3	3,8	95%
20	4	4	4	4	4	4	4	4	4	4	4	100%
<b>Mean Total</b>											<b>3.81</b>	<b>95%</b>

The results obtained from the table show that the overall average score reached 3.81 out of the highest possible score of 4.00. When converted into a percentage, this equals 95%, indicating that students' responses to the Smart Apps Creator media fall into the "very good" category.

### 4) Student Activity Questionnaire Results

**Table 8. Results of Large Group Student Activities**

Name	Question										Total	Mean
	1	2	3	4	5	6	7	8	9	10		
AMMS	4	4	4	4	4	3	4	4	4	4	39	3.9
ITW	4	4	4	4	3	4	4	2	3	4	36	3.6
<b>Mean Total</b>											<b>69</b>	<b>3.75</b>

Based on the results obtained from the table, the overall average score reached 3.75 out of the highest possible score of 4.00. When converted into a percentage, this equals 93.75%, indicating that students' responses to the Smart Apps Creator media fall into the "very good" category. Furthermore, the results from both tests indicate a significant difference between the small group trial in the first test and the large group trial in the second test.

### Discussion

This study produced the Smart Apps Creator media as an interactive digital learning tool for the topic of the human digestive system for Grade V elementary school students. The development process followed the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation) (Idris et al., 2023). This media utilizes the Smart Apps Creator software, which offers user-friendly features such as timelines, images, characters, audio, and animations without requiring programming skills. The resulting content takes the form of an application that can be installed on various devices such as smartphones, presenting material visually, audibly, and through animations, thereby making learning more engaging and motivating students to participate actively (Mallu & Samsuriah, 2020).

From a design perspective, this media emphasizes an interactive and visually appealing interface, aligning with the principle that learning media should possess strong visual appeal to help students better understand the material. The images and animations used are relevant to the topic, assisting students in visualizing concepts that are difficult to observe directly. The language used is simple



and easy to understand, supporting students' fluency in following the material. The content is aligned with the curriculum, learning objectives, and expected learning outcomes, ensuring a more focused and efficient learning process (Zahra, 2020).

The validity of the media was tested through expert assessments covering material, media, and design aspects. The results showed scores of 3.92 from material experts, 3.88 from media experts, and 3.80 from design experts, all classified as very valid. These findings reinforce that the Smart Apps Creator media is suitable for use in learning, consistent with previous research stating that this media is effective and relevant for the teaching and learning process.

Practicality was tested through small-group and large-group trials. In the small-group trial, student responses scored 3.54 (very good) and student activity scored 3.45 (good). In the large-group trial, student responses increased to 3.81 and student activity to 3.75 (very good). These results indicate that the media is easy to use, helps enhance students' critical thinking skills, and creates a more efficient and enjoyable learning experience.

Overall, this study proves that Smart Apps Creator media meets the three main criteria of good learning media: valid (content, design, and technical quality), practical (easy to use and accepted by students), and effective (capable of increasing motivation, participation, and critical thinking skills). This media can serve as a relevant innovation to support IPAS learning in elementary schools, particularly for the topic of the human digestive system.

#### 4. Conclusion

This study successfully developed Smart Apps Creator-based learning media for the topic of the human digestive system in Grade V IPAS subjects, aiming to improve students' critical thinking skills in line with 21st-century demands and the Kurikulum Merdeka. The development process using the ADDIE model resulted in media that meets the criteria of validity, practicality, and effectiveness. Expert validation results showed very high scores (material experts: 3.92; media experts: 3.88; design experts: 3.80), indicating alignment of content, presentation, interactivity, and curriculum relevance. The practicality test received highly positive student responses (responses: 3.81; activity: 3.75) because the media includes animations, simulations, interactive quizzes, easy navigation, offline usability, and supports differentiated learning. Overall, Smart Apps Creator not only enriches the delivery of material but also promotes active, interactive learning and fosters Higher Order Thinking Skills (HOTS). This media is recommended for teachers to support IPAS learning through digital technology, enhance learning interest, and strengthen students' higher-order cognitive competencies in elementary schools.

#### References

- Dewi, P., Romadhana, A., Muzaki, M., & Mz, A. F. S. A. (2023). Pengembangan perangkat pembelajaran IPA berbasis project based learning (PjBL) di sekolah dasar. *Jurnal Ilmiah Pendas: Primary Educational Journal*, 4(1), 61–68. <https://doi.org/10.29303/pendas.v4i1.3164>.
- Hidayah, N., Nafitri, S. E., Zaky, F., & Mz, A. F. S. A. (2023). Pengembangan media pembelajaran interaktif menggunakan aplikasi Articulate Storyline sebagai media pembelajaran IPA di sekolah dasar. *Pedagogia: Jurnal Pendidikan Dasar*, 3(2), 83–91. <https://jurnal.educ3.org/index.php/pedagogia/article/download/137/70>.
- Hotimah, U., & Raihan, S. (2020). Pendekatan heutagogi dalam pembelajaran di era Society 5.0. *Jurnal Ilmu Pendidikan (JIP)*, 1(2), 152–153.
- Idris, H., Adawiyah, R., Wardhana, K. E., & Ainii, Q. (2023). Pelatihan pemanfaatan media pembelajaran interaktif menggunakan Articulate Storyline 3 dalam pembelajaran PAI di SMA. *Tarsius: Jurnal Pengabdian Tarbiyah, Religius, Inovatif, Edukatif & Humanis*, 5(2), 62–68. <https://doi.org/10.30984/tarsius.v5i2.708>.
- Mallu, S., & Samsuriah. (2020). Implementasi Articulate Storyline dalam pembuatan bahan ajar digital pada STMIK Profesional Makassar. *Prosiding Seminar Nasional Teknik Elektro dan Informatika (SNTEI)*, 102–104. <http://jurnal.poliupg.ac.id/index.php/sntei/article/view/2282>.
- Maulana, A., Subroto, D. E., Asriyani, A. P., Rismayanti, R., & Hamdah, S. (2025). Kompetensi guru dalam pembelajaran di era digital. *Guruku: Jurnal Pendidikan dan Sosial Humaniora*, 3(1), 107–114. <https://doi.org/10.59061/guruku.v2i4.895>.
- Puspitasari, J., Juhadi, J., Suyahmo, S., Wijayanto, P. A., & Saadah, N. (2022). Smartphone learning media prototype model based on SAC (Smart Apps Creator) for 4.0 learning. *International Journal of Social Learning (IJSLS)*, 3(1), 31–47. <https://doi.org/10.47134/ijsl.v3i1.75>.
- Sakti, A. (2025). Meningkatkan pembelajaran melalui teknologi digital. *Jurnal Penelitian Rumpun Ilmu Teknik*, 2(2), 213.



- Syadida, Q. (2022). Pengembangan media pembelajaran menggunakan aplikasi Smart Apps Creator pada pembelajaran tematik terpadu kelas IV sekolah dasar. *Journal of Practice Learning and Educational Development*, 2(1), 17–26. <https://doi.org/10.58737/jpled.v2i1.31>.
- Zahra, F. F. A. (2020). Media pembelajaran monopoli materi jenis pengelompokan hewan untuk meningkatkan keterampilan berpikir kritis di sekolah dasar. *JPGSD*, 8(2), 208–217.

