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# Development of Articulate Storyline-Based IPAS Multimedia to Improve Learning Outcomes among Third-Grade Elementary Students

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**Abstract:** This study aims to develop and evaluate Articulate Storyline-based multimedia to improve learning outcomes in Natural and Social Sciences (IPAS), specifically on the topic of "Diversity of Landforms in Indonesia" for third-grade students at Bringin 01 Public Elementary School, Semarang. The study employed a Research and Development (R&D) method using the ADDIE model, which consists of five stages: analysis, design, development, implementation, and evaluation. Data were collected through interviews, questionnaires, and learning outcome tests. The data analysis techniques included normality testing, paired-sample t-tests, and normalized gain (N-gain) analysis. The multimedia product was developed using Articulate Storyline software and subsequently validated by media experts and subject matter experts, yielding scores of 93.33% and 90.78%, respectively, which were categorized as highly feasible. Teacher responses reached 95%, while student responses were 89.13%, both of which fell into the very feasible category. The effectiveness test results indicated a significant improvement between pre-test and post-test scores in both small- and large-scale trials (sig. = 0.000 < 0.05). Furthermore, the N-gain analysis showed a high improvement in the small-scale trial (0.7337) and a moderate improvement in the large-scale trial (0.6415). In conclusion, the Articulate Storyline-based IPAS multimedia is valid, practical, and effective in improving students' learning outcomes in elementary school IPAS subjects.

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## Introduction

Education is a major factor in developing quality human resources. Quality human resources can contribute to the progress of a country (Susilawati, 2024). In the National Education System Law Number 20 of 2003, education is defined as a conscious and planned effort to create a learning environment and learning process so that students actively develop their potential to have spiritual strength, religious beliefs, self-control, personality, intelligence, moral integrity, and the abilities required by the state, the community, the country, and oneself. Through the development of personal skills and the creation of capable, effective and positively influencing human resources, education plays a critical role in raising people's quality of life. Good educational standards can increase a country's productivity and prosperity. The excellence of the golden generation lies not only in intellectual intelligence, but also in strong character, skills, and the ability to adapt to the ongoing dynamics of global change (Setyawan, 2025).

Education in Indonesia has several levels or stages, one of which is elementary school education. Elementary school education serves as the initial foundation for students to pursue

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education at the next level (Cucu & Iskandar, 2022). It is the main basis for children to acquire initial knowledge and as a first step in gaining a level of understanding. In the education system, learning is an integral part. Learning is the process through which students interact with educational materials to meet learning goals. (R. K. Sari & Harjono, 2021). According to (Titik Tri Prastawati, 2023), the term learning basically covers two interrelated concepts, namely learning and teaching.

In the context of education, learning is a core activity that students must participate in because through the learning process, social interaction occurs and knowledge is acquired to prepare them for the future. In essence, learning is a process that has been systematically designed to provide effective services and strategies to achieve predetermined learning objectives (Aminah, 2022). According to psychologists, learning is a process carried out by individuals to bring about comprehensive behavioral change (T. D. Putri et al., 2025).

Improving the quality of learning is a difficulty in the learning process that calls for creativity and the use of engaging and productive learning activities. (L. P. Sari & Erita, 2024). Therefore, supporting tools are needed to support this process, one of which is through the use of learning media. Learning media serve as tools that play an important role in the learning process to facilitate and clarify the delivery of material and increase student engagement in the learning process (Fadilah et al., 2023). The use of appropriate media can increase students' enthusiasm, attention, and learning outcomes (Aulia, 2025). Along with the development of digital technology, multimedia-based learning media has become a relevant alternative to be applied in elementary schools.

Learning media includes various tools used to convey information with the aim of attracting students' attention in class (K. D. A. R. Putri, 2025). Learning media is generally defined as tools and methods used to facilitate interaction between educators and students in a more effective learning process (Yusup, A et al., 2023). The use of learning materials can also increase students' interest in participating in the learning process. An increase in students' interest in the learning process will have an impact on their learning outcomes (A. K. Putri, 2023). The higher students' interest in the learning process, the greater the improvement in their learning outcomes (Musyaffa & Isdaryanti, 2024). Multimedia learning integrates various elements such as text, images, and animations into a single interactive unit. One software that can be used to develop interactive multimedia is Articulate Storyline (Hidayati et al., 2024). Articulate Storyline can be used to present learning that can deliver a storyline project that combines all media tools, including visual, audio, and audio-visual (Juhaeni et al., 2021). Articulate Storyline is an easily accessible learning tool because it can be converted into a link, allowing it to be used anywhere and anytime.

Considering the outcomes of an interview conducted on November 3, 2025, with a third-grade teacher at Bringin 01 Public Elementary School in Semarang, a number of problems were identified in the learning process, especially in the subject of IPAS (Science and Technology) on the topic of various landscapes in Indonesia. It was found that students' interest in learning was still relatively low, which had an impact on suboptimal learning outcomes. One of the contributing factors is the limited use of interesting and varied learning media, resulting in a learning process that tends to be conventional. The results of the analysis of teacher and student needs show that the learning resources used only focus on teacher and student books. The material presented in these books is concise and general, and does not provide an in-depth explanation of the variety of landscapes in Indonesia. This situation means that students do not gain a comprehensive picture of the characteristics and concrete examples of the variety of landscapes found in various regions of Indonesia. In addition,

 

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based on the information obtained, most students showed a higher affinity for digital-based learning, such as multimedia that combines text, images, and animation. Digital media is considered more interesting and able to help students understand concepts visually and contextually. However, the availability of digital-based learning resources at public elementary school Bringin 01 is still very limited, so the potential for utilizing technology to support learning has not been maximized. This condition has implications for low student interest and involvement in the learning process, which ultimately has an impact on learning outcomes that do not meet expectations.

The goal of this research and development is to create new, more effective learning activities using IPAS multimedia learning materials based on Articulate Storyline in order to enhance student learning results, particularly when is comes to different Indonesian landscapes. The development of this multimedia is supported by previous relevant research, namely research conducted by (Hidayati et al., 2024) that the development of Gage style and movement learning media based on Articulate Storyline obtained expert validator results of 88% and 86% for subject matter and 88% and 92% for media, demonstrating how teachers might support the learning process with appropriate and useful media. Similar research was also done by (Rahman, 2025), who created learning materials based on Articulate Storyline 3 for Pancasila instruction in fourth grade elementary school. The results showed that the learning materials were highly useful, as evidenced by the 95.3% teacher and 92.1% students respons. As s results, the learning media development's outcomes demonstrated that it was practical to incorporate into the educational process and simplified things for both teachers and students. Another study by (R. K. Sari & Harjono, 2021) interactive media based on Articulate Storyline can be deemed practical. Media specialists gave it a score of 78%, which is classified as good, while expert material testers gave it an 81%, which is classified as very good. This learning media is feasible for use because it facilitates and assists teachers in delivering learning materials and makes it easier for students to understand the material. Crucially, the majority of the research still concentrates on the viability of the materials and user responses rather than solid proof of enhanced student learning outcomes, despite the fact that all three studies consistently show that Articulate Storyline-based learning materials are legitimate and useful. As a result, the IPAS multimedia development research in this study is important because it aims to show how using Articulate Storyline can enhance student learning outcomes on the subject of Indonesia's varied landscapes in addition to creating educational materials. Although research and development of Articulate Storyline-based multimedia has been widely conducted, the current study differs from previous studies. The difference lies in the design of the multimedia display developed, including the presentation of material and the type of programming used.

## Research Method

This study uses a Research and Development (R&D) research design. R&D research is also known as Research and Development. According to (Sugiyono, 2023), this method is a research method that can be used to produce and test the effectiveness of products under development. This study developed Articulate Storyline based multimedia learning media for Natural and Social Sciences (IPAS) for third-grade elementary school students. This study used the R&D method with a development model according to Dick and Carry in (Sugiyono, 2023), using the five stages of the ADDIE model, analysis, design, development, implementation, and evaluation. This study created multimedia learning materials based on

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Articulate Storyline about Indonesian natural landscapes for third-grade science classes in elemtary schools:

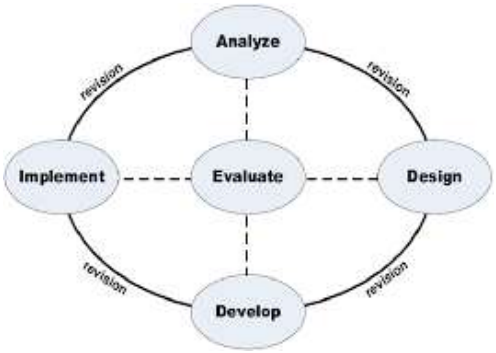


**Figure 1. Model ADDIE**

The stages in the ADDIE model are (1) analyze, which involves analyzing the development needs of a product based on the results of interviews with teachers and the results of questionnaires on the needs of teachers and students. (2) design, which involves systematic planning of how the learning media will be created or developed. (3) development, which is the process of developing or creating multimedia learning media using the Articulate Storyline application in accordance with the design that has been created. Then, the product is validated by media experts and the material is validated by media and material experts to obtain valid IPAS multimedia learning media. (4) Implementation involves the application of learning media with small-scale and large-scale tests to determine the effectiveness of Articulate Storyline-based IPAS multimedia learning media. (5) Evaluation is carried out at each stage of development, namely analysis, design, development, and implementation.

The subjects of this study involved two schools, namely public elementary school Bringin 01 as the main school and public elementary Bringin 02 as the auxiliary school. Therefore, the subjects of the small-scale pilot study in this research were 10 third-grade students of public elementary school Bringin 02. These schools were chosen because they had student characteristics similar to those of the main research subjects. Furthermore, the large-scale pilot study involved 25 third-grade students at public elementary school Bringin 01 in Semarang City in the Natural and Social Sciences (IPAS) subject on the topic of the diversity of landscapes in Indonesia. The research data used qualitative and quantitative data.

Two methods of data analysis were employed in this study quantitative analysis and qualitative descriptive analysis. Interviews, remarks, and recommendations for enhancements from media and material specialists before the testing stage comprise qualitative data. In the meantime, multiple-choice test questions (pretest and posttest) that have been tested for validity and reliability, as well as questionnaire scores related to media expert validity, content expert validity, instructor responses, and student responses, constitute the quantitative data.

The appropriateness level of the IPAS multimedia learning materials was then ascertained by analyzing the questionnaire results. The media suitability criteria were determined based on the percentage of scores obtained. The media suitability criteria are presented in the table.

 

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**Table 1. Media Eligibility Criteria**

| Media Eligibility Score (%) | Criteria |
|---|---|
| 20% - 36% | Highly Inappropriate |
| 37% - 52% | Not Suitable |
| 53% - 68% | Quite Acceptable |
| 69% - 84% | Appropriate |
| 85% - 100% | Very Appropriate |

In order to create IPAS multimedia learning materials based on Articulate Storyline, data analysis started with an examination of instructor and student needs. The generated product was then analyzed, and media and material experts validated the media's viability. The efficacy of the learning media was then ascertained by analyzing the responses of both teachers and students. SPSS software was used to evaluate the results of the normality tests, t-tests (paired t-tests), and NGain tests that were part of the last phase of data processing.

## Results and Discussion

### Analyze

At this stage, researchers analyzed the needs for product development while examining the feasibility of the learning media developed. In this stage, the researcher identified problems through interviews with third-grade teachers at SD Negeri Bringin 01. The identification of problems revealed several issues, namely (1) low student interest in IPAS material, (2) limited use of learning media, especially multimedia-based digital media, and (3) educators who still rely on teacher and student books. The researcher then decided on the product to be developed, which is learning media, and created plans pertaining to the learning outcomes and objectives to be met. The needs of educators and students with regard to the media that would be created were then examined by the researcher. To identify the proper multimedia learning materials that teachers and students require, an investigation of their needs was conducted.

### Design

At the design stage, researchers systematically planned the process of creating and developing learning media. The steps taken at this stage included determining learning outcomes and objectives for Grade III IPAS Chapter VIII Topic A: Diversity of Landforms in Indonesia, designing the interface, and selecting the multimedia elements to be used, such as materials and images. In addition, the researchers also compiled exercises or quizzes according to student needs and designed instruments for assessing teacher and student needs, including media and material validation instruments. The design that has been compiled is then used as a guideline in the subsequent phase of the media development process.

### Development

At this stage, researchers develop IPAS multimedia learning media based on Articulate Storyline and formulate strategies and various other supporting resources. In the process of developing this multimedia learning media, Articulate Storyline 3 software is used to create IPAS multimedia learning media. Before the learning media development process is carried out using Articulate Storyline software, the initial stage is to design the media through the Canva platform. This stage aims to systematically compile visual concepts and material layouts in line with the predetermined learning objectives.

This media development has several key features designed to be easy for students to use. The home page contains the IPAS multimedia title and a play button to start using the

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multimedia learning media. Next, there is a menu page that students can select from, such as instructions, information, materials, quizzes, and profiles.


**Figure 2. Cover Page**


**Figure 3. Menu Page**

Instructions for using the material are included with this IPAS multimedia learning resource. Learning objectives, learning outcomes, and learning materials are all covered in the information menu. Third-grade IPAS content about Indonesia's diverse landscapes is available on the material menu. There are two quiz menus, each with ten questions, and the profile menu offers details about the developer's profile. The quiz menu offers practice questions based on the content that has been examined. The product outcomes are displayed below.

**Figure 4. Instructions Page**

**Figure 5. Information Page**


**Figure 6. Material Page**


**Figure 7. Quiz Page**

**Figure 8. Profile Page**

The material menu contains four main topics, namely the definition, types, characteristics, and benefits of landscapes in Indonesia. The material section presents images with several clickable numbers to display related explanations. In addition, each slide can be moved to the next page, and some materials have a scroll feature to read the explanations in more detail. The end result of the creation of the multimedia learning materials for the Social Sciences (IPAS) is a link to a website that may be accessed by scanning the given barcode and used independently on a computer or smartphone. Links to the Articulate Storyline-based multimedia learning resources for the Social Sciences (IPAS) are provided below or by scanning the following barcode.

https://aprilianaprili01-byte.github.io/Multimedia-IPAS/

**Figure 9. Learning Media Barcode**

 

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Subject matter experts and media professionals participated in a validation test following the completion of the creation process of IPAS multimedia learning materials based on Articulate Storyline. The goal of this validation and revision phase is to create an appropriate learning media product that is prepared for testing. In order to improve the Articulate Storyline-based IPAS multimedia learning medium, changes are made in accordance with the recommendations and comments given by both experts following the evaluation process. Subject matter experts and media specialists validate the Articulate Storyline-based IPAS multimedia learning materials to make sure they are appropriate for use in third-grade primary school instruction. According to the evaluation results from both validators, the average scores for every component of the test are as follows.

**Table 2. Results of Expert Analysis**

| No | Validator | Results |
|---|---|---|
| 1. | Media | 93,33% |
| 2. | Material | 90,78% |
| | Qualification | Very Appropriate |

It may be inferred that the IPAS multimedia learning materials based on Articulate Storyline are highly appropriate for usage in the learning process based on the evaluation results from media experts and subject matter experts, which were 93.33% and 90.78%, respectively. According to the media experts, this learning material has an attractive appearance, is easy to understand, and features a clear, non-confusing layout with navigation buttons that are clearly visible and easily accessible. Meanwhile, according to the subject matter experts, the content aligns with the learning objectives, the explanations use simple language and concepts that do not lead to misconceptions, and the sequence of presentation is coherent and logical. In line with the research (Legina & Sari, 2022) entitled "Development of Articulate Storyline Interactive Learning Media Based on Critical Thinking Skills in Science Learning for Elementary School Students," it was revealed that the validation test results given by media experts had an average of 91%, which is categorized as very feasible. The results of the media expert test obtained 91%, which is categorized as highly feasible. Consequently, it is very possible to use IPAS multimedia learning materials based on Articulate Storyline in the educational process.

The following are the opinions of both specialists about IPAS multimedia learning materials based on Articulate Storyline.

**Table 3. Product Revision**

| No | Criticism and Suggestions | Followup |
|---|---|---|
| 1. | Add a quiz to the learning media. | The quiz on the learning media was developed into two parts, with each part consisting of 10 questions tailored to the material. |
| 2. | Improved display of material with scroll feature. | The presentation of material, particularly in the discussion of the types of landscapes in Indonesia, has been changed to a scroll format to make it easier to use and to accommodate all the material more effectively. |
| 3. | Addition of supporting images to the material. | The material is supplemented with several images of landscapes in Indonesia, namely highlands and lowlands, to support students' understanding. |

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| | | |
|---|---|---|
| 4. | Learning outcomes and learning objectives were added to the lesson plan material section. | Learning outcomes and learning objectives are added in full to all components of the lesson plan, namely the LKM and teaching materials. |

**Implementation**

The method of using educational media on students who served as research subjects was the implementation step of this study. Both small and large-scale testing of IPAS multimedia based on Articulate Storyline was conducted during this phase. Using IPAS multimedia learning materials based on Articulate Storylines, this deployment was done to assess the degree of learning success. Furthermore, this phase sought to assess the level of student participation and reaction to media use. As a result, information on students' learning outcomes both before and after utilizing the media was gathered (pretest and posttest).

**Media Practicality Test**

In order to get their opinions on the generated IPAS multimedia learning materials based on Articulate Storyline, the researchers also gave out questionnaires to teachers and students at this point. The outcomes of the instructor and student response tests are listed below.

**Table 4. Practical Analysis Results**

| No | Respondent | Results | Criteria |
|---|---|---|---|
| 1. | Teacher | 95% | Very Appropriate |
| 2. | Student | 89,13% | Very Appropriate |

Based on the results obtained from the responses of third-grade teachers and students after using the Articulate Storyline-based IPAS multimedia learning media on the subject of Indonesia's diverse landscapes, it can be said that this media is very suitable. The IPAS multimedia learning media based on Articulate Storyline can boost student interest in learning because it looks good and is simple for students to use on their own, according to the results of the teacher responses, which received a score of 95%, and the student responses, which received a score of 89.13%. In conclusion, it is highly possible to use the Articulate Storyline-based IPAS multimedia learning materials for third-grade IPAS instruction. The viability of IPAS multimedia learning materials based on Articulate Storylines aligns with the findings of (Husain & Ibrahim, 2021), which states that the average test score obtained by students was 92.32%.

**Media Effectiveness Test**

N-Gain calculations and pretest and posttest findings can be used to assess the efficacy of IPAS multimedia learning materials based on Articulate Storyline. The improvement in student learning outcomes through pretest and posttest questions, which are subsequently examined using normality tests, t-tests (Paired Sample Test), and N-Gain tests, demonstrates this effectiveness. It also shows how well students understand the material on the variety of landscapes in Indonesia.

A pretest and posttest were administered to ten Bringin 02 Public Elementary School pupils as part of the small-scale testing phase. The purpose of the small-scale testing was to ascertain whether the created media could be used on a wider scale. The pretest and posttest findings show that the average score in the small-scale testing went from 46 to 87.

 

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**Table 5. Small Scale Trial Results**

| Description | Pretest | Posttest |
|---|---|---|
| Number of students | 10 | 10 |
| Highest score. | 60 | 100 |
| Lowest score | 30 | 80 |
| Average score | 46 | 87 |

Meanwhile, the large-scale test involved 25 students and was conducted at Bringin 01 Public Elementary School. Based on the calculation of the average score of 54.4 to 83.2, as demonstrated by the results of the pretest and posttest.

**Table 6. Large Scale Trial Results**

| Description | Pretest | Posttest |
|---|---|---|
| Number of students | 25 | 25 |
| Highest score. | 70 | 100 |
| Lowest score | 40 | 70 |
| Average score | 55,4 | 83,2 |

Based on the average scores between the small-scale and large-scale trials, the results were influenced by differences in subject characteristics and learning conditions (Qouri, 2023). However, the improvement in learning results at both local and large sizes suggests that the produced solution is successful in raising IPAS learning outcomes.

The analysis of the pretest and posttest results was then used to determine the effectiveness of the Articulate Storyline-based IPAS multimedia learning media through a normality test. The results of the normality test are presented in the following table

**Table 7. Small Scale Normality Test Results**

| Test | Statistic | Sig. | Explanation |
|---|---|---|---|
| Pretest | .874 | .111 | Normal |
| Posttest | .853 | .062 | Normal |

Because the sample size was smaller than 50, the Shapiro-Wilk test was used to analyze the findings of the small-scale normality test analysis of the pretest and posttest scores with a sample size of 10 students. A sig (significant) score > 0.05 suggested that the study data was normally distributed, indicating that the data was thought to be normally distributed (Isnaini et al., 2025). It can be inferred from the table that the pretest and posttest are normally distributed because the pretest sig value is 0.111 > 0.05 and the posttest sig value is 0.062 > 0.05.

The results of the large-scale normality test, which looks at the pretest and posttest values with a total of 25 students, also show that the study data is normally distributed, with the Shapiro-Wilk test showing that the sig (significant) value is > 0.05. Because the pretest sig value is 0.098 > 0.05 and the posttest sig value is 0.271 > 0.05, it can be concluded from the table that the pretest and posttest are regularly distributed.

**Table 8. Large Scale Normality Test Results**

| Test | Statistic | Sig. | Explanation |
|---|---|---|---|
| Pretest | .900 | .098 | Normal |
| Posttest | .951 | .271 | Normal |

Following the normalcy test, the students' pretest and posttest results were subjected to a t-test or paired sample test. The outcomes of the paired sample test are as follows.

**Table 9. Results of the Paired Sample T-Test for Small Scale and Large Scale.**

| Category | Test | Sig (2-tailed) | Sig. |
|---|---|---|---|
| Pretest | Pretest-Posttest | 0.000 | 0,05 |
| Posttest | Pretest-Posttest | 0.000 | 0,05 |

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The paired sample test indicates that the sig (2-tailed) value for both the small and big scale groups is 0.000. If the sig (2-tailed) value is less than 0.05 after using IPAS multimedia-based Articulate Storyline media, this suggests that there is a significant difference. These results align with the research conducted by (Angraini et al., 2025). Consequently, it can be concluded that the use of Articulate Storyline-based IPAS multimedia learning materials in IPAS subjects resulted in a substantial difference between the pretest and posttest outcomes.

To find out how much students' learning outcomes or comprehension have improved before and after using media, administer an N-Gain exam.

**Table 10. Small Scale NGain Test Results**

| | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| NGain | 10 | .50 | 1.00 | .7337 | .18510 |

Based on the NGain 0.7337 is seen as a high value according to the NGain value displayed in the mean part of the table.

**Table 11. Large Scale NGain Test Results**

| | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| NGain | 25 | .33 | 1.00 | .6365 | .15880 |

0.6365 is regarded as moderate on a broad scale based on the NGain value displayed in the table's mean section. In contrast to the more controlled small-scale trial, the large-scale trial's NGain value decreased because of the subjects' more varied or heterogeneous traits as well as the classroom setting. The utilization of IPAS multimedia learning materials based on Articulate Storyline is nevertheless successful in enhancing learning outcomes on a broad scale, as evidenced by the large-scale average NGain value of 0.6365.

**Evaluation**

Based on the results of the implementation phase, the use of IPAS multimedia based on Articulate Storyline has had a positive impact on improving student learning outcomes. This is evident from the increase in average scores between the pretest and posttest in both the small-scale and large-scale trials. In the small-scale trial, students' average scores increased from 46 on the pretest to 87 on the posttest. Meanwhile, in the large-scale trial, the average score rose from 55.4 to 83.2. This improvement indicates that the developed learning media effectively helps students better understand the diversity of natural landscapes in Indonesia. Student engagement during the learning process also increased because this learning media features various interactive elements, such as navigation buttons, clickable content, supporting images, and evaluation quizzes. These features allow students to interact directly with the learning media and attempt to use it independently for future media development are made using the data gathered from the evaluation activities. Through these interactions, students do not merely receive information passively but are actively engaged in the learning process by exploring the material and working through the available exercises. Additionally, students demonstrate high enthusiasm when using this learning medium because they can experiment with and practice using it themselves during the learning process. This fosters a more active and enjoyable learning environment in the classroom. in line with research by (Zahra, 2024). Students become more confident in trying things out, answering questions, and discussing the material being studied. Overall, the evaluation results indicate that the Articulate Storyline-based IPAS multimedia developed is not only suitable and practical for use in learning but also effective in improving student learning outcomes and encouraging student engagement in the learning process. This learning medium is also

 

capable of creating a more interactive, engaging, and student-centered learning experience, thereby supporting the creation of more meaningful learning in elementary schools (Yandi et al., 2023).

## Conclusion

This research successfully developed an Articulate Storyline-based multimedia learning platform to address the pedagogical challenges in teaching 'Diversity of Landforms' for third-grade elementary students. By employing the ADDIE framework, the study confirms that the resulting multimedia tool is both highly valid and practically effective, as evidenced by expert validation scores exceeding 90% and positive user acceptance from both educators 95% and students 89.13%.The experimental results demonstrate a statistically significant improvement in learning outcomes, confirmed by paired sample t-tests (0,000 < 0.05). While N-Gain analysis showed a high effectiveness score 0.7337 in small-scale trials and a moderate score 0.6365 during large-scale implementation, the consistency of these gains underscores the media's reliability as a pedagogical tool. In conclusion, this results of the study show that IPAS multimedia learning media based on Articulate Storyline is proven to be feasible and effective in improving student learning outcomes in IPAS subjects in elementary schools.

## Recommendation

It is recommended that teachers make effective use of this instructional material and develop digital interactive media to create more engaging learning experiences and foster active student participation in the classroom, with the school providing the necessary infrastructure, based on research findings regarding the development of IPAS multimedia instructional materials using Articulate Storyline to improve learning outcomes for third-grade elementary school students. It is recommended that future academics create multimedia instructional materials that are better, more innovative, and more engaging, with a broader range of applications.

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