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Development of Articulate Storyline based Local Content Learning Media to Improve Learning Outcomes of Elementary School Students

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Abstract: This study uses the Research and Development (R&D) method with the ADDIE development model, which aims to develop Articulate Storyline learning media that can improve learning outcomes of Semarang local content, namely Denok Deblong dance for grade IV elementary school students. The data collection techniques used are test techniques by giving pretests and posttests, and non-test techniques with observation, interviews, documentation, and questionnaires. The data analysis techniques used were normality test, T-test, and N-gain. The results showed that the local content learning media based on Articulate Storyline was categorized as very feasible to use with material validation results of 92.85%, and media validation of 93.75. The paired sample test showed a significance value of 0.001 <0.05 which means there is an influence on student learning outcomes before and after using Articulate Storyline local content media. The results of the small-scale N-Gain test were 0.5257 and large-scale 0.5998 which showed a moderate category. With the results of this study, it can be concluded that Articulate Storyline learning media is feasible and effective in improving the learning outcomes of local content of Denok Deblong dance for grade IV elementary school students.

Keywords: Articulate storyline; Denok deblong dance; Learning media; Learning outcomes; Local content

Introduction

Education is part of the civilization of a country. Indonesia is now in the 21st century which is welcoming the industrial revolution era 5.0 which is characterized by the development of information and communication technology in the field of education. Education must be developed to meet the needs of every era (Wahyudi et al., 2022). The use of digital technology can open up a variety of new opportunities for students and teachers to share, explain, understand and create innovative ideas openly with easier access through various learning environment platforms. Digital technology in education is an important key to improving the quality of education (Purba & Saragih, 2023). The utilization of educational technology is an urgency nowadays that can provide further efficiency and effectiveness opportunities between traditional and modern learning (Demmanggasa et al., 2023)

Educational technology can not only be adapted in general learning, but can also be used as a tool to support cultural learning that can increase the nationalist spirit of the nation's generation (Istiqomah & Dewi, 2021). The school is a place where the formal education process takes place which is a direct part of community life, so that in learning it must be able to strive to preserve the culture of the surrounding environment where the school is located (Eko, 2019). To realize these efforts, schools can integrate educational programs that can provide insight into the regional environment of students, both related to natural conditions, social environment, and regional cultural environment. The educational program of students' regional cultural environmental insights can be

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integrated through local content learning which is expected to maintain the diversity of Indonesian culture to remain sustainable through the learning process (Ali & Mulasi, 2023).

Based on the Decree of the Minister of Education and Culture of the Republic of Indonesia Number 0412/U/1987, local content is an educational program whose content and learning media are associated with the natural, social, cultural environment, as well as the regional needs of each student which can be used as a guide for organizing learning activities. Integration of local content in schools can be done in three ways, namely developing local content into its own subject, integrating it into all subjects, and through the Pancasila Student Profile (Anggara et al., 2023). Local content learning is considered important today to face the challenges of many young people who do not know their own local culture (Szwarc, 2023).

Local content can be integrated in SBdP learning about the practice of cultural recognition in Indonesia, one of which is regional dance. Regional dance is a form of regional culture in the form of an outpouring of soul expressed through beautiful body movements (Rumiwiharsih, 2024). One of the local wisdoms of Semarang area is Denok Deblong Dance. This dance was created by Yoyok Bambang Priyambodo in 1996. Denok is a nickname for Semarang women. While Deblong means a mother's handshake to her daughter. The characteristic of this dance is the music accompaniment of the Semarang Gambang gamelan and the fan property. Denok Deblong dance can teach students that Semarang life is formed from cultural acculturation in Semarang between Javanese, Betawi, and Chinese cultures (Sambadha, 2019).

Dance learning in local content is important from an early age in elementary schools to provide students with meaningful understanding and direct experience of local culture through skill and cognitive activities. In the world of education, many elementary schools have not integrated local content (Najiyah et al., 2024). This is due to the extensive learning material and the lack of teacher optimization in utilizing digital technology in learning so that local content learning becomes less effective and interesting for students. The development of the industrial revolution 5.0 results in the world of education must be able to adapt to technological advances to adapt to today's needs and so as not to become a system that is left behind (Mercer et al., 2019). Nowadays, elementary schools really need and present technology that can support the learning process of local content in elementary schools. One of the innovations that can be made from digital technology is by utilizing interesting and interactive learning media.

Learning media is a tool used in the teaching and learning process with the aim of stimulating the thoughts, emotions, attention, and skills of students and teachers (Bakhri et al., 2023). Media is a learning tool that can facilitate information to be conveyed properly to students (Pantiwati et al., 2024). Learning media becomes a link that can stimulate students to be more enthusiastic about participating in learning as a whole and meaningful (Syafutry et al., 2024). Based on the above understanding, it can be concluded that learning media is a means of connecting used in the learning process so that students can stimulate their thoughts, emotions, and attention so that students can follow a complete, effective, and meaningful learning process.

The utilization of technology in the development of learning media is currently being intensively and widely involved in the world of education (Clark-Wilson et al., 2020). This is because the media can be the key to the nuances of learning that live between two directions. Learning media can attract students (Anesia et al., 2023). Through interesting learning media, it can improve understanding and stimulate students' curiosity in learning. Learning media can also support the success of local content learning in elementary schools (Hardiansyah & Mulyadi, 2022). With interactive digital-based learning media, it can attract students' attention to learn about their local culture.

However, in reality, the use of media in learning local dance content is still a challenge for teachers. Based on the results of interviews conducted by researchers with grade IV teachers at SDN Patemon 01, it is known that not all teachers can utilize digital technology-based learning media in their lessons. Teachers still have difficulties in making learning media for dance content due to limited references and digital skills. Teachers also still have difficulties in transferring cognitive and psychomotor understanding of dance so that it can be understood easily by students. The dance learning media used by teachers tend to be conventional, using only textbooks and YouTube videos. The one-way media makes students passive and still cannot attract students' attention, which results in students' understanding of dance material that is still low. This can be supported from the results of the problem identification questionnaire distributed to students, it is known that a total of 26 students in class IV, there are 15 students who do not like dance learning, 17 students who do not know the name of the dance in their area, and 16 students who still have difficulty understanding dance material both cognitively and psychomotorically. From these problems, the contributing factor is the lack of interactive space that teaches dance local content

material intensively to students. The lack of references and optimization of technology utilization in local content learning media is also one of the main factors.

Learning media innovation on local content material for digital-based Denok Deblong dance is a solution to the existing problems. The period of technological development that is increasingly advanced makes integrating technology into learning media an interesting thing for teachers and students (Islam et al., 2019). Digital local content learning media can be realized through interactive and graphical representations of the concept of dance local content learning material in the form of interactive presentations with presentations such as digital educational games (Elisa et al., 2022). This media can collaborate cognitive and psychomotor material about history, philosophical meaning, presentation form, and dance movements in one learning application that can be easily accessed by students. These results can be a solution to overcome the obstacles that arise so as to improve students' understanding and learning outcomes of learning local content of Denok Deblong dance typical of Semarang. One form of effort that can be made is to apply Artificial Intelligence technology to the Articulate Storyline application when delivering local content learning material for Denok Deblong dance typical of Semarang.

Articulate Storyline is an application that can be used to present material in an interesting way (Juhaeni et al., 2021; Nissa et al., 2021; Zahra, 2024). The use of this application is considered simple so that its application in the teaching and learning process can help teachers in creating a learning media starting from the beginner level to the expert level (Daryanes et al., 2023; Wijayanti et al., 2022). The advantages of this application are that it can make interactive and creative presentations, has a variety of interesting and easy-to-use tools features, such as sliders, triger wizards, insert images, timelines, movies, can add moving animations, can perform mouse hover over techniques, add sound, and so on (Prihartina et al., 2023; Sundari & Silitonga, 2022). The presentation of Articuate Storyline media can take the form of a learning game equipped with navigation buttons, quizzes, url links, and videos (Fitrawan et al., 2024). The media results obtained from Articulate Storyline are no less interesting than the media results obtained from Macromedia Flash and Adobe Flash applications (Setyaningsih et al., 2020). Articulate Storyline-based local content media can be used in realtime, anytime, and anywhere (Firdaus et al., 2022).

The utilization of Artificial Intelligence technology in Articulate Storyline can provide a more memorable, interactive, and interesting learning experience for students (Ananda et al., 2023). Articulate Storyline can enhance hands-on learning practices with its accessible use. Articulate Storyline media can also improve students' learning experience in understanding their regional culture and experience in using technology, because students can access it independently (Sofiantari & Astuti, 2024).

Previous research conducted by Retnasari et al. (2024) with the title "Development of Interactive Learning Based on Articulate Storyline Integrated with Pancasila Student Profiles in Elementary School Children" showed the results of Articulate Storyline media worth using in learning and had a positive impact on introducing Indonesian diversity through the results of the 72% media expert validation test, 86.3% material, and 86% language (Retnasari et al., 2024).

Similar research was also conducted by Fitrawan et al. (2024), with the title "Development of Interactive Media Articulate Storyline 3 in Improving Learning Outcomes on Archipelago Insight Material class VIII at SMP Negeri 12 Surabaya". The results showed that interactive learning using Articulate Storyline media can improve student learning outcomes as seen from pre-cycle activities having a completeness of 45.56%; cycle I increased by 15.05% to 60.61%; and cycle II increased by 33.33% to 93.4%. So that the data can show a positive response to the use of Articulate Storyline media in explaining the material of archipelago insight (Fitrawan et al., 2024).

Based on the relevant research sources above, there are similarities in this study, namely both discussing the use of Articulate Storyline interactive learning media in improving student learning outcomes. The lack of discovery of digital learning media in dance learning and the development of Articulate Storyline learning media in dance local content learning is one of the reasons researchers conducted this development research. The novelty of this research is the focus of research that tries to develop Articulate Storyline learning media in local content learning to improve student learning outcomes and so that students understand more about their own local culture, namely Denok Deblong dance. This research can also help teachers as reference material for making interactive learning media in learning local content dance.

Method

This research uses the Research and Development (R&D) method. The research and development method is a method used to research, design, produce, and test the validity of products that have been produced

(Sugiyono, 2019). R&D type research is research that aims to produce new product innovations or develop existing and sustainable products. The R&D model used in this research is the ADDIE model. The ADDIE model focuses on efforts to develop learning media. The ADDIE model consists of five stages, namely the analysis stage, design stage, development stage, implementation stage, and evaluation stage (Spatioti et al., 2022).

The first stage carried out is the pre-research stage. Pre-research was conducted by conducting observations in December 2024 at SDN Patemon 01. Observations were made by observing dance learning in the classroom. During the observation, the researcher also conducted an interview with the fourth grade teacher regarding the local content learning system and the media that had been used in the classroom. Based on the results of the interview, it is known that the teacher only uses YouTube video media and textbooks in teaching dance local content material. Teachers have never used interactive digital media in learning local content dance. Teachers have also never used interactive local content media based on Articulate Storyline multimedia. After conducting the pre-research stage, the researchers then carried out the development stage using the ADDIE model.

Analysis Stage

At this stage, the needs analysis of teachers and students, curriculum analysis, and material analysis are carried out. Needs analysis is needed to be able to develop products that are in accordance with the competencies and learning needs of students and teachers. The needs analysis of teachers and students is seen from the results of a questionnaire of teacher and student needs consisting of 15 questions related to the needs of Articulate Storyline local content learning media.

Design Stage

At this stage, researchers determine the materials and competencies that will be presented on the media in accordance with the learning outcomes. Next, the researchers designed the media design. The design of the media design is adjusted from the results of the questionnaire of the needs of teachers and students related to local content learning media based on Articulate Storyline. The design of the media design is done by making a storyboard of the media flow chart, choosing the type of font, color, graphic image, animation, video, sound, background, and quiz questions that will be presented in the media.

Development Stage

Researchers began to develop media at this stage. Media development was carried out using the Articulate Storyline application. In addition, researchers also utilized several digital platform technologies to support the development of this media, such as utilizing the Canva and Freepik applications to find references to graphic design materials, Dafont to find references to font types, Javascript to insert media audio loops, and Builder applications to convert media into android applications. After the media is developed, then the media will be tested for feasibility through media and material expert validation.

Implementation Stage

The implementation stage is carried out by testing the product in the learning process. Implementation is carried out on a small scale to see the initial effectiveness of media use, then continued on a large scale. Implementation is carried out by conducting learning in accordance with the modules that have been made, then applying the Articulate Storyline local content learning media that is accessed using each student's cellphone during learning, then giving pretests and posttests to students as learning evaluation materials. The pretest was given at the beginning of learning before using the media and the posttest was given after using the media. Previously, the pretest and posttest questions used had been tested in a high class, namely class V SDN Patemon 01 to see the feasibility of the questions, then the questions had also been tested for validity, reliability, differentiation, and level of difficulty. Of the 50 multiple choice questions about Denok Deblong dance local content material that were tested, it was found that there were 22 valid questions with a significance level of 5%. The questions tested received a reliability value of 0.941 with a very high category in the Kuder Richardson-20 calculation. The questions have differentiating power with a total of 12 excellent, 6 good, and 8 sufficient. The level of difficulty is evenly distributed between 30 easy, 18 medium, and 2 difficult. From the results of the question test, 15 pretest and posttest questions were taken which were tested on a small scale and large scale with the category of questions that were valid and reliable, and had a good level of difficulty and differentiation.

Evaluation Stage

The evaluation stage is carried out to determine the effectiveness and success of the media that has been developed. The evaluation stage is seen from the results of analyzing student learning data before and after using the media through pretests and posttests. The initial test carried out was the normality test with the Shapiro-Wilk formula because $n < 50$ (González-

Estrada & Cosmes, 2019). Furthermore, the final data analysis test uses the T-test to test the hypothesis before and after using Articulate Storyline local content media. The SPSS formula used in the T-test uses the Paired Sample Test test, which tests hypotheses on paired data or on one sample that gets different treatment between before and after using the media (Stevens et al., 2018). Furthermore, the final data test uses the N-Gain test to determine the increase in the average student learning outcomes through pretest and posttest when using Articulate Storyline-based local content media. Apart from the results of students' pretest and posttest learning, evaluation was also carried out from the results of teacher and student responses after using the media.

Subjects and Objects of Research

The subjects of this study were fourth grade students of SDN Patemon 01 Semarang City in the 2024/2025 school year with a total of 26 children, class teachers, material expert lecturers, and media expert lecturers. The researcher determined class IV as the research class because the main problem in this study was found in that class. In the practice of research activities, there are small-scale and large-scale tests. The small scale involved 6 fourth grade students. The small scale was obtained based on the cognitive level obtained through student learning outcomes, namely low, medium, and high with the aim that the media can be taught evenly in different cognitive levels. The large scale consisted of 20 students taken from class IV who were the research subjects. The object of this research is Articulate Storyline-based local content media on Denok Deblong dance material typical of Semarang.

Research Instruments

The instruments used by researchers in this study are material and media validation sheets consisting of 20 statements. The material validation sheet contains the suitability of the media with teaching materials in accordance with the curriculum and learning competencies. The material validation sheet is assessed based on learning aspects, language feasibility, and feasibility of material presentation. The media validation sheet consists of the design of the developed media including aspects of appearance and ease of use of the product. Furthermore, there is a teacher and student media response questionnaire sheet consisting of 20 statements related to the content of the presentation and then the use of the media. Media validation sheets, material validation, student responses, and teacher responses are analyzed using a Likert scale with a score of 1 to 4, where score 1 indicates less, 2 is sufficient, 3 is good, and 4 is very good. The Likert scale calculation formula and the percentage of eligibility criteria used are as follows.

$$NP = \frac{R}{SM} X\ 100 \quad (1)$$

Description:

NP = percentage of feasibility

R = number of acquisition scores

SM = maximum score

Table 1. Eligibility criteria

Percentage %	Criteria
86 - 100	very feasible
61 - 80	feasible
41 - 60	decent enough
21 - 40	less feasible
0 - 20	not feasible

Result and Discussion

Normality test results, t-test, and n-gain on a small scale

The results of the normality test of small-scale pretest and posttest scores using the Shapiro-Wilk test. The Shapiro-Wilk normality test criteria are considered normal if the significance value obtained is more than 0.05, so it shows that it can be normally distributed (Istmadelia & Tyas, 2024). Conversely, if the significance value is less than 0.05, the data is considered not normally distributed. From the data above, the normality test results of the pretest score are 0.201 and posttest 0.840 which shows more than 0.05 so that the data shows a normal distribution as shown in Table 2.

Table 2. Small-scale normality test

Test	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	0.265	6	0.200	0.863	6	0.201
Posttest	0.169	6	0.200	0.963	6	0.840

Table 3. Small-scale t-test (paired samples test)

Pair 1	Mean	Std. Deviation	df	Sig (2-tailed)
Pretest-posttets	-17.833	3.371	5	< 0.001

Table 3 shows the results of the test for the difference in mean scores between the pretest and posttest, showing a sig (2-tailed) value of 0.001. After comparing the sig (2-tailed) value of 0.001 <0.05, the null hypothesis (Ho) is rejected. So it can be concluded that there is a significant difference in student learning outcomes before and after using Articulate Storyline-based local content media.

Table 4. Small-scale n-gain test

Test	N	Minimum	Maximum	Mean	Std. Deviation
Ngain	6	0.33	0.74	0.5257	0.14696
Valid N (listwiss)	6				

The n-gain test results in Table 4 obtained a value of 0.5257 or 52.57% which is included in the moderate category. This shows that Articulate Storyline-based local content media is effective to use.

Normality test results, t-test, and n-gain on a large scale

The results of the normality test of large-scale pretest and posttest scores using the Shapiro-Wilk test. The normality test criteria state that data is normal if the significance value is >0.05, which indicates normally distributed data. Conversely, if the significance value is <0.05, the data is considered not normally distributed. The table data shows the significance value of the pretest 0.201 and posttest 0.259 which indicates the data is normally distributed because it is greater than 0.05 as shown in Table 5.

Table 5. Large-scale normality test

Test	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	0.153	20	0.200	0.936	20	0.201
Posttest	0.195	20	0.046	0.942	20	0.259

Table 6. Large-scale t-test (paired samples test)

Pair	Mean	Std. Deviation	df	Sig (2-tailed)
Pretest-posttets	-21.700	4.747	19	< 0.001

Based on the results of the pretest and post-test mean difference test in table 6, the significance value (2-tailed) is 0.001. If the level of significance value (2-tailed) is greater than 0.05, the null hypothesis (Ho) is accepted, otherwise if the significance value (2-tailed) is less than 0.05, the null hypothesis is rejected. The table shows the results of the significance value (2-tailed) 0.001 <0.05 so that the null hypothesis (Ho) is rejected and it can be seen that there is a significant difference in student learning outcomes before and after using Articulate Storyline-based media on Denok Deblong dance local content material.

Table 7. Large-scale n-gain test

Test	N	Minimum	Maximum	Mean	Std. Deviation
Ngain	20	0.37	1.00	0.5998	0.17284
Valid N (listwiss)	20				

Table 7 shows that the n-gain score of the data obtained is 0.5998 or 59.98%, including in the medium category. The score results with moderate criteria indicate that the use of Articulate Storyline-based media on Denok Deblong dance local content material is effective.

Discussion

This research uses the type of Research and Development (R&D). The resulting development is local content learning media that utilizes digital technology based on Articulate Storyline to improve the learning outcomes of fourth grade students of SDN Patemon 01. This research uses the ADDIE model with five stages of research, namely the analysis, design, development, implementation, and evaluation stages.

The analysis stage is carried out by conducting observations, curriculum analysis, material analysis, and needs analysis. Observations were made to see firsthand the condition of the classroom and the student learning environment in dance learning. Curriculum analysis is carried out by adjusting Semarang local content material, namely Denok Deblong dance which is integrated in SBdP learning by referring to the Ministry of Research and Technology regulation Number 56 of 2022 concerning guidelines for curriculum implementation in the context of learning recovery and Permendikbudristek Number 79 of 2014 concerning local content in the curriculum. Furthermore, the material analysis is adjusted to the learning competencies of the Ministry of Research and Technology Number 032 of 2024 concerning the learning outcomes of the independent curriculum. Denok Deblong dance local content material is compiled in accordance with Phase B learning outcomes in SBdP dance art subjects, then teaching materials are also obtained from supporting sources obtained through literature studies of books and journals that discuss Denok Deblong dance local content material. After that, analyze the needs of

teachers and students for the Articulate Storyline media to be developed. Teacher and student needs questionnaires were distributed in class IV SDN Patemon 01 which was the subject of the study. The results of the needs questionnaire were analyzed qualitatively and quantitatively, because the questionnaire consisted of 10 "yes" and "no" questions and 5 open questions about the content of the media needed. The analysis helped researchers gain an in-depth understanding of what teachers and fourth grade students of SDN Patemon 01 need from the development of Articulate Storyline-based local content learning media. This analysis can also be used to assist researchers in identifying possible problems that arise in developing and implementing the media.

Next is the design stage. The design is made by utilizing collaboration from various digital technology platforms such as: the Articulate Storyline application as the main application in making media, then assisted by the Canva application, and Freepik. The design stage is part of media design tailored to the needs of teachers and students that have been analyzed previously. The design stage begins with determining learning competencies, learning objectives, material content, content selection, lesson structure, and teaching strategies that will be carried out. Furthermore, the researcher made a storyboard of the media flow diagram as a construction material of the media development. After that, researchers began to do rough design and look for design materials that would be needed, starting from choosing colors, animations, fonts, audio, video, and other complementary elements. The design is done as well as possible in order to produce learning media that is effective and makes it easier for students to learn the local content of Denok Deblong dance.

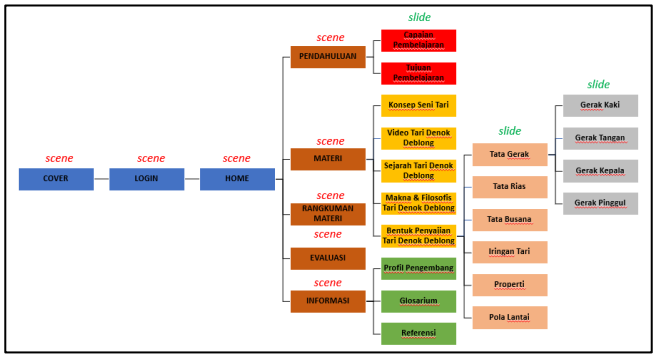

Figure 1. Media flow chart design

The third stage is to start developing learning media using the Articulate Storyline application. This stage is the process of making media from the components that have been designed and compiled in the previous stage. The development is done by making the media attractive like a learning game accompanied by navigation buttons, instructions for use, audio slider buttons, images, animations, videos, materials, evaluation quizzes, developer profiles, summaries, glossaries, and references.

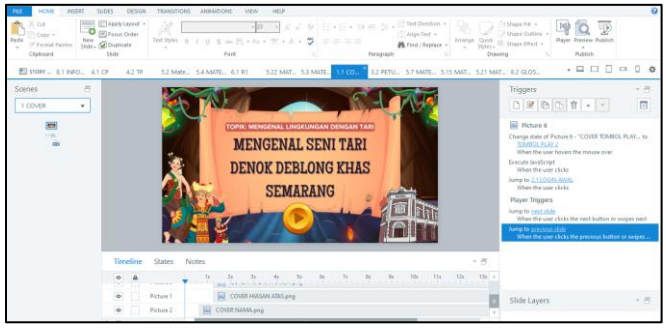

Figure 2. Illustrate media creation in the Articulate Storyline app

Figure 2 is an illustrative form of media creation in the Articulate Storyline application. The picture shows the media cover page. The media is made by utilizing the scenes and slides contained in the Articulate Storyline application.

Figure 3. Student login and identity page

Figure 4. Media main menu page

Figure 5. Local content material page

Gambar 6. Evaluation quiz page

Based on the picture, it is known that the media is made attractive with graphic illustrations and animations available. The resulting media is an interactive presentation in the form of a learning game that starts with the login page as in Figure 3, then students will be directed to the menu page in Figure 4 which contains the media content menu starting from competencies, material, material summary, evaluation, and information. In Figure 4, the menu page, there is also an audio slider button located in the lower left corner that can adjust the volume of the media background audio, besides that on the menu page there is also a user manual button located in the right corner of the media. Figure 5, shows one of the material page slides used in the media. The material is displayed attractively with supporting graphic images, concise, and light with short material content. Figure 6 shows the quiz page contained in the media. The quiz page display is made interesting with animation and graphic images so that students can be more enthusiastic about doing it. The quiz consists of 10 questions and there is access to review answers and scores that will come out immediately after working. Quizzes in the media can be used as an evaluation of student learning in understanding the Denok Deblong dance local content material contained in the media. Furthermore, the media is also equipped with a glossary, developer profile, and references that can provide further information to students related to media making.

The development of local content learning media based on Articulate Storylune requires a deep understanding of the authoring tools of digital technology available in the application such as triger wizard to add navigation buttons to move from one page to the next, mouse houver over to enlarge and reduce images, sliders, animation, and scrolling panels to summarize the display of long material so as to produce attractive interactive presentation media. The media that has been made in Articulate Storyline is then published in the form of HTML 5 so that it can be accessed on a leptop, then so that the media can also be accessed on a mobile phone, the media in the form of HTML format is then deprogrammed and converted into an android application using the help of a builder application. With proper development, it is hoped that learning media can improve student learning outcomes in understanding complex material about Denok Deblong dance local content.

The next step is to implement local content media based on Articulate Storyline in real learning for grade IV students of SDN Patemon 01 Denok Deblong dance material. Learning media is applied by introducing how to use media in learning activities in the classroom. Teachers use Articulate Storyline-based learning media to improve the delivery of learning about Denok Deblong dance local content material to students in a more interactive and interesting way. Students can be active in learning activities because students learn directly using the media. Students can read material, view videos, do evaluation quizzes directly on the media. From the activities of using the media, it can be seen that students are very enthusiastic about learning the local content of Denok Deblong dance because they can learn using cellphones with different media displays that they have never tried before.

Media implementation was conducted first on a small scale to see the initial effectiveness of Articulate Storyline-based media in learning local content of Denok Deblong dance. Furthermore, implementation is carried out on a large scale with the same learning concept on a small scale. Learning implementation is carried out by giving a pretest, continuing to use Articulate Storyline-based local content media on mobile phones, then closed with a posttest to see differences in student learning outcomes before and after using the media.

The last stage is evaluation. Evaluation is carried out to determine the extent to which learning media can meet the standards of feasibility and effectiveness in its use. Feasibility is seen from the results of material

and media validation, while effectiveness is seen from the results of pretest, posttest, and teacher and student response questionnaires. The evaluation results will show an overview of the advantages and disadvantages of Articulate Storyline-based learning media on Denok Deblong dance local content material.

The results of the feasibility data of material and media experts

The results of the feasibility assessment of material and media experts show that Articulate Storyline-based learning media on Denok Deblong dance local content material is suitable for use in learning. The feasibility assessment of material and media experts consists of 20 statements which include aspects of appearance and aspects of ease of use of the media as a reference aspect of media feasibility assessment. Learning aspects, language feasibility, and feasibility of material presentation are used as reference aspects of material feasibility assessment. The material and media feasibility assessment is carried out using a Likert scale with a score of 1 to 4, where score 1 indicates less, 2 is sufficient, 3 is good, 4 is very good. The results of the feasibility assessment of material and media experts can be seen in the Table 8.

Table 8. Recap of expert validation results

	Material expert	Media expert
Score	52	75
Maximum score	56	80
Percentage	92.85%	93.75%
Criteria	very feasible	very feasible

Based on the results of feasibility test data by experts, material feasibility gets a percentage of 92.85% and media feasibility gets a percentage of 93.75%. The results of the table show that the Articulate Storyline-based learning media is very feasible to be tested and implemented in Semarang local content learning, namely Denok Deblong dance for grade IV students at SDN Patemon 01.

Effectiveness of media use

The effectiveness of media use can be seen from the pretest and posttest learning outcomes of students before and after using the media. Pretest and posttest were tested with normality test, t-test, and n-gain. The small-scale normality test using SPSS 25 with the Shapiro-Wilk test obtained a value of 0.201 and 0.840 which is greater than 0.05 so that the data is normally distributed. Furthermore, the normal data was tested using the paired sample test with a significance value (2-tailed) of 0.001 which indicates that there is an influence on student learning outcomes before and after using the media. Then the data was tested for n-gain and scored 0.5257 or 52.57% in the medium category so that the media can be effectively used in learning. After the small-scale analysis test, then a large-scale analysis test was conducted. The large-scale normality test with the Shapiro-Wilik test obtained a value of 0.201 and 0.259 which stated that the data was normally distributed because the score value was greater than 0.05. The paired sample test on a large scale obtained a significance value (2-tailed) of 0.001 so that it can be seen that there is an effect on student learning outcomes. Then the large-scale n-gain test is known to get a score of 0.5998 or 59.98% which shows a moderate category so that the media is effectively used.

The effectiveness of the media can also be seen from the results of teacher and student media responses. Teacher and student responses can be seen from the results of the response questionnaire distributed. The response questionnaire contains 20 statements related to the content and use of Articulate Storyline media in learning local content of Denok Deblong dance. The assessment is calculated using a Likert scale with four categories of the same rating scale as the expert validation assessment category. The results of the response questionnaire can be seen in the Table 9.

Table 9. Recap of large-scale response results

	Score (percent)	Criteria
Teacher	93%	very feasible
Students	88%	very feasible

The results of the teacher and student response questionnaire to the Articulate Storyline-based local content learning media scored 93% and 88% in the very feasible category. So from these results it can be seen that the media is effective to use.

Through the results and discussion above, it shows that the use of Articulate Storyline learning media in learning local content of Denok Deblong dance can improve learning outcomes and is effective to use. This statement is also supported by the results of previous research. In research conducted by Fransisca et al. (2022) stated that Articulate Storyline media can improve learning outcomes in the material "Body Structure of Animals and Plants" and is feasible to use with n-gain results of 81% high category. Articulate Storyline media is effective to improve students' understanding of traditional illustration drawing (Prayoga & Sunaryo, 2024). Articulate Storyline learning media is valid and feasible to use in improving the learning outcomes of Tri Hita Karana local wisdom in Civics learning with an average posttest score of 78.23 for the control group and 85.87 for the experimental group (Handayani et al., 2023).

This study supports previous research on the use and development of Articulate Storyline learning media. The visible difference between this research and previous research is in the material and subjects used. This study shows that the Articulate Storyline media developed is feasible to use from the results of media material validation, effective to use from the results of the n-gain test and media response, and can improve learning outcomes from the results of the t-test and n-gain pretests posttests of students who have increased.

Conclusion

Articulate Storyline-based local content learning media was successfully developed using the ADDIE model. The results of the development of Articulate Storyline learning media on local content learning of Denok Deblong dance are declared valid and feasible to use in the learning process in the classroom. This can be seen from the media and material validation test data which each obtained a score of 93.75% and 92.85% with a very feasible category. The use of Articulate Storyline learning media is effective in improving student learning outcomes on Denok Deblong dance local content material for grade IV students of SDN Patemon 01 Semarang City. This effectiveness is evident from the results of the n-gain test which shows an increase in the average pretest posttest reaching 0.5998 or 59.98 with moderate criteria.

The results of research and development of learning media by researchers can be developed again in terms of developer design. The limitation of the developed media lies in the Denok Deblong local content dance movement images that can only be seen in two dimensions, so that further research can be developed in a sustainable manner on three-dimensional image access so that graphic images of dance movements can be seen from various sides. In addition, the shortcomings of this media still focus on students' cognitive learning outcomes, so further development is needed to design media that further stimulates students' psychomotor learning outcomes. Teachers can utilize the media that researchers develop so that teachers can also use and develop increasingly innovative learning media to support a higher quality learning process. A quality learning process assisted by learning media can improve student understanding and learning outcomes.

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The first author, E.W contributed to the research, product development, data analysis, article writing. The second author, A.N as a supervisor in research activities to writing the article.

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Conflicts of Interest

The authors knowingly confirm that no research conflicts have been reported.

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