

Designing Informatics Learning Media For Class VII Using Articulate Storyline 3 at SMPN 4 Bukittinggi



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Article History :

Submission : September 20, 2023
Revised : September 28, 2023
Accepted : October 15, 2023
Published : October 30, 2023

Keyword : Learning Media,
Informatics, Articulate Storyline 3

Kata Kunci : Media Pembelajaran,
Informatika, Articulate Storyline 3

Abstract

This research is motivated by problems at SMPN 4 Bukittinggi. From the results of interviews with teachers and students, it was found that informatics subjects still used simple teaching methods such as blackboards, books, and concept maps. This study aims to increase the efficiency of the learning process by designing computer teaching materials using Articulate Storyline 3. Researchers used the development method or research and development (R&D) in designing class VII computer learning materials at SMPN 4 Bukittinggi. The development approach used is Planning, Production, and Evaluation (PPE). From the results of the study, the researcher succeeded in designing computer teaching materials using three articulation scenarios. This teaching material can be used by teachers and students in computer science subjects. The validity test was carried out by involving four validators, and an average value of 0.83 was obtained which indicated a good level of validity. The practicality test was carried out by three examiners, and an average value of 0.89 was obtained which indicated a high level of practicality. The effectiveness test was carried out by one subject teacher and 26 students, and an average value of 0.85 was obtained which indicated a high level of effective.

Abstrak

Penelitian ini dilatarbelakangi dari adanya permasalahan di SMPN 4 Bukittinggi. Dari Hasil wawancara dengan guru dan siswa/i, ditemukan bahwa dalam mata pelajaran informatika masih menggunakan metode pengajaran sederhana seperti papan tulis, buku, dan peta konsep. Penelitian ini bertujuan untuk meningkatkan efisiensi proses pembelajaran dengan merancang bahan ajar komputer menggunakan Articulate Storyline 3. Peneliti menggunakan metode pengembangan atau research and development (R&D) dalam merancang materi pembelajaran komputer kelas VII di SMPN 4 Bukittinggi. Pendekatan pengembangan yang digunakan adalah Planning, Production, dan Evaluation (PPE). Dari hasil penelitian, peneliti berhasil merancang bahan ajar komputer dengan menggunakan tiga skenario artikulasi. Bahan ajar ini dapat digunakan oleh guru dan siswa dalam mata pelajaran ilmu komputer. Uji validitas dilakukan dengan melibatkan empat validator, dan diperoleh nilai rata-rata 0,83 yang menunjukkan tingkat validitas yang baik. Uji kepraktisan dilakukan oleh tiga penguji, dan diperoleh nilai rata-rata 0,89 yang menunjukkan tingkat kepraktisan yang tinggi. Uji efektivitas dilakukan oleh satu guru mata pelajaran dan 26 siswa, dan diperoleh nilai rata-rata 0,85 yang menunjukkan tingkat efektif yang tinggi.

INTRODUCTION

The Latin word "media" literally means "intermediary" or "introductory". In the context of education, media is a communication channel that functions as a messenger (teacher) and recipient of the message (students). Media has an important role in encouraging students to learn and assisting teachers in delivering learning material (Rakhman & F. Rahma, 2022).

In general, media includes graphic, photographic, or electronic tools used to capture, transform, and reconstruct visual information or words. Media acts as a liaison in the communication process between the sender of the message and the recipient of the message. In the context of learning media, the definition has a different focus. Learning media refers to everything that can be used by a teacher to convey or distribute learning material in a planned manner, so that students can learn effectively and efficiently (Huda, 2020).

In its use, learning media must be something that is able to stimulate students' thoughts, emotions, attention, and processing skills or abilities. The goal is to enhance the learning process in an engaging and effective way. Examples of learning media can include video media, image/media files, media and slides, printed aids such as books, graphic media, boards (whiteboards, magnetic boards, bulletins), teaching aids, and games (Hidayat & Abdillah, 2019).

SMP N 4 Bukittinggi is one of the secondary schools in Bukittinggi City which provides junior high school level education. One of the subjects taught at SMP N 4 Bukittinggi is informatics. This subject is considered a new and quite difficult subject, while the media used by teachers is still relatively simple. Teachers use whiteboards, books and concept maps as learning media.

In an interview with the Informatics subject teacher at SMP N 4 Bukittinggi, namely Mrs. Fadhilla Rahmi, S.Pd, on December 22 2022, researchers concluded that the learning media at the school was still relatively simple and students still had a poor understanding of computers. This results in practice material being hampered or delayed. Therefore, more interactive and supportive learning media, especially for informatics subjects, is very necessary to help students understand the material.

Researchers also conducted interviews with several class VII students at SMP N 4 Bukittinggi on December 22 2022. The results of these interviews concluded that students still had difficulty understanding the material because they used relatively simple media, such as blackboards and books. As a result, students' focus is sometimes diverted to activities outside of lessons.

Based on these problems, researchers want to design learning media that uses Articulate Storyline 3. The choice of Articulate Storyline 3 is based on its advantages which can make it easier to create learning media. Articulate Storyline 3 also allows the use of various types of files, text, images, videos, animations, audio visuals, etc. in creating learning media. Researchers will use Articulate Storyline 3 to design learning media that is more interactive and supports the learning process at SMP N 4 Bukittinggi.

Based on these problems, the research title raised by the researcher is "Designing Informatics Learning Media for Class VII Using Articulate Storyline 3 at SMP N 4 Bukittinggi".

METHODS RESEARCH

The research method used in this research is research and development (R&D), which aims to create specific products and evaluate their effectiveness. Research and development is an approach commonly used in the education sector to develop and validate products used in the learning process (M. Haviz, 2016) (Rijal & Sarwo Derta, 2023).

In product development, the Richey and Klein development model known as PPE (Planning, Production, and Evaluation) is used. Media development using the PPE model involves three stages, namely planning to design the product, production to make the product based on the design that has been created, and evaluation to test the extent to which the product meets the specified specifications (Okra & Y. Novera, 2019).

The stages of developing the PPE model consist of:

The following are the stages of developing the PPE model (Afrianti & H. A. Musril, 2020):

1. Planning Stage: At this stage, product planning is carried out starting from class determination, material determination, to product design.
2. Production Stage: The production stage involves the activity of making products based on previously created designs.
3. Evaluation Stage: The evaluation stage is a testing and assessment activity regarding the extent to which the product that has been made meets the specified specifications.

A. Development Stage

1. Planning

The design stage includes activities to create a product blueprint, starting with determining the class, determining the material, determining learning objectives, and ending with product design. So that the design of teaching media can support student learning activities and be more targeted and relevant. To achieve this goal, design activities begin with a needs analysis carried out through literature and field studies.

Literature studies were carried out to collect data in the form of theories supporting the learning media to be created. The sources used by researchers are research journals, learning media books, computer science textbooks and other sources that are relevant to this research. Field studies are carried out to determine student learning needs and student learning difficulties.

2. Production

After the planning stage is carried out, the next step is the production stage. Several steps are appropriate to the informatics subject matter, namely creating learning media and filling it with the materials to be taught. Then it is tested by displaying the media that has been created. So the result of this stage is learning media using articulate storyline 3.

3. Evaluation

The evaluation stage consists of several activities, including (Ikbal & H. A. Musril, 2020) (Nurleni et al., 2023):

1) Testing

In the testing stage using black box testing, the main focus is testing the functional specifications of the software. This testing involves using a predefined set of input conditions to check whether the program behaves according to predefined functional specifications. The purpose of black box testing is to identify various types of errors that may occur, such as functions that do not work correctly or even do not exist at all, errors in the user interface, errors in data structure and access, performance errors, as well as errors in the initialization and processing processes.

Before learning media products can be tested on students, a validity test stage is carried out to evaluate the suitability of the product. This verification

involves the participation of experts who have expertise in the fields of materials, language and learning media that are being developed. In this stage, an instrument is used in the form of a validity questionnaire which is useful for collecting data and assessing the extent to which the learning media product has high validity or authenticity.

The use of a validity questionnaire in the validity testing stage is very important because this questionnaire can provide insight and feedback from experts about the extent to which the learning media product reflects appropriate material, clear and appropriate language, and effective use of learning media. By involving the participation of experts, important aspects of learning media products can be assessed more objectively and comprehensively. This helps ensure that learning media products have high validity, so that they can provide significant benefits to the student learning process.

2) Practicality Test

This stage aims to obtain responses from informatics teachers and practitioners to determine the practicality of the media created. The practicality of the media is determined by drawing conclusions from teachers' and practitioners' responses to the learning media using the questions asked in the questionnaire.

3) Effective Test

Teaching material products that have been tested for validity and practicality by experts are then tested on a limited basis on informatics subject teachers and students of SMP N 4 Bukittinggi who act as respondents. Respondents' assessments were carried out by filling out a previously created effectiveness questionnaire. This stage aims to get answers and suggestions from those surveyed regarding the use of learning media. Suggestions from respondents are used to improve the product to create a product that can be used.

4) Data Analysis Stages

a) Product Validity Test

In order to produce quality products that are ready to be tested, it is important to carry out product validity tests in this research. The validity test was carried out by involving several experts who have expertise in related fields. The testing process is carried out by comparing the product assessment questionnaires that have been prepared. The results of this validity test are then processed using the Aiken V statistical formula which is a reference in the analysis process.

At the validity testing stage, expert participation is very important to ensure that the product being developed meets the expected validity criteria. Experts will evaluate and compare the product assessment questionnaires that have been prepared, referring to their knowledge and experience in the related field. This is done to ensure that the questions and indicators in the questionnaire can measure the desired construct accurately and reliably (M. Haviz, 2016).

After involving experts in the validity testing process, the results of the product assessment questionnaire will be analyzed using the Aiken V statistical formula. This formula is used as a tool to measure the level of validity between the questions in the questionnaire and the construct to be measured. By referring to the Aiken V formula, the validity value of each question in the questionnaire can be obtained, so that it can be identified whether the question effectively reflects the construct you want to measure.

The analysis process using the Aiken V statistical formula helps researchers evaluate the validity of the product being developed. The results of this analysis can provide valuable insight in determining the extent to which product assessment questionnaires are reliable in measuring the desired construct. Thus, product validity testing is an important step in ensuring product quality and reliability before further testing is carried out.

$$V = \sum s / [n(c - 1)]$$

Table 1. Criteria for Determining the Validity of Aiken's V (Fikri & H. A. Musril, 2021)(Sari et al., 2023):

Presentase %	Criteria
0,6 <	Invalid
$\geq 0,6$	Valid

b) Product Practicality Test

User evaluation is the second important factor that contributes to the quality of learning products, especially in terms of practicality. Research conducted by Nieveen states that practicality can be measured by involving evaluation from users. In this case, assessments from teachers and other experts determine the extent to which learning material is easy for teachers and students to use.

In developing a learning model, achieving a good level of practicality can be considered successful if experts and practitioners state that the model can be applied theoretically in the field and the level of implementation is considered "good". In this case, the opinions of educational experts and practitioners are important to assess the extent to which this learning model can be applied easily and successfully in the real world (P. Setiawati, 2018).

To analyze the level of product comfort, analysis can be carried out on the results of the Product Comfort Questionnaire. One method that can be used in this analysis is the kappa moment method, which aims to measure the level of agreement between different observers in assessing product comfort. By using the kappa moment, it can be indicated to what extent observers have high agreement in assessing the comfort of the product (Ulandari et al., 2022).

In order to improve the quality of learning products, it is important for developers and designers to pay attention to the level of practicality and comfort. By involving user evaluations, such as teachers and education experts, they can get valuable feedback and make necessary improvements. Analysis using the kappa moment method can also provide insight into the level of agreement in product comfort ratings. Thus, developers can ensure that the learning products developed are not only theoretically affordable, but also comfortable to use by end users(A. Rokhman, 2017).

$$k = \frac{p-pe}{1-pe}$$

Table 2. Criteria for Determining the Practicality of Moment Kappa(Ulfa et al., 2022):

Interval	Category
0,81 – 1,00	Very High
0,61 – 0,80	Tall
0,41 – 0,60	Currently
0,21 – 0,40	Low
0,01 – 0,20	Very Low
≤0,00	Not Practical

c) Product Effective Test

Analysis of the effectiveness of this media is determined by evaluating questionnaires filled out by teachers and students in that subject. The results of the effectiveness test questionnaire are processed by referring to Richard R. Hake's statistical formula (G-Score) as follows(F. Fajri, 2020):

$$<g> = \frac{<s> - <s_i>}{(100 - \%<si>)}$$

RESULT AND DISCUSSION

RESULT

1. Initial Research

1) Study Of Literature

This research refers to various reference sources, such as books and journals related to the research topic. These reference sources were used to support and inform the preparation of this research. Apart from books and journals, researchers also refer to other reference sources, including theories and concepts related to designing learning media in the context of informatics learning.

Reference sources in the form of books and journals provide a strong theoretical foundation for this research. Researchers collect information and understanding from related research that has been carried out previously, existing theories, and concepts related to designing informatics learning media. This information and understanding becomes a solid basis for designing and developing effective learning media (C. E. Widyahening, 2018).

Apart from that, researchers also examined reference sources that focus on designing learning media in the context of informatics learning. These reference sources provide specific and relevant insights into effective design strategies in teaching and studying informatics subjects. Researchers gain an understanding of design principles, development techniques, and approaches that can be applied in designing optimal learning media to facilitate informatics learning (N. P. Adiputra, 2020).

By referring to these various reference sources, this research can explore and present a comprehensive and current theoretical basis for designing informatics learning media. This helps researchers produce learning media products that are based on trusted and tested knowledge and understanding. By utilizing various reference sources, this research can make a significant contribution to the development of effective and innovative learning media in the context of informatics learning (Khomarudin et al., 2018).

2) Study Field

In this research, the method used to collect data regarding the use of informatics learning media is through field interviews. Researchers conducted a direct interview with one of the subject teachers at SMP N 4 Bukittinggi to understand in depth the use of informatics learning media in the classroom. The results of the interview show that teachers currently use whiteboards, concept maps and books, but are not yet fully effective in supporting the learning process. Therefore, researchers designed learning media as an alternative solution.

In designing this learning media, the researcher chose to use articulate storyline 3 software. The use of this software provides flexibility and the ability to create interactive and interesting learning media for students. By using articulate storyline 3, researchers can combine various multimedia elements such as text, images, video and animation to create a more dynamic and effective learning experience.

Apart from that, in making this learning media, researchers used the fishbone diagram analysis method. Fishbone diagrams, also known as cause-and-effect diagrams or Ishikawa diagrams, are analyzes used to identify and manage possible causes of certain effects. This method was developed by Kaoru Ishikawa, a management expert from Japan, and was first introduced as a learning technique. In the context of creating informatics learning media, researchers use the fishbone diagram analysis method to analyze various aspects related to the development of learning media. This diagram helps in identifying the root causes of problems and provides a strong basis for designing more effective learning media (S. Defiyanti, 2015).

By combining the use of articulate storyline 3 software and the fishbone diagram analysis method, researchers can create well-structured informatics learning media. Through analysis carried out using fishbone diagrams, researchers

can identify various problems that arise in informatics learning and design appropriate solutions. This helps in producing learning media that can improve students' understanding and skills in informatics subjects.

2. Design

1) Navigation structure design

a. Menu Navigation Structure

The menu navigation structure is the menu flow used in designing informatics learning media. Menu navigation structure for designing learning media.

b. Material Navigation Structure

The material navigation structure is the flow of material contained in informatics learning media. Navigation structure of informatics learning media design material.

c. Storyboard Design

Images and scans, design views, audio, and storyboard design descriptions. The resulting storyboard design serves as a model for presentations and learning media.

Table 3. Storyboard Design

<i>Scane</i>	Information
<i>Scane 1</i>	Main Course
<i>Scane 2</i>	Intruccion
<i>Scane 3</i>	Information
<i>Scane 4</i>	Competence
<i>Scane 5</i>	Material
<i>Scane 6</i>	Evaluation
<i>Scane 7</i>	Profile

d. Interface Design

This learning media is designed for junior high school level, so the design is made simple so that students are interested in using this learning media. The following is the interface design for informatics learning media.

3. Evaluation

1. Testing

At the evaluation and testing stage of learning media, a series of tests are carried out to determine the level of test completeness. If errors or deficiencies occur, corrective steps will be taken to improve the learning media. However, if all the testing processes go well and according to expectations, the next stage is the distribution of learning media to users. During this testing phase, all data obtained during the learning media production process will also be entered and evaluated.

One of the testing methods used in the trial phase is the black box method. In black box testing, learning media is tested by examining the software interface. The purpose of this testing is to ensure that all the functions in the learning media work well. This means that the input provided is recognized correctly by the learning media, and the output produced by the learning media is also correct. Apart from that, black box testing also evaluates the ability of learning media to carry out integration between parts harmoniously and effectively.

By using the black box method, learning media developers can ensure that the products they develop function well and can meet user needs. This testing helps in identifying and correcting errors that may occur in learning media before it is distributed widely. In this way, users will get quality and reliable learning media to support the learning process.

2. Product validity test result

The results of the media expert validation questionnaire sheet are Ms. Widya Wahyuni, S.Pd., M.Kom with a score of 0.77, the language validation questionnaire is Ms. Sri Rezeki, S.Pd with a score of 0.93, and the material aspect validation questionnaire is Ms. Susanda Febriani, A.Md with a score of 0.87, and a questionnaire from an education lecturer, namely Mr. Dr. Supratman Zakir, M.Pd., M.Kom with a score of 0.75 obtained a final score of 0.83, namely using the Aikens statistical formula, so the value of this learning media is declared valid.

3. Product practicality test result

The results of the product practicality test were aimed at three informatics teachers. After completing the process of calculating the practicality sheet for the informatics teacher, namely Mrs. Susanda Febriani, A.Md, with a score of 0.88, then Mrs. Isra Febrianti, S.Pd with a score of 0.91, and Mr. Idryansyah, S.Pd with a score of 0.90, The final value was 0.89 after applying the moment kappa formula, the practical value was in the interval 0.81–100 in the very high category.

4. Product effective test result

After calculating the effectiveness sheet of 1 informatics teacher and 26 students, the final score was 0.85. Thus, it can be concluded that the learning media effectiveness test that the researchers conducted had a high level of effectiveness.

DISCUSSION

The result of this research is the development of informatics learning media specifically designed as a tool for teachers in delivering material to students. This informatics learning media includes four materials and three evaluations. The first material/evaluation relates to informatics and generic skills, the second material/evaluation focuses on computational thinking, the third material/evaluation discusses information and communication technology, and the fourth material concerns computer systems.

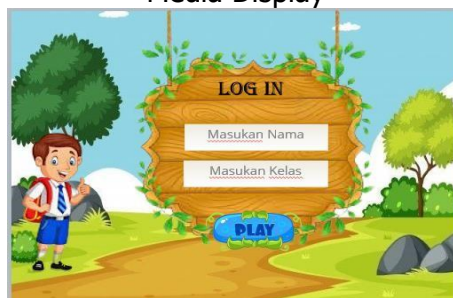
In its implementation, this informatics learning media is applied in informatics subjects for class VII at SMP N 4 Bukittinggi, using the storyline articulate 3 application. The teaching materials provided in this learning media function as support in informatics learning by providing instructions, information, competencies, materials, evaluation, and profile. The aim of developing informatics learning media is so that students become more enthusiastic and interested in studying this subject.

To support the validity, practicality and effectiveness of informatics learning media, researchers used questionnaires or questionnaires which were distributed to students. Data obtained from the questionnaire was used to analyze the level of validity, practicality and effectiveness of informatics learning media. The results of this analysis can be found in the attachment to this research thesis.

Furthermore, this research makes a comparison with relevant research conducted by Si Luh Made Intan Pebriyanti, Dewa Gede Hendra Divayana, and Made Windu Antara Kasiman in 2021. The research is entitled "Development of Multimedia Learning Materials in Class VII Computing at SMP Negeri 1 Seririt". In this research, multimedia learning materials were also produced. The difference between the two studies lies in the research location and research methods used, even though both use the same software to produce multimedia teaching materials.

By referring to previous research and comparison with relevant research, this research contributes to the development of informatics learning media that can improve the quality of learning in class VII SMP.

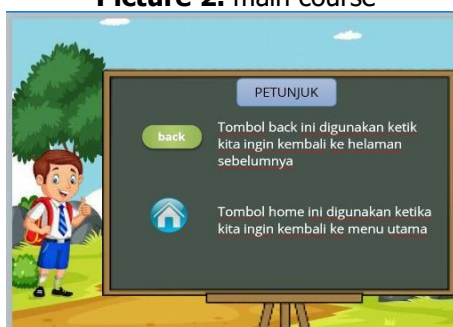
Media Display



Picture 1. login menu



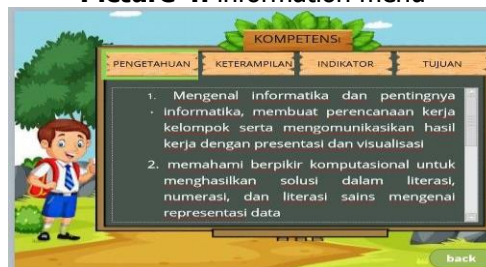
Picture 2. main course



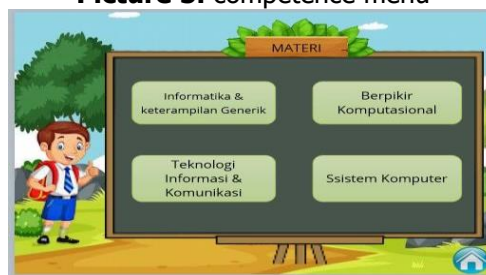
Picture 3. instructions menu



Picture 4. information menu



Picture 5. competence menu



Picture 6. material menu



Picture 7. evaluation menu



Picture 8. profile menu

CONCLUSION

After carrying out the research and discussion described in the previous chapter, it can be concluded that the informatics learning media that has been designed using the articulate storyline 3 application has been successful. Through the use of technology-based learning media, it is hoped that it can provide significant assistance to educators in the learning process, as well as help class VII students at SMPN 4 Bukittinggi understand and master informatics subjects.

It is hoped that the presence of this learning media can be an effective tool to help students learn informatics material. With an interactive and interesting approach, this media can facilitate a better understanding of complex informatics concepts. Apart from that, this learning media also aims to foster students' interest and enthusiasm for learning, inspiring them to explore the world of informatics more enthusiastically.

Apart from the benefits for students, the use of this learning media also has a positive impact on informatics teachers. With media that has been designed by researchers, teachers can optimize their teaching process better. This media can be a valuable resource for teachers to enrich learning material, convey information in a more interesting way, and facilitate better interaction between teachers and students.

Overall, it is hoped that the development of informatics learning media can make a positive contribution in improving the quality of learning at SMPN 4 Bukittinggi. With interactive, interesting and technology-based learning media, it is hoped that students can develop a deeper understanding of informatics subjects, as well as encourage their interest and enthusiasm in learning. Apart from that, this media can also be a valuable tool for teachers in teaching, enriching the learning experience, and creating a more inspiring learning atmosphere.

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